Universidad de Valladolid

FACULTAD DE FILOSOFÍA Y LETRAS

DEPARTAMENTO DE FILOLOGÍA INGLESA

TESIS DOCTORAL:

The Concept of 'Genetic Modification' in a Descriptive Translation Study (DTS) of an English-Spanish Corpus of Popular Science Books on Genetic Engineering: Denominative Variation, Semantic Prosody and Ideological Aspects of Translation Strategies

Presentada por Mª Cristina Bayón García
para optar al grado de doctora en
Traducción e Interpretación

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Doctorado internacional

Valladolid 2013

To my supervisors

Acknowledgements

I used to think that a good piece of work was the result of a brilliant mind but, after accomplishing this PhD dissertation, I realized that the crucial element is the help and support given by the experts that inspired me for this project. The experts I owe my greatest debt of gratitude are my Ph.D. supervisors. It is not easy to find the appropriate words to thank them for their valuable advice and guidance when they have shared so much of their time and knowledge with me.

Throughout all the time devoted to this dissertation, I would like to express my gratitude towards my PhD supervisor Prof. José María Bravo, for having been supportive of my work and enthusiastic about my ideas. I am so very grateful to him for his recommendation of heading to Norway for the alignment of the corpus and for providing everything I needed at the Institute for Bilingual Terminology and Specialized Translation (ITBYTE/CITTAC) at Universidad de Valladolid (UVa).

It has also been my good fortune to have drawn upon the friendship and expertise of Dr. Gibson Ferguson, as his everyday support and his faith in me moved mountains. I would like to note my profound gratitude to him for being my supervisor during my stay at the University of Sheffield (UK). Back home in Spain, his generosity of spirit, his encouraging feedback, and the sharing of his time and wisdom in spite of the distance made that I worked on this dissertation with much more energy than I expected.

With regard to the rest of the stays abroad, I am deeply indebted to Prof. Guy Cook for being my supervisor at the Open University during my four-month stay in Milton Keynes (UK) and for showing me his way of working, which was a constant source of motivation.

I am also extremely grateful to Knut Hofland for being my supervisor during my six-month stay at the University of Bergen (Norway) and for making me feel at home at UniComputing, formerly UNIFOB/AKSIS (Department of Language, Culture and Information Technology). I appreciate more than I can say that he supervised the corpus alignment and other technical matters as well as for strengthening the bonds of friendship beyond supervision.

At the same time, I am deeply grateful to family and friends for their moral support and sacrifice when it was most needed. My heartfelt gratitude is also for my friend and colleague, Paula de Santiago, to whom I do thank for the insightful and fruitful discussions about terminology. Other faculty members in the UVa, Dr. Beatriz Méndez and Dr. Isabel Pizarro have been a balsam of unconditional support. Other colleagues, Dr. Müge Satar and Dr. Maria Leedham, from the Open University, and Dr. Teun van Dijk, from Universitat Pompeu Fabra, have been very helpful in providing references and help. The group of Isabel Bermejo from *Ecologistas en Acción* was crucial for making progress in the research at the initial stages. And my undergraduate students of the *Corpus Linguistics* course (Spring semester 2013) also made me thrive on hard work.

The beautiful design of the cover is thanks to the 3D modeler, Rubén Martínez, **http://www.ruben-martinez.com/**, who has made the proofreading much more appealing.

As for the funding, I am grateful to *La Junta de Castilla y León*, institution from which I received my PhD scholarship.

I also had the support of a *Marie Curie fellowship* –Multilingua– that allowed me to carry out the alignment of the parallel corpus in Bergen (Norway).

MULTILINGUA

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CONTENTS [unabridged]

LIST OF ACRONYMS AND ABBREVIATIONS

General list

CL	Corpus Linguistics
DM	Discourse marker
DTS	Descriptive Translation Studies
DU	Discourse Unit
DV	Denominative variation
GE	Genetic Engineering
GE_P-ACTRES	The complete corpus for this PhD dissertation
GL	General Language
GM	Genetically Modified
GMO	Genetically Modified Organism
L1	Left collocates (e.g. one to the left of the node)
LGP	Language for General Purposes
LSP	Language for Special Purposes
NP	Noun Phrase
OCR	Optical Character Recognition
PP	Prepositional Phrase
PU	Phraseological unit
R2	Right collocates (e.g. two to the right of the node)
sci	*sci corpus*
Sci pop	Scientific popularization
SL	Source Language
SP	Semantic prosody
soc	*soc corpus*
ST	Source Text
TL	Target Language
TM	Translation Memory
TT	Translated Text
TU	Terminological unit
USK	Units of Specialized Knowledge
5MH	Book number (5), author initials (MH)
BL19E.s71	Author initials (BL), chapter number (19), corpus (English), and sentence number (17)

British and American organisms

ACFNP	Advisory Committee on Novel Foods and Processes, an independent body of experts, advises on the health aspects of all applications to market novel foods in the UK. It was the ACNFP that first raised concerns about antibiotic-resistance marker genes in foods produced using GM ingredients
ACRE	Advisory Committee on Releases to the Environment, a body made up of independent scientists, which since 1997 has operated within the GM Policy and Regulation Unit of DEFRA (Department for Environment, Food and Rural Affairs) [UK]
CVM	FDA's Center for Veterinary Medicine
EPRI	Electric Power Research Institute [US]
OTA	Office of Technology Assessment [US]
PTO	U.S. Patents and Trademark Office (PTO) [US]
RAFI	Rural Advancement Foundation International (ETC Group)
WWF	World Wide Fund for Nature

Regulation of GMOs in the US is through:

EPA	Environmental Protection Agency
CFSAN	FDA's Center for Food Safety and Applied Nutrition
FDA	Food and Drug Administration
USDA	United States Department of Agriculture

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SUMMARY OF THE MAIN POINTS IN SPANISH

(This section is part of the fulfillment for the International PhD certification)

Resumen de los principales aspectos tratados en la presente tesis que lleva por título: "*El concepto de 'modificación genética' a través de un Estudio Descriptivo de Traducción (DTS) de un corpus inglés-español de libros de divulgación científica sobre ingeniería genética: Variación denominativa, prosodia semántica y aspectos ideológicos de la traducción*".

La presente tesis doctoral sigue el esquema que se muestra a continuación:

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1. Introducción

La presente tesis se centra en la extracción de los términos más frecuentes pertenecientes a un corpus de ingeniería genética. La extracción de los resultados del corpus sobre ingeniería genética está orientada a examinar tres fenómenos lingüísticos (variación denominativa, prosodia semántica y aspectos ideológicos de estrategias traductológicas), como se muestra a continuación:

CORPUS PARALLELO: <u>TO: Inglés</u> <u>TM: Español</u>	**Objetivo 1:**	**<u>Variación denominativa (Terminología)</u>** (Listas de palabras clave y términos)
	Objetivo 2:	**<u>Prosodia semántica (Fraseología)</u>** (*Concord function* & *AKSIS Search form*)
	Objetivo 3:	**<u>Estrategias traductológicas</u>** **(Estudios de Traducción)** (*AKSIS Search form*)

Fig. 1.1[1]: *Diagrama de los materiales (corpus paralelo) y objetivos de estudio.*

1.1. Objetivos y motivación

El objetivo general de este proyecto consiste en examinar el concepto de *modificación genética* a través de 3 fenómenos lingüísticos: la variación denominativa, la prosodia semántica y los aspectos ideológicos de las principales estrategias de traducción observadas en el corpus seleccionado para este estudio. Éste no sólo se centra en las características lingüísticas que definen el discurso de la divulgación científica (*objetivo 1*), sino también en aquellas que transforman el discurso científico en cultural, social e incluso en discurso político (*objetivo 2*). El primer objetivo se centra en estudiar las características predominantes de la divulgación científica, tanto en el corpus de lengua inglesa (TO) como en el de lengua española (TM), mediante la ayuda de listas de palabras (*wordlists*), de palabras clave (*keywords*) y de términos. El segundo objetivo tiene como propósito comparar las prosodias semánticas de términos en las dos lenguas de trabajo con la ayuda de *Concord* en *Wordsmith Tools 5* y de un programa de búsquedas que alberga concordancias bilingües (*AKSIS search form*), desarrollado en la Universidad de Bergen (Noruega).

[1] The illustrations (e.g. figures and tables) maintain the numerical sequence of the original English version.

En cuanto a la elección de la temática de los textos o lenguaje de especialidad, los textos que conforman el corpus se han seleccionado por una serie de razones. La temática provoca un desafío lingüístico si se asume que la problemática actual sobre los organismos modificados genéticamente tiene un correlato lingüístico. A esto se une que las estrategias traductológicas son varias teniendo en cuenta que términos como *genetically engineered* no tiene una traducción directa en español.

Las dificultades que se derivan de la traducción de fenómenos lingüísticos como la variación denominativa, la prosodia semántica y la inserción de ideología convierten estos tres elementos en las características distintivas de la presente tesis.

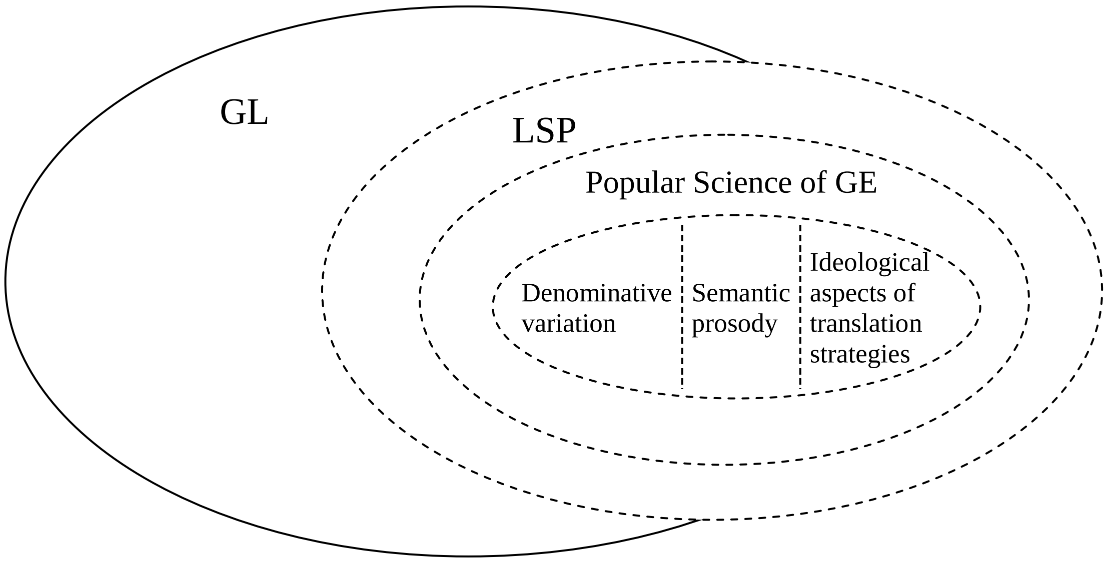

Fig. 1.2: *Ilustración de la relación entre la lengua general (GL) y el lenguaje de especialidad (LSP) (libros de divulgación científica sobre ingeniería genética) junto con los tres aspectos a estudiar en la presente tesis (variación denominativa, prosodia semántica y estrategias traductológicas).*

Estos tres fenómenos lingüísticos serán el objeto de estudio de nuestro corpus compilado a base de libros de divulgación científica. Las razones por las que se ha elegido este corpus son varias, entre ellas podemos destacar que el género de los libros de divulgación aún está por ser estudiado exhaustivamente; es además un género donde el debate está servido, debido a las ideas frecuentemente contrapuestas de los principales participantes; y, por último, el estatus del inglés como *lingua franca* hace que géneros que se dan en niveles comunicativos de experto a experto (e.g. en inglés) vayan desapareciendo en otras lenguas como en el caso del español, el cual queda relegado a entornos divulgativos, valgan de ejemplo, los libros de divulgación científica. Por esta razón, el capítulo 2 trata de la divulgación científica como lenguaje de especialidad, distinguiéndolo del lenguaje general a base de unas características marcadas en el lenguaje especializado, como son la frecuencia de variantes denominativas de los términos especializados clave o más prominentes.

El capítulo 3 introduce el marco teórico de la variación denominativa dentro de la rama de la terminología, junto con el fenómeno de la prosodia semántica y aspectos ideológicos de la traducción interlingüística. La prosodia semántica es un rasgo pertinente que merece la pena estudiar por la sencilla razón de que las variantes denominativas seleccionadas pueden mostrar síntomas de prosodia semántica, favorable, desfavorable o neutral, a pesar de que los términos, se asume, están exentos de cualquier tipo de intención semántica. Y reiteramos que pueden mostrar síntomas debido a que la divulgación científica de algunos de los libros que componen este corpus aparece como un género muy dado a los juicios de valor. La función potencial de las expresiones de valoración, que muchas veces no son fáciles de identificar dentro del discurso, puede afectar a la objetividad del lenguaje científico al revelar el escritor cierta subjetividad sobre el tema a tratar, en este caso la ingeniería genética, no exenta de controversia en lo que respecta al colectivo, por ejemplo, de consumidores. Además de la prosodia semántica, la última parte del capítulo 3 está dirigida a la investigación de aquellas estrategias tomadas por el traductor que exhiben algún tipo de rasgo ideológico, diferente de la versión original del texto fuente.

1.2. Preguntas de investigación

Estos apuntes teóricos sobre el marco epistemológico de estudio nos sirven para estructurar las preguntas de investigación de la siguiente manera:

- VARIACIÓN DENOMINATIVA.

  ¿Cuáles son las diferentes variaciones denominativas de los *organismos modificados genéticamente* (e.g. *genetically engineered food, genetically modified food, Frankenstein foods, mutant potatoes, GM foods*)? ¿Hay algún correlato lingüístico que asocie una determinada variante denominativa con un término clave en particular? ¿Hay algún libro de los que conforman el corpus que muestre una mayor tendencia a la variación denominativa? ¿Depende la variación denominativa del lenguaje utilizado, del nivel de especialidad, del tema del que trata el corpus o del tipo de autor que ha escrito el libro?

- PROSODIA SEMÁNTICA.

  Algunas de las variantes denominativas como por ejemplo, *genetically engineered, modified* o *manipulated,* entre otras ¿muestran algún rasgo de objetividad o de valoración? ¿Hay alguna variación denominativa que sugiera algún tipo de prosodia semántica? Y si se da el caso, ¿se trata de prosodia semántica positiva o negativa?

- IDEOLOGÍA EN LAS ESTRATEGIAS TRADUCTOLÓGICAS.

  ¿Es el corpus de español más propenso a mostrar variación denominativa o es el de lengua inglesa? ¿Es la traducción de variantes denominativas más prolífica en número si lo comparamos con las que se muestran en el texto origen? ¿Se da la estrategia de la explicitación, uno de los universales de traducción, a la hora de traducir variantes denominativas? ¿Se mantienen las mismas prosodias semánticas del original a la hora de traducir? ¿Qué tipo de equivalencia se manifiesta en la traducción de variantes denominativas y prosodias semánticas?

La respuesta a estas preguntas pretende contribuir a la práctica de la traducción especializada enriqueciendo la enseñanza y aprendizaje de rasgos lingüísticos pertenecientes a los lenguajes de especialidad.

Debido a que el estudio de la prosodia semántica se ha extendido gracias a la difusión que le ha otorgado la lingüística de corpus, dedicaremos una sección dentro de la metodología, a desarrollar la contribución de esta disciplina a los estudios lingüísticos. En el capítulo de la metodología también se explican los pasos a seguir a la hora de compilar y explotar el corpus especializado, junto con las fases que traza Toury (1995) para llevar a cabo un estudio descriptivo de traducción (DTS). La compilación pone de manifiesto que la variedad de autores de los libros que conforman el corpus se puede agrupar en dos categorías. La primera abarca autores científicos expertos (*corpus sci*) y la segunda, es un grupo misceláneo de periodistas, ecologistas y economistas (*corpus soc*).

1.3. Hipótesis: VD, PS y Estrategias traductológicas

Una vez establecidas las líneas de investigación del marco teórico, el método de análisis (DTS), la herramienta analítica (lingüística de corpus) y los datos empíricos (corpus de ingeniería genética), podemos hacer un esquema de la estructura del presente estudio (fig. 1.3) y delinear las hipótesis de trabajo:

i) Partimos de la hipótesis de que el nivel de especialidad de cada uno de los textos del corpus no es homogéneo. Dada la naturaleza de los diferentes autores, se espera que las variantes denominativas varíen dependiendo del autor además del tipo de discurso, por lo que las variantes denominativas podrían ser más abundantes en el corpus *soc* que en el *sci,* dando como resultado un tipo de discurso y nivel de especialidad diferentes dentro del mismo nivel comunicativo (divulgación científica). Al mismo tiempo se espera que las variantes denominativas que acompañan a términos subtécnicos sean mayor en número y diferentes a las que colocan con términos técnicos. Es decir, que se prevé que las variantes estén motivadas lingüísticamente, algunas con un significado desviado del contexto científico (e.g. *manipulated* vs *engineered*).

EMPIRICAL DATA → Specialized language (LSP): Popular science

METHOD (Analytical model) → Descript. Trans. St. (DTS)

ANALYTICAL TOOL → Corpus Linguistics (CL)

OBJECT OF ANALYSIS		
Terminology **(denominative variation)**	***Phraseology*** **(semantic prosody)**	***Translation Studies*** **(translation strategies and ideological aspects)**

Fig. 1.3: *Mapa conceptual junto con el triple objeto de estudio.*

ii) Las hipótesis que se relacionan con la prosodia semántica tienen que ver con el hecho de que este fenómeno tiende a ocurrir en el contexto de la lengua general. Sin embargo, como la divulgación científica es el estrato más bajo dentro de los niveles comunicativos de especialidad creemos que los rasgos lingüísticos de la prosodia semántica se verán reflejados en nuestro corpus de biotecnología y con más fuerza en el corpus *soc*, quizá más que en el corpus de escritores científicos (*sci*). A pesar de que los términos están desprovistos de carga emocional, creemos que algunas variantes denominativas mantienen esta característica mientras que otras pueden mostrar rasgos de un lenguaje evaluativo. Términos como *genetically engineered* y *genetically modified* pueden no exhibir prosodia semántica. Dicho de otro modo, muestran una prosodia semántica neutral, mientras que *altered* y *manipulated* pueden ser vulnerables a desarrollar un tipo de prosodia semántica que muestre juicios de valor tanto positivos como negativos debido a la preferencia colocacional con elementos léxicos que expresen aspectos convencionalmente favorables o desfavorables (*risks, concerns, opposition*).

iii) En cuanto a las estrategias de traducción, se espera que la traducción de términos implique un seguimiento fiel de la versión original (*foreignization*) mientras que la traducción de aquellos elementos a los que se asocie un tipo de prosodia semántica se traducirán de una manera más abierta adaptada a la lengua meta (*domestication*) por lo que las estrategias de traducción serán variadas dependiendo del método de traducción elegido.

2. La divulgación científica como Lengua Especializada (LSP)

El marco teórico tiene por objeto examinar el estado de la cuestión de las disciplinas sobre las que se sustenta el futuro análisis. La primera de ellas es la disciplina que se ocupa de los lenguajes de especialidad ya que la presente tesis investiga textos sobre ingeniería genética cuyo léxico, lo hemos considerado, como lenguaje de especialidad.

2.1. Lengua General vs Lengua de Especialidad (LSP)

Los lenguajes especializados se nutren de una serie de recursos que los hacen reconocibles, distintivos y diferentes de la lengua general del día a día. Uno de esos rasgos diferenciadores es la terminología, junto con el uso específico que se hace del lenguaje, cuya base es la lengua general.

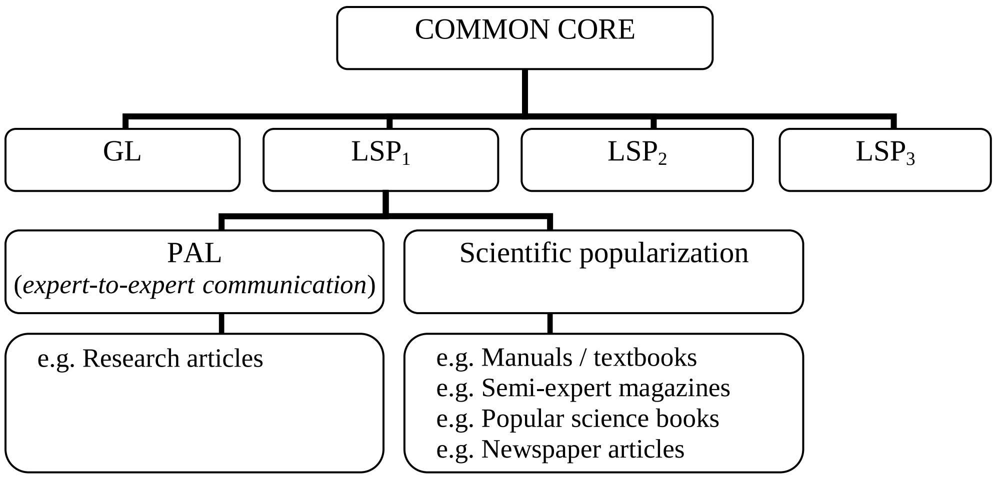

Fig. 2.1: *Diagrama de la lengua general (GL) y los diferentes lenguajes de especialidad (LSP) dentro de los cuales se encuentra PAL y la divulgación científica.*

La especificidad de un lenguaje recibe la denominación de *PAL*, que es una propuesta de Edo Marzá (2008: 12-13) para designar a los lenguajes de especialidad desde los más a menos especializados. Sin embargo, en esta tesis, PAL tiene un uso restringido para designar los lenguajes más especializados, es decir, la comunicación entre expertos. El resto de niveles entre PAL y la lengua general se podrían denominar *divulgación científica* (*scientific popularization*) de los que el más bajo en especialización de conocimientos, *popular science*, es el nivel empírico que encontramos en nuestro corpus de libros divulgativos.

2.2. ¿Qué son los Lenguajes de Especialidad?

2.2.1. El modelo tripartito de Cabré (1993)

A parte de esta clasificación entre PAL y divulgación científica, cabe resaltar los tres criterios principales para clasificar un lenguaje de especialidad, que son los siguientes: el criterio temático, el comunicativo y el formal (basado en el modelo de Cabré 1993). El primero se refiere a que hay temas prototípicos que se identifican con lenguajes de especialidad reconocidos (e.g. medicina, derecho, biología). Este criterio es insuficiente para identificar un lenguaje de especialidad como tal, ya que en la conversación del día a día también hacemos uso de temas especializados pero desprovistos de un tratamiento especializado. Son en realidad los factores comunicativos los que diferencian qué lenguajes son especializados y en qué medida. En cuanto a los factores comunicativos, destacan a su vez tres: el pragmático, el funcional y el lingüístico. Por último, el criterio formal, al igual que los criterios comunicativos, también es definitorio. Este último criterio, el formal, es el que concierne a la noción de *género*.

Si profundizamos en el criterio temático, éste se establece con el propósito de transmitir conocimiento, y se observa que los debates éticos están a la orden del día en los géneros de divulgación científica siendo parte de su temática. El criterio comunicativo contempla la variedad de receptores y de funciones del lenguaje (además de la referencial) que puede tener un género de divulgación, además del hecho de que cuanto más bajo es el nivel de especialidad, más elementos redundantes y metalingüísticos encontraremos. El criterio formal alberga la idea de que la divulgación científica es una reescritura de género que parte de la estructura de los artículos de investigación (IMRD). Tiene, en general, la divulgación científica un punto de vista y una figura autorial diferente al de los géneros más especializados (PAL) siendo la divulgación un género denominado *narrative of nature* mientras que PAL se puede considerar como *narrative of science* (Myers 1990: 185). Por lo tanto, podemos argumentar que la divulgación científica es la reescritura de *narrative of science* (PAL) convertida en *narrative of nature* (divulgación científica).

2.2.2. El criterio formal: El concepto de *género*

Aunque existen pautas tanto externas (visuales o de formato) como internas (*moves*) para clasificar géneros, no debemos olvidar otros dos rasgos clasificatorios. Éstos comprenden el carácter funcional del que está dotado un género especializado (transmitir conocimiento especializado) y un determinado nivel de especialidad (teniendo en cuenta a emisores y receptores).

En cuanto al primero, se puede afirmar que el registro especializado va perdiendo rasgos de especialidad cuando más de una función (la referencial) aparece en el texto. Además, cuanto menos especializado sea el texto más cabida se da a fenómenos como la polisemia, la connotación, la variación léxica (denominativa), la reformulación y la ambigüedad.

En cuanto al segundo, el grado de especialidad se ha estructurado en diferentes niveles que han recibido denominaciones distintas. La clasificación más apropiada consideramos que es la de Pearson (1998) que los denomina *communicative settings* y, dentro de éstos, encontramos el nivel de divulgación científica *–relative expert to uninitiated communication–* que es el que hallaremos en nuestro corpus. Aplicaremos los tres criterios (temático, comunicativo y formal) que nos ayudarán a delimitar el nivel de divulgación científica de nuestro corpus, y por tanto, el nivel de especialidad.

2.3. ¿Qué es la Divulgación Científica?

La última parte de este capítulo dedica toda su atención a examinar cuatro géneros divulgativos, que son, las revistas semi-especializadas, los manuales universitarios, los libros de divulgación y los artículos divulgativos de periódicos. El género que nos atañe, los libros de divulgación, junto con los artículos de periódico, dan cabida a los debates que están mucho más abiertos a la inserción de juicios de valor en comparación con el discurso que encontramos en los manuales o en las revistas semi-especializadas como *Scientific American*.

3. Objeto de estudio:

La Variación Denominativa (VD), la Prosodia Semántica (PS) y las estrategias traductológicas (aspectos ideológicos de la traducción)

Los libros de divulgación se nutren de la lengua general y de un número muy bajo de unidades terminológicas (UT) y fraseológicas (UF) pertenecientes a los lenguajes especializados entre expertos (PAL). Los libros que conforman nuestro corpus contienen términos destinados a explicar las técnicas de la ingeniería genética y nos recuerdan al lenguaje empleado en los PAL. Una peculiaridad del discurso de los libros de divulgación radica en que los términos clave co-existirán con una serie de variaciones denominativas y, al mismo tiempo, con aquellas cuestiones que generan debate, siendo estos dos rasgos, dos de los aspectos que caracterizan a los libros de la divulgación científica, además de por tener el nivel de especialidad más bajo del *continuum* de especialización. En cuanto a la prosodia semántica, parece claro que la divulgación se muestra más ideológica y más propensa a exhibir este fenómeno semántico más que los artículos especializados de investigación.

Tanto la descripción de las técnicas de ingeniería genética como los juicios de valor serán estudiados a través de la variación denominativa y la prosodia semántica junto con las estrategias de traducción más comunes encontradas en nuestro corpus.

3.1. Variación denominativa

La variación denominativa es una característica propia de los lenguajes de especialidad, sobre todo de aquellos en los que se aprecia un bajo nivel de especialización de conocimientos.

3.1.1. Teorías Terminológicas: La Teoría General de la Terminología (Wüster), la Teoría Comunicativa de la Terminología (Cabré) y la Terminología Sociocognitiva (Temmerman)

La variación denominativa es un fenómeno lingüístico que se enmarca dentro de la disciplina de la terminología. Sin embargo, nunca fue contemplado como tal dentro de la primera teoría fundadora del campo: la teoría general de la terminología cuyo máximo exponente es Wüster. A medida que ha ido evolucionando la práctica terminológica también así lo ha hecho la teoría, por lo que las teorías terminológicas recientes, como la teoría comunicativa de la terminología (Cabré) y la socioterminología (Temmerman) dedican sus principios a estudiar la variación denominativa. Estas teorías contemplan la idea de que los términos son entidades flexibles en constante evolución y que reciben la influencia de la lengua general al igual que la lengua general acoge términos por influencia de las lenguas de especialidad. La bidireccionalidad de influencias se conoce como *banalización* y como *terminologización*, respectivamente.

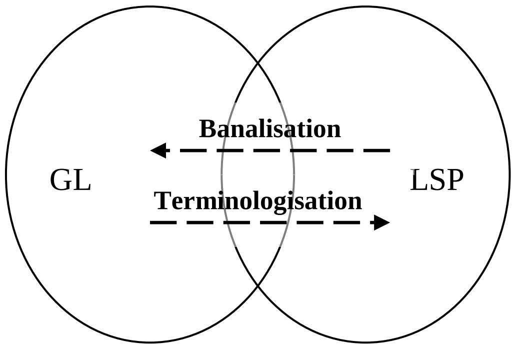

Fig. 3.1: *Representación visual del fenómeno de la banalización y de la terminologización.*

Como ejemplo de banalización podemos destacar los términos *fusión* y *zona cero* que nacieron en el seno de la física nuclear y que han pasado a la lengua general con la añadidura de adquirir significados figurativos y connotativos. La terminologización registra ejemplos como *resistencia,* entidad léxica originada en la lengua general y que adquiere un significado más restringido en las lenguas de especialidad como puede ser la física.

3.1.2. Conceptos terminológicos: Términos y VD

Al mismo tiempo un término puede ser interdisciplinar, como es el caso de *raíz,* que aparece en distintos campos especializados con significados diferentes y también como parte de la lengua general, como se muestra a continuación:

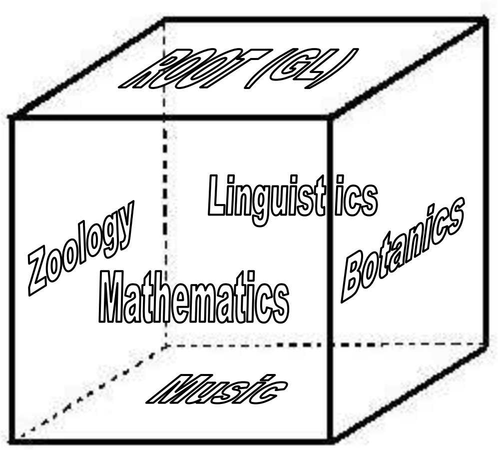

Fig. 3.2: *Dimensiones poliédricas de una misma entidad léxica dentro de la lengua general y de la especializada.*

Es Cabré (1999) quien enuncia que un término posee dimensiones poliédricas según el campo de conocimiento (matemáticas, lingüística, zoología). Y a cuantas más disciplinas esté el término conectado, más lados tendrá el poliedro. Este principio poliédrico se desarrolló más tarde en la teoría de las puertas (Cabré 2003), mediante una analogía con las puertas de una casa o vías de acceso a los diferentes habitáculos (o significados) de la misma. Dependiendo de la puerta (lenguas de especialidad) elegida para entrar, el investigador accederá a un significado u otro (diferentes acepciones de un término). Es decir, la ubicación de las habitaciones no cambia, lo que cambia es la manera y la percepción de acceder a la casa junto con el contenido de cada una de sus habitaciones.

Después de esta introducción a la terminología en la que se encuadra la variación denominativa, nos centraremos detenidamente en el fenómeno lingüístico en cuestión. Es éste un rasgo lingüístico que va atrayendo cada vez más el interés de los terminólogos, pues un número creciente de investigadores han realizado sus estudios en dicho ámbito (Bach & Suárez 2002; Faulstich 2002; Freixa 2001, 2002a, 2002b, 2006; Suárez de la Torre 2002, 2004, De Santiago 2013). La teoría comunicativa de la terminología y la socioterminología han promovido el interés por este fenómeno debido a que nos presentan la variación denominativa como un hecho observable plenamente aceptado dentro del seno de estas teorías y, además, han extendido la concepción positiva del mismo, ya que facilita la comunicación y la transmisión de conocimiento al público general a través de contextos divulgativos (Suárez de la Torre 2004: 261).

Una definición básica pero aclaratoria nos la brinda Freixá (2006: 51), quien afirma que la variación se limita al estudio de variantes léxicas excluyendo la paráfrasis y la definición de términos:

> The phenomenon in which one and the same concept has different denominations; this is not just any formal variation (variation between a term and a periphrasis, or a definition, for example), but is restricted to variation among different denominations, i.e., lexicalized forms, with a minimum of stability and consensus among the users of units in a specialized domain (Freixa 2006: 51).

La cita también enfatiza que es el nivel de especialidad el que determina el grado de variación denominativa (Freixá 2002a: 12). Además de esta definición, la autora (ibid) enuncia en su tesis doctoral una serie de hipótesis en las que puede darse la variación denominativa y que se podrían resumir de la siguiente manera:

1. Los textos que contienen un nivel de especialidad más bajo están más sujetos a mostrar signos de variación denominativa.

2. Los textos que tengan distinto nivel de especialidad incluirán variantes denominativas que difieran en su nivel de especialización de conocimientos.
3. El nivel de equivalencia conceptual entre el concepto y sus variantes denominativas es prácticamente total y completo cuando se trata de la comunicación entre expertos.

Estas hipótesis asumen la presencia de diferentes formas léxicas para designar un mismo término. Como por ejemplo, *modificados genéticamente* y *alterados genéticamente*, que son dos variantes denominativas distintas para referirse a los alimentos que han sido elaborados con técnicas de ingeniería genética. Estas variantes también se conocen como *alotérminos* según Faulstich (2002: 71) por analogía a los alófonos en fonología. Las causas de los alotérminos pueden ser varias como indica Freixá (2006: 52): dialectales, funcionales, discursivas, interlingüísticas y cognitivas.

En cuanto a las causas dialectales, podríamos poner el ejemplo del término *gripe A,* que se ha utilizado en la variedad de español peninsular y no así en el español de Latinoamérica (*influenza A*, debido a la influencia del inglés). Otros ejemplos que podrían justificar la existencia de las causas funcionales serían, el *virus H1N1,* empleado por científicos y, *gripe A,* por parte de la audiencia en general. La variación producida por causas discursivas se entiende con el objetivo de no repetir o de ser más expresivo mediante el uso de variantes (*vitamina B* y *riboflavina*). En cuanto a la variación interlingüística, ésta es propia de las lenguas en contacto. Por ejemplo, los científicos acostumbrados a leer en inglés suelen referirse al ADN con la denominación inglesa *DNA.* Y por último las causas cognitivas se producen debido a dos razones, a la inserción tanto voluntaria como involuntaria de ideología (e.g. *manipulated* vs *genetically modified organism*) y a la falta de consistencia conceptual (e.g. *technology protection system*, *Terminator technology* y *genetic use restriction technology*).

3.2. Prosodia semántica

La prosodia semántica es el segundo fenómeno lingüístico a estudiar en la presente tesis. El estudio sistemático de este fenómeno surge a partir de la disciplina de la lingüística de corpus y de la herramienta *Key Word in Context* tool (Hunston 2007: 249). Esta herramienta es parte del *software Wordsmith Tools 5* y sirve para localizar una o varias palabras en su contexto inmediato con el objetivo de estudiar cómo co-aparecen en el texto. Es decir, al hacer una búsqueda de una determinada palabra, ésta suele aparecer resaltada en color además de la palabra que le precede (L1, por sus siglas en inglés *left,* una posición a la izquierda) y de la que le sigue (R1, por sus siglas en inglés *right*, una posición a la derecha). Lo interesante de este sistema es el análisis colocacional que se puede hacer observando los colocados tanto precedentes como siguientes de la palabra clave que se quiere analizar. La observación de estas colocaciones, que en principio carecen de rasgos que induzcan juicios de valor, consiste en descubrir si existe algún tipo evaluación o valoración, ya sea positiva o negativa, o incluso la ausencia de juicios de valor. De ahí, el concepto de *collocational* va ligado o está implícito al de prosodia semántica (Xiao and McEnery 2006: 107).

El concepto de prosodia semántica ha aparecido en varios artículos y conferencias, pero es el libro de Steward (2010) el que arroja una mayor claridad al estudio de la prosodia. En este volumen se delinean las dos definiciones principales del término, la primera defendida por Louw y la segunda postulada por Sinclair. Aunque Firth (1957) acuñó el término, que fue más tarde atribuido a Sinclair (1991), es Louw el primer lingüista que ofrece una definición que arraiga entre los estudiosos del tema. Ésta contiene la idea de que la prosodia es un aura semántica consistente que tiene un correlato lingüístico cuya estructura formal está imbuida por el significado de sus colocados (Louw 1993: 157). Unos años más tarde, Louw retoca la definición y especifica que los colocados son fácilmente identificables como positivos o negativos y que su función primaria es la expresión de algún tipo de postura por parte del emisor en términos pragmáticos (Louw 2000: 57). Otros lingüistas (e.g. Stubbs 1995, 2001) que han estudiado la prosodia semántica han identificado como positivas las del verbo *provide* y, negativas, las del verbo *cause*, entre otros verbos que se muestran a continuación:

Author	*Negative prosody*	*Positive prosody*
Sinclair (1991)	HAPPEN SET IN	
Louw (1993, 2000)	Build up of END UP *verb*ing	BUILD up a
Stubbs (1995, 2001)	CAUSE	PROVIDE
Partington (1998)	COMMIT	
Hunston (2002)	SIT through	

Tabla 3.3: *Adaptación de las prosodias recogidas en Xiao and McEnery (2006: 106).*

El cuadro muestra que la mayoría de las prosodias semánticas son negativas o implican una serie de colocados que indican aspectos negativos o desfavorables. Un ejemplo típico que se cita a menudo es el verbo *commit* (Partington 1998: 68), que coloca frecuentemente con entes léxicos que pertenecen al campo semántico de las ofensas y los delitos. Cuando *commit* coloca con léxico que expresa estados positivos de ánimo se crea un efecto irónico como es el caso del título de la película *Cómo cometer un matrimonio*

(1969) y, por tanto, se crea la insinceridad en el hablante de la que habla Louw (2000: 57).

En principio, cualquier palabra puede verse afectada por el fenómeno de la prosodia semántica (Stewart 2009: 45). Sin embargo, una determinada palabra puede perder su valor positivo o negativo cuando aparece en registros especializados, más concretamente cuando nos referimos a la terminología de una lengua especializada. El hecho de que la prosodia semántica esté asociada a un registro específico representa un mecanismo de cohesión textual (Stubbs 2001: 215). Y no sólo el registro, sino también las estructuras sintácticas (Partington 2004: 144). Es decir, el léxico especializado pertenece a un tipo de registro que no contiene ningún significado que exprese juicios de valor (*attitudinal meaning*):

> Corpus semantics holds that the concrete meaning of text segments can only be derived from the context in which they occur. However, this is true only for general language text segments and not for terminological units occurring in a domain-specific language. In theory, terminological units do not have a meaning; rather they designate a concept that is defined language-neutral and has a unique position within a conceptual ontology (Teubert 1999: 12).

Esta cita parte de la premisa de que los términos no están sujetos a ningún tipo de prosodia semántica debido al contexto especializado en el que habitan. Sin embargo, el contexto de la divulgación científica está próximo al de la lengua general y por tanto, es previsible que los términos de nuestro corpus estén afectados por el fenómeno de la prosodia semántica. Otra cuestión pendiente es si algunas variantes denominativas que operan a nivel de sinonimia se ven más afectadas por la prosodia semántica que otras. Partington (2004: 144) pone el ejemplo de varios verbos sinónimos que albergan una prosodia semántica negativa gradual de mayor a menor. Estos son *set in, happen, occur* y *take place.* De una lengua a otra, la comparación interlingüística de la prosodia semántica es impredecible entre dos pares de lenguas (Stewart 2009: 32).

La segunda definición enfatiza la función discursiva de una unidad de significado. Sinclair afirmaba que la prosodia semántica es parte de la unidad de significado (Hunston 2007: 249-50) no de la palabra en cuestión (cf. Louw) (Stewart 2010: 160-1). Se trata de una característica obligatoria para Sinclair y de una propiedad que actúa a distintos niveles que se rigen por la pragmática, hasta el punto de que Sinclair renombra en sus producciones académicas el fenómeno de prosodia semántica como *prosodia discursiva*. Esto es debido a que la opinión del emisor aparece como característica de la prosodia semántica. Dicha opinión no se reduce a la dicotomía simplista de favorable/desfavorable, sino que el hablante puede expresar un amplio abanico de posibilidades: frustración, culpabilidad, soledad, melancolía u exotismo, entre otros.

Whitsitt (2005) recoge una tercera definición en la que equipara la prosodia semántica a la noción de connotación (Stubbs 2001: 198). Sin embargo, la connotación y la prosodia se diferencian en que la connotación, por una parte, carece de co-aparición (que la prosodia semántica sí tiene), y por otra parte, se asocia con una idea peyorativa (aunque no siempre es el caso).

Como resumen podemos argumentar que las señas de identidad comunes y distintivas de las dos primeras definiciones se exponen a continuación:

Common features	*Sinclair's approach*	*Louw's approach*
Evaluative or attitudinal	Belongs to the unit of meaning	It is a feature of the word and is transferred / attached meaning
Hidden	Not restricted to semantically "neutral" lexical items	Restricted to semantically "neutral" lexical items
Contingent upon co-text	Beyond 'good-bad' dichotomy	Binary distinction of 'favorable / unfavorable'

Tabla 3.4: *Características comunes de la prosodia semántica, junto con las características específicas sugeridas por parte de Sinclair y de Louw (basado en Stewart 2010: 160-1).*

Las características comunes son tres: el significado evaluativo (juicios de valor), la posibilidad de que a que simple vista sea un significado escondido en el texto y sobre todo, el hecho de que es un fenómeno sujeto a su propio cotexto. Al examinar el cotexto aparecen una serie de colocados estadísticamente significativos (*semantic consistency*) que se identifican como tales dentro de un campo semántico concreto (*semantic sets*). Un estudio (Bayón García 2009) que investiga los colocados inmediatos de los verbos *aumentar* y *disminuir* revela que: (1) los colocados identificados pertenecen a grupos semánticos opuestos dependiendo del emisor (compañías de biotecnología y ecologistas) y, (2) que satisface unos propósitos perlocutorios contrarios (e.g. persuadir, alertar). Estos propósitos perlocutorios encierran la demostración empírica del principio idiomático enunciado por Sinclair que se refería al hecho de que el significado de los colocados se transmite a la palabra en cuestión (*searchword*) por transferencia semántica, además de esconder un juicio de valor potencial, y por lo tanto, un posible uso ideológico de una determinada palabra.

3.3. Los estudios de traducción y los aspectos ideológicos de las estrategias traductológicas

Esta sección nos sumerge dentro de los estudios de traducción, y dentro de éstos, trataremos de la teoría traductológica y de los conceptos clave de la traducción. En cuanto a la teoría traductológica, ésta se localiza en la parte de teoría general del esquema de Holmes (1972/2005):

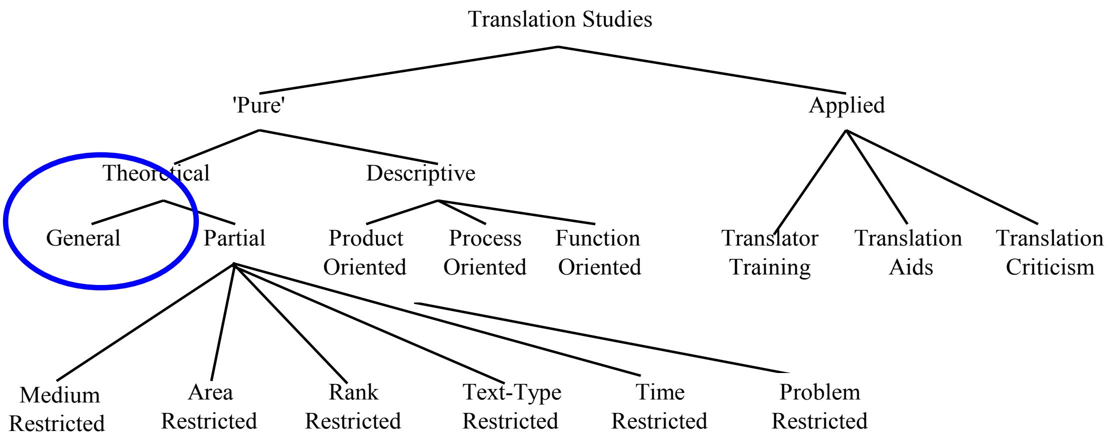

Fig. 3.5: *Clasificación de Holmes sobre los estudios de traducción como disciplina (Toury 1995: 10) (http://isg.urv.es/ library/papers/holmes_map.doc)*

Debido al carácter interdisciplinar de la traducción se puede afirmar que no existe una teoría general, o modelo, ni principio universal *per se*, sino teorías interrelacionadas. Esta cuestión sigue vigente, como se puso de manifiesto en un congreso celebrado en la UCL (17-18 April, 2008) que llevaba por título "With/out Theory: The Role of Theory in Translation Studies Research" (http://www.ucl.ac.uk/cics/conference).

Debido a que la traducción es una forma de comunicación (Venutti 2000: 222), se puede dividir en texto y paralenguaje, como toda forma de comunicación. El paralenguaje abarca cualquier modelo y teoría traductológica, mientras que el texto contempla los conceptos de equivalencia y norma, entre otros, como se observa en el siguiente diagrama:

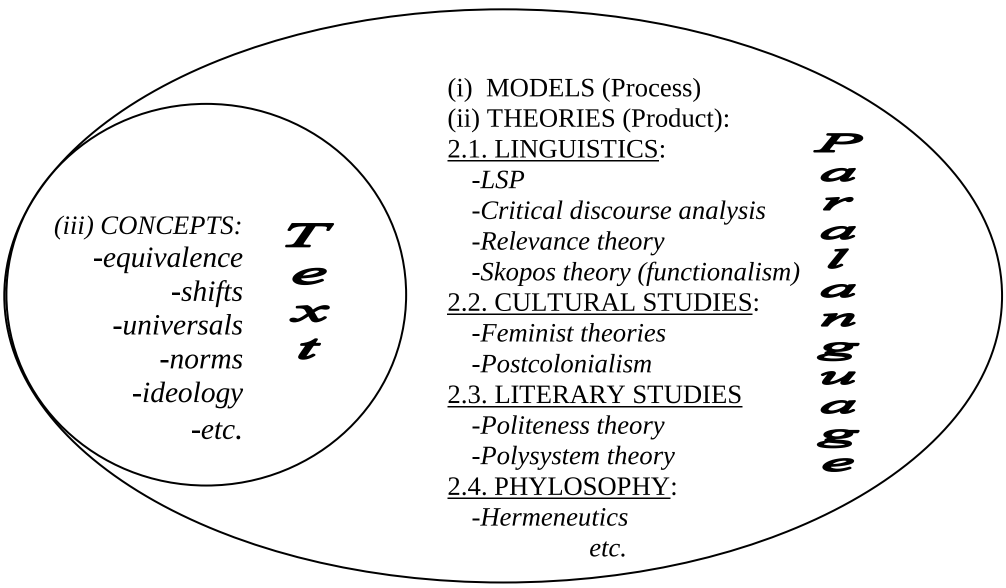

Fig. 3.6: *Conceptos intrínsecos a la teoría de la traducción (nivel textual) y teorías/modelos extrínsecos de otras disciplinas (nivel paralenguaje).*

3.3.1. Conceptos terminológicos: Teorías, equivalencia, universales de traducción e ideología

En cuanto a las teorías traductológicas anteriores al siglo XX, éstas se basaban en la retórica y en la dicotomía de traducir palabra por palabra o bien, traducir el sentido por el mismo u otro diferente. Dicha oposición dicotómica se repitió hasta la primera mitad del siglo XX. Después de la Segunda Guerra Mundial, la preponderancia de las teorías traductológicas fue conquistada por el empiricismo lingüístico, que más tarde fue relegado por los estudios culturales y funcionales.

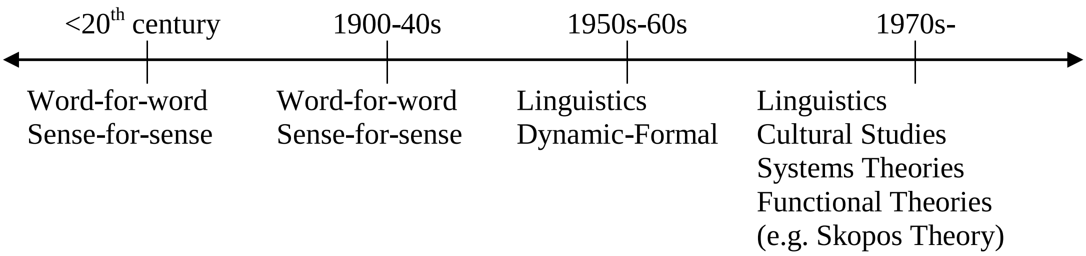

Fig. 3.7: *Cronología de los enfoques teóricos de la traducción según Quah (2006: 23).*

A este esquema de Quah podemos añadirle el hecho de que hoy en día los estudios culturales de traducción conviven con un nuevo auge de la lingüística, que ha recobrado su importancia dentro de los estudios de traducción, debido al nacimiento de la lingüística de corpus (e.g. estudio de los universales de traducción a través del estudio de corpus lingüísticos, cf. Mona Baker).

En general, las teorías traductológicas son, en boca de Sager (1997: 25), un concepto que se ha desarrollado en torno a la definición de equivalencia traductológica. Los corpus paralelos constituyen un conjunto de datos ideal para identificar y definir lo que se entiende por equivalencia.

Es este concepto, la equivalencia, una "entidad negociable" (Kenny 1998: 78) que consta de varios niveles de gradación. Para evaluar la equivalencia debemos establecer lo que serán las *unidades de traducción*, que a veces varían de un estudio a otro. Son imposibles de determinar antes del acto de traducción (Rabadán 1991: 188). Normalmente sólo son válidas para una investigación lingüística concreta y su realización es intertextual. También se las conoce como *unidades translémicas, translemas, pares de segmentos ST-TT* o *interlingual tertium comparationis* que sólo se dan cuando existe una relación de equivalencia entre el texto origen y el texto meta (Rabadán 1991: 285). Según Nord (1997: 43) sólo existen aquellas teorías traductológicas lingüísticas que están basadas en el concepto de equivalencia. En un estadio inicial se trataba de un concepto estático (Sager 1997: 25), que ha ido evolucionando hasta convertirse en una cualidad comunicativa y funcional. Ha habido varias dicotomías que han expresado polos opuestos de equivalencia: formal y dinámica (Nida 1964), semántica y funcional (Bell 1991: 7), *overt* y *covert* (House 1971), entre otras. En todas ellas la primera categoría está orientada al texto origen mientras que la segunda está enfocada al texto meta y tiene en cuenta al receptor del texto más que al emisor.

La primera vez que apareció este concepto en la bibliografía fue con Jakobson (en su artículo *On linguistic aspects of translation*, 1959/2000: 139). Es Toury (1980: 115) en su estudio descriptivo quien considera que la equivalencia no es universal si no específica de un estudio de investigación concreto (Vermeer 1996: 48-9). La traba que encontramos para establecer la equivalencia viene dada por los factores extralingüísticos. En palabras de Rabadán:

> [Có]mo conseguir que el texto original y su traducción «sean» el mismo texto cuando todos los factores que intervienen en el proceso son, por definición, distintos (Rabadán 1991: 31).

Mientras Rabadán enfatiza que la equivalencia es el común denominador a cualquier proyecto de traducción (Rabadán 1991: 53), Venutti (2000: 149) destaca los esfuerzos en vano por delimitar este concepto, debido a que los cambios interlingüísticos se dan siempre en el texto meta. Sin embargo y teniendo en cuenta los cambios interlingüísticos, la equivalencia debe ser pragmática, cultural, consistente, comprensible, no universal y práctica (Nord 1997: 45-6).

Cuando la equivalencia es tridimensional (funcional, pragmática y comunicativa) se considera funcional (Nord) o translémica (Rabadán 1991), ya que se tiene en cuenta la equivalencia funcional de los factores extralingüísticos de un género (e.g. divulgación científica), la dimensión pragmática de los fenómenos lingüísticos (e.g. variación denominativa, prosodia semántica) a estudiar en el texto traducido, y la dimensión comunicativa de los cambios interlingüísticos y estrategias traductológicas de acuerdo a valores culturales e ideológicos. En definitiva, el concepto normativo de equivalencia se ha cambiado por el de funcional, pragmático y comunicativo.

A la hora de traducir, distinguimos la traducción de ideología y la ideología de la traducción. De la primera se encarga la disciplina del discurso *Critical Discourse Analysis (CDA).* En la segunda, se pone de manifiesto que toda forma de traducción contiene siempre un componente ideológico (Calzada-Pérez 2003: 2). Esta idea también se contempla en la ideología de la traducción a un nivel interlingüístico, debido a que el texto traducido se ve influenciado por las creencias, valores y expectativas del traductor (Hatim and Mason 1997: 143). Munday (2007) examina la traducción al inglés del caso de Luis Posada Carriles, un opositor al régimen cubano de Fidel Castro. Al comprobar la “colocabilidad” de ciertos elementos léxicos (e.g. *mastermind*), se observa que la segunda traducción se mantiene a nivel formal en un plano semántico neutro mientras que la primera versión tiende a mostrar su lado afectivo debido a la intrusión ideológica del traductor que, como resultado, motiva la aparición de prosodias semánticas negativas (*conspiracy*, *bombing*, *clandestine* and *plot*). En otras palabras, la traducción es una forma de re-escritura en la que el texto origen se ajusta lingüísticamente al paralenguaje (convenciones culturales y funcionales) del texto meta, de tal manera que la traducción puede mantener, alterar o modificar la validez y aceptabilidad del texto en la lengua meta.

3.3.2. La re-escritura del género en la divulgación científica: La traducción intralingüística, interlingüística e intersemiótica

Existen al menos tres formas de re-escritura dentro del género de la divulgación científica: la intralingüística, la interlingüística y la intersemiótica. La primera consiste en la reformulación de conceptos de un nivel comunicativo a otro. Por ejemplo, del nivel experto a experto (*reports*) al nivel lego (*popular science books*). La segunda trata de los cambios interlingüísticos dentro de un mismo género entre dos lenguas distintas, una origen y otra meta. Y la tercera se centra en decodificar imágenes, por ejemplo, de las portadas de los libros ingleses que conforman nuestro corpus y cómo se han diseñado en la versión española.

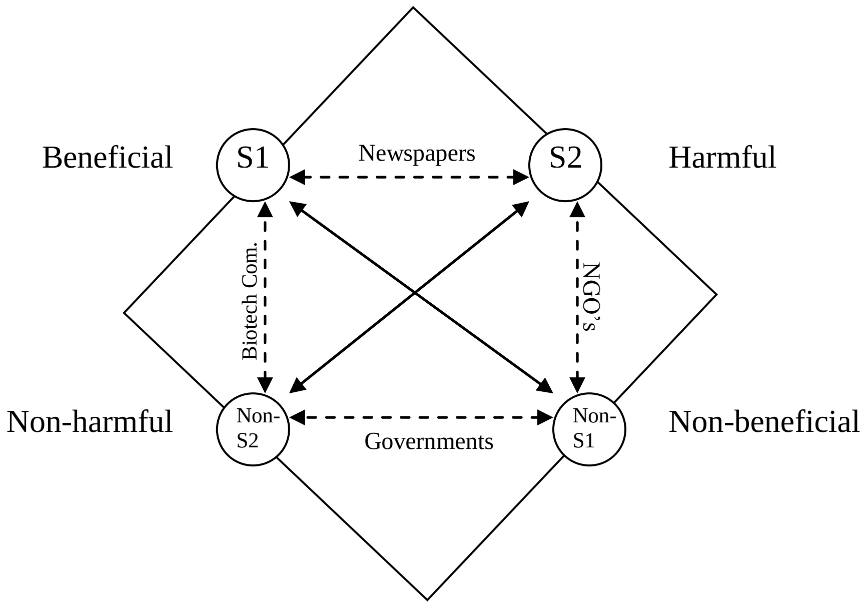

Fig. 3.8: *Cuadro de Greimass sobre la controversia de los GMO (Bayón García 2009).*

Un análisis intersemiótico, al mismo tiempo, se puede dar como tal, gracias a las relaciones semióticas enunciadas por Greimas e ilustradas en el cuadro que lleva su nombre, cuadro de Greimass, en el que se pueden colocar los mensajes de diversos agentes (gobiernos, ecologistas, periodistas y compañías biotecnológicas) (cf. Cook 2004) y emparejarlos con un correlato pictórico (e.g. iconos, índices y símbolos, en la terminología de Pierce) por medio de las relaciones primarias y secundarias que alberga dicho cuadro.

En todas estas tres formas de traducción se aprecia la inserción de ideología. Por ejemplo, en la traducción intralingüística, el término *hormona recombinante para el crecimiento bovino* (rBGH por sus siglas en inglés) ya no se ha vuelto a usar por los defensores de la biotecnología por considerar que el concepto que encierra el término dejaba entrever un componente de ansiedad (Ogden 2001: 339) y, sin embargo, los agentes a favor de la biotecnología prefieren usar la variante denominativa *somatotropina bovina recombinante* (rBST) que es un término menos transparente que el anterior (rBGH).

4. Metodología

La metodología está centrada en dos grandes partes: la compilación del corpus y la explotación del mismo.

4.1. Compilación del corpus: diseño y alineación textual

Para llevar a cabo la compilación es necesario conocer los conceptos básicos de la lingüística de corpus. En la era pre-electrónica hay que destacar que los corpus no se entendían como los consideramos hoy en día con un número representativo de palabras, sino que eran un conjunto de tarjetas que no estaban almacenadas en formato electrónico (Bravo Gozalo & Fernández Nistal 1998: 207). Este periodo inicial es al que McEnery y Wilson (2001: 3) han dado en llamar *Early Corpus Linguistics*. En este periodo se encuentran los precursores, los pioneros y los neo-Firthian, que con sus conocimientos y el avance de la tecnología, serán el preludio del periodo en el que surgen los megacorpus actuales que albergan millones de palabras. No debemos olvidar que en cualquier estudio de corpus es imperativo justificar la representatividad del mismo ya que la lingüística de corpus es intrínsecamente cuantitativa.

Además de la representatividad, hay que adoptar varios criterios en el diseño de nuestro corpus (e.g. lengua meta: español peninsular, excluyendo así varios libros traducidos a la amplia variante de español latinoamericano):

Criteria	***Corpus characteristics***
Level of specialization	GE discourse at specialized scientific popularization
Language(s)	Bilingual parallel unidirectional from English to Spanish
ST language variety	American and British English
TT language variety	Peninsular Spanish
Mode	Complete written close (preface and body of books)
Genre	Popular science books
Language development	Synchronic (first ST in 1995 - last TT in 2006)
Optional annotation	Aligned and automatically annotated with TreeTagger

Tabla 4.9: *Criterios de construcción para el corpus GE_P-ACTRES.*

4.2. Explotación del corpus: Modelo DTS (Toury 1995)

Además del diseño, es necesario buscar las herramientas relevantes para su implementación (en la presente tesis, alineación textual mediante codificación del corpus en formato *xml* y posterior etiquetado POS) (ver fig. 4.10).

Se trata entonces de un corpus compuesto de diez libros de divulgación científica subdivididos en dos categorías de acuerdo a la autoría de cada libro; por un lado, los autores de libros que son científicos (*sci corpus*) y, por otro, los que no lo son (e.g. periodistas, ecologistas) (*soc corpus*).

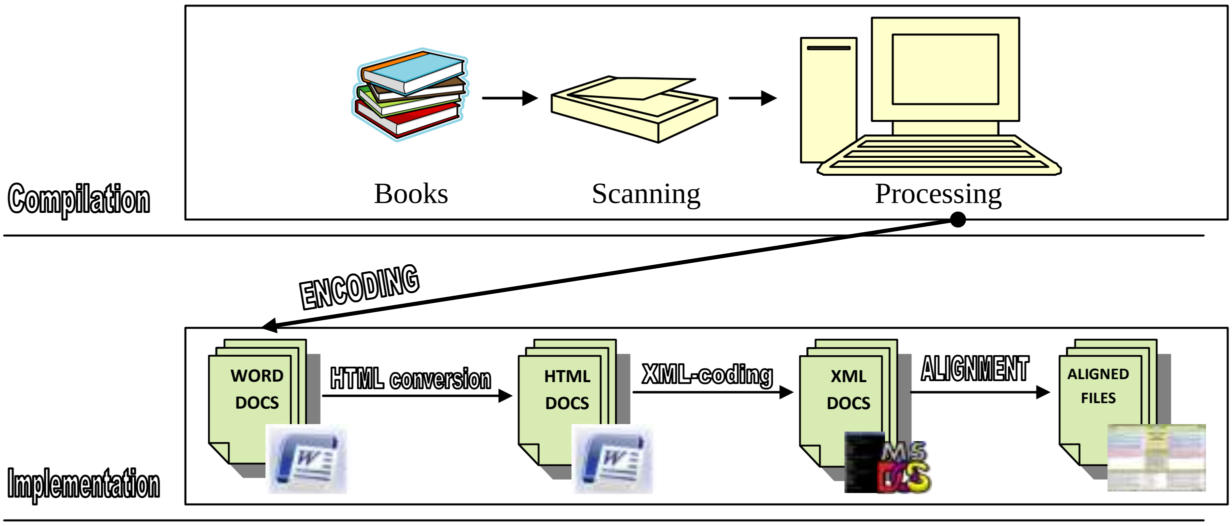

Fig. 4.10: *Fases de codificación y alineación del corpus GE_P-ACTRES.*

La fase de explotación se ha llevado a cabo en tres etapas siguiendo el modelo analítico de Toury (1995): localización de los textos origen y meta en sus polisistemas o sistemas culturales (fase cualitativa); identificación de translemas a nivel terminológico, fraseológico-semántico y traductológico (fase cuantitativa); y, por último, búsqueda de normas traductológicas y estrategias generales del traductor que puedan reformular y enriquecer la teoría traductológica seleccionada para este estudio.

4.2.1. Análisis cualitativo: El TO y TM en sus sistemas culturales

Para ubicar el TO y el TM en sus sistemas culturales (cf. primer estadio de la metodología de Toury 1995), es necesario seguir varias etapas que nos conduzcan a dicho propósito. Estas etapas son: una fase de documentación junto con un diagrama resumen del campo de la ingeniería genética, seguida de una sucinta descripción de los libros de divulgación en inglés y en español de nuestros corpus; y, por último, una comparación intersemiótica de cada una de las portadas de los libros del corpus.

4.2.2. Análisis cuantitativo: Reconocimiento de segmentos TO-TT a niveles terminológicos, fraseológicos y traductológicos

En el análisis cuantitativo, seguiremos con la segunda fase de la metodología de Toury (1995), que consiste en el reconocimiento de segmentos TO-TT para su posterior análisis terminológico, fraseológico-semántico y traductológico. Dentro de esta fase, tendremos que extraer la terminología a partir de listas de palabras y listas de palabras clave mediante la herramienta *WST5*. Basándonos en la frecuencia de términos clave con el significado de *modificación genética*, nos quedaremos con los cuatro términos más recurrentes que tengan su aparición tanto en el corpus inglés como en el español, tanto en aquellos libros escritos por científicos como en los escritos por el grupo misceláneo de periodistas y ecologistas. Se trata de los términos técnicos *DNA* y *gene/s,* y de los términos subtécnicos *food/s* y *crop/s.*

4.2.3. La búsqueda de normas y tomas de decisiones para traducciones futuras

La última parte del análisis cuantitativo versará sobre la comparación interlingüística de las variantes denominativas seleccionadas por orden de frecuencia que impliquen el concepto de modificación genética, además de sus prosodias semánticas. El análisis contrastivo dejará entrever las normas generales que se han llevado a cabo en la traducción al español de las variantes denominativas y de sus prosodias semánticas.

5.1. Análisis cualitativo

Para poder situar tanto el texto origen como el texto meta dentro de sus sistemas culturales, proporcionaremos una breve descripción de los libros que conforman el corpus junto con una comparación intersemiótica de las portadas.

5.1.1. Descripción de los libros de divulgación científica

Existen varias características que identifican el discurso perteneciente a los autores científicos como tal. Estas características se basan en la observación de un enfoque informativo y objetivo a la hora de explicar las técnicas de ingeniería genética, aunque también nos hablan de las preocupaciones que despierta una ciencia como la biotecnología moderna.

De igual manera, hay otras características del corpus *soc* que se asemejan, y son, por ejemplo, el hecho de que los autores de este corpus se basan en contenido previo ya publicado y, sin embargo, los autores científicos escriben sus argumentos basados en datos científicos de primera mano que incluso ellos mismos han obtenido en el laboratorio.

5.1.2. Comparación de las portadas de los libros del corpus

Las observaciones generales de las portadas de los libros se pueden resumir desde el punto de vista semiótico de la siguiente manera: (1) Hay una tendencia a colocar el nombre del autor en la parte inferior de las portadas de los libros en inglés, mientras que aparecen en la parte superior de los libros en español; (2) existe un tratamiento científico en las portadas de los libros españoles (1ER, 2SA, 3EG y 9SN) que no aparece como tal en sus originales en inglés.

5.2. Análisis cuantitativo

5.2.1. Ratio type/token (TTR)

En cuanto al análisis cuantitativo, podemos comentar el primer resultado estadístico extraído de la comparación entre el número de palabras totales (*tokens*) y el número de tipos de palabras (*types*).
El siguiente gráfico nos indica que el número de tipos de palabras es considerablemente menor que el del número de palabras totales. En la ayuda del *WST5* aparece una mención a este análisis y se nos indica que cuando el número de tipos de palabras equivale a menos del 20%, esta cantidad es representativa del bajo nivel de especialidad de los textos de nuestro corpus.

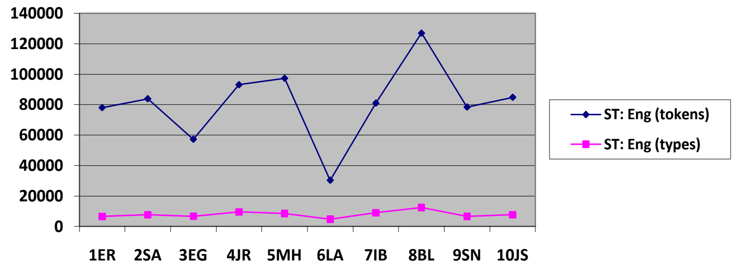

Fig. 5.11: *Type/token ratio in the English corpus.*

5.2.2. Listas de términos clave

Después de analizar los TTRs, nos centraremos en seleccionar los términos clave para luego poder estudiar sus variantes denominativas. De la lista de palabras que hemos generado en *WST5*, hemos seleccionado aquellas que son términos y que pertenecen al campo de la biología. Los términos técnicos que comparten el corpus *sci* y el corpus *soc* en inglés son las siguientes palabras que aparecen en amarillo, es decir, *gene/s*, y *DNA:*

	Ranked in sci corpus	*Sci corpus*	Freq.	*Soc corpus*	Freq.	*Ranked in soc corpus*
1	1	GENES	1801	GENE	720	16
2	2	GENE	1844	GENES	555	22
3	3	DNA	1568	AGRICULTURE	320	24
4	6	CELLS	1102	HERBICIDE	179	40
5	7	CELL	774	DNA	317	41
		Total	7089	Total	2091	

Table 5.12: *English 5-top technical terms (science) in the sci and soc corpora.*

De los términos técnicos que pertenecen a la especialidad a estudiar, la ingeniería genética, podemos ver en la siguiente tabla aquellos que son comunes al corpus *sci* y al *soc*, que aparecen resaltados en verde:

N	Ranked in sci corpus	Sci corpus	Freq.	Soc corpus	Freq.	Ranked in soc corpus
1	4	GENETIC	1425	GENETIC	1207	2
2	5	TRANSGENIC	791	GENETICALLY	843	4
3	11	GENETICALLY	535	BIOTECHNOLOGY	693	5
4	13	ENGINEERING	536	ENGINEERED	666	6
5	14	BIOTECHNOLOGY	456	GM	586	8
		Total	3743	Total	3995	

Table 5.13: *English 5-top technical tems (specialized field) in the sci and soc corpora***.**

De estos términos, seleccionaremos los comunes a los corpus *sci* y *soc*, es decir, *genetic* y *genetically* para poder estudiarlos junto a sus colocados. Y por último, los términos subtécnicos elegidos por orden de frecuencia y que son comunes a los dos subcorpus son *food/s* y *crop/s:*

N	Ranked in sci corpus	Sci corpus	Freq.	Soc corpus	Freq.	Ranked in soc corpus
1	8	PLANTS	814	FOOD	1315	3
2	9	CROPS	612	FOODS	621	7
3	16	PLANT	613	CROPS	561	11
4	17	MODIFIED	442	MODIFIED	476	14
5	20	FOOD	646	NEW	1506	18
		Total	3127	Total	4479	

Table 5.14: *English 5-top subtechnical keywords in the sci and soc corpora.*

5.2.3. Variación denominativa

En esta sección, vamos a tratar el estudio de los cuatro términos, dos técnicos como son *gene/s* y *DNA*, y dos subtécnicos, *food/s* y *crop/s*. El estudio de los términos técnicos y sus colocados con significado de *modificación genética*, arroja los siguientes resultados:

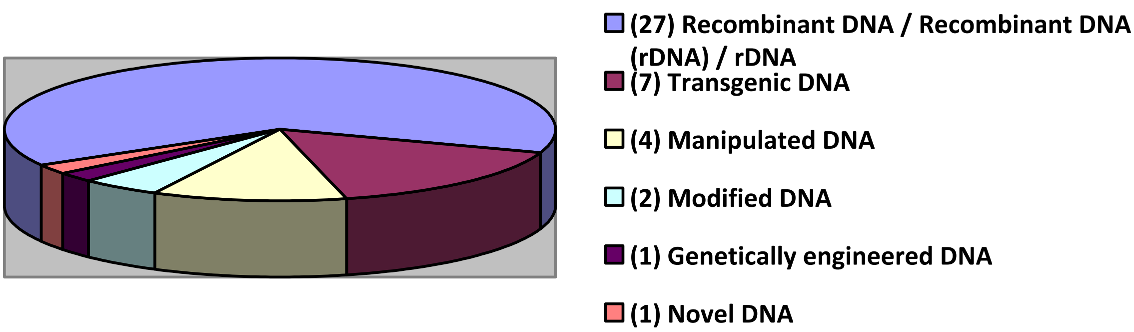

Fig. 5.15: *Pie chart of denominative variants of 'Adj + N (DNA)' in the English sci corpus.*

Este gráfico nos indica que en el corpus *sci*, las variantes (*transgenic DNA*, *manipulated DNA*, *modified DNA*, *genetically engineered DNA* y *novel* DNA) del término clave (*recombinant DNA*) son cinco y su número total de ocurrencias es mayor que la aparición total de ocurrencias del término clave (*recombinant DNA*). Los resultados extraídos del corpus *soc* son visualmente opuestos a los del *sci*; es decir, el término clave representa un tercio del número total de ocurrencias, mientras que las variantes denominativas equivalen a dos tercios de las apariciones totales.

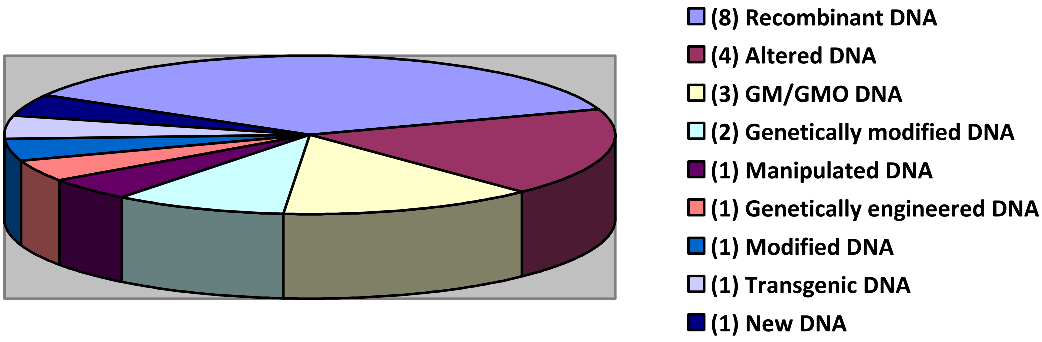

Fig. 5.16: *Pie chart of denominative variants of 'Adj + N (DNA)' in the English soc corpus.*

En español los resultados son similares. En cuanto al perfil colocacional de *gene/s*, tenemos que no existe un término clave predominante sino variantes denominativas de *gene/s* cuando éstos se refieren a aquellos que han sido modificados genéticamente:

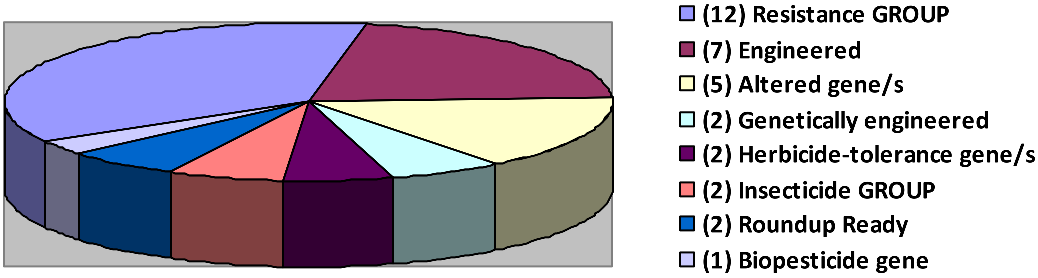

Fig. 5.17: *Pie chart of denominative variants of 'Adj + N (gene/s)' in the English sci corpus.*

En el corpus *soc,* observamos que la preponderancia terminológica la componen tres términos: *resistance GROUP* (9), *transgenic gene/s* (7), y *insecticide GROUP* (5), y que suman el 55.3% de la frecuencia total del patrón combinatorio *Adj + N* (*gene/s*). Mientras que en el corpus *sci*, las dos variantes más frecuentes son *resistance GROUP* (12) y *engineered gene/s.* Resultados similares se encuentran en las ocurrencias del corpus en español.

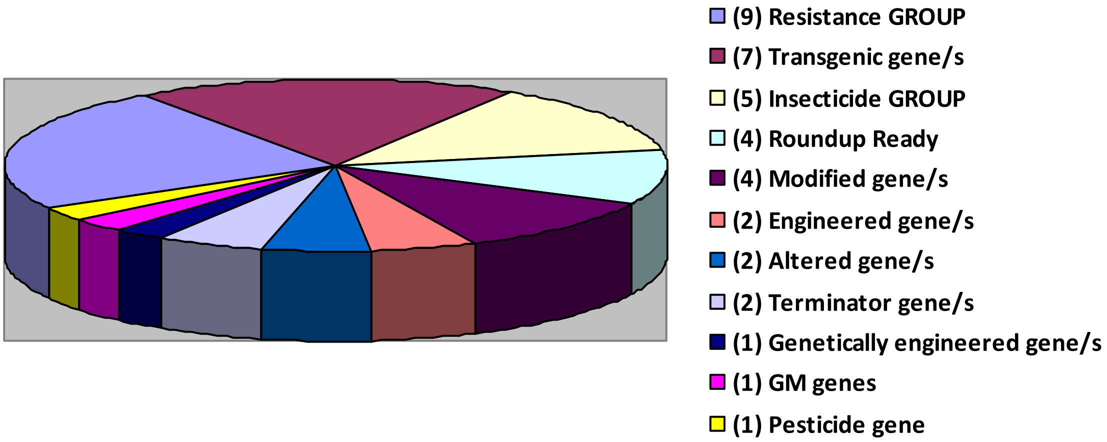

Fig. 5.18: *Pie chart of denominative variants of 'Adj + N (gene/s)' in the English soc corpus.*

En cuanto a los términos subtécnicos, veremos que hay un número mayor de variantes terminológicas en el corpus *soc* comparado con el corpus *sci*, como se muestra a continuación:

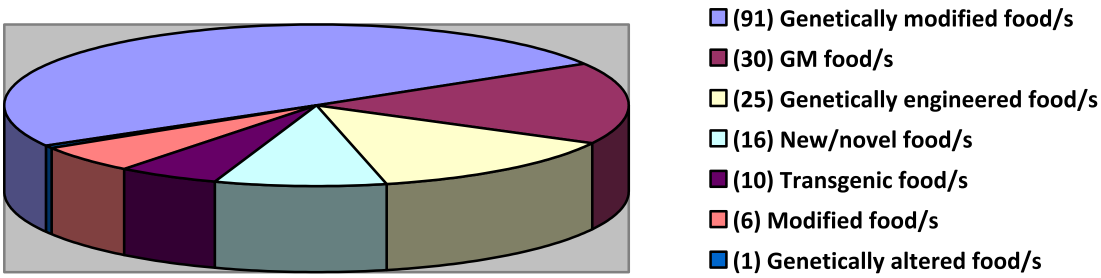

Fig. 5.19: *Pie chart of denominative variants of 'Adj + N (food/s)' in the English sci corpus.*

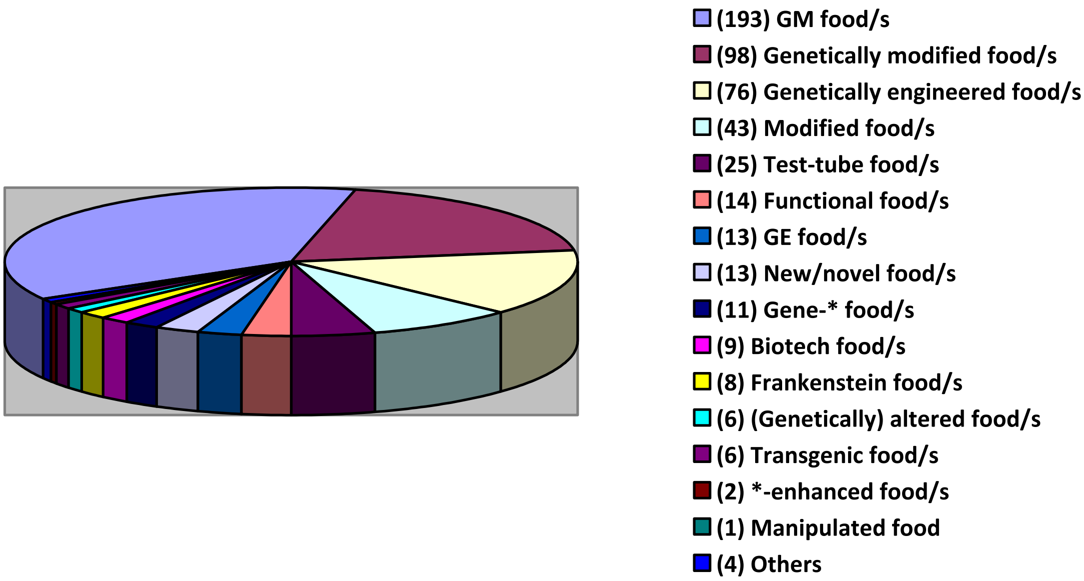

Fig. 5.20: *Pie chart of denominative variants of 'Adj + N (food/s)' in the English soc corpus.*

De igual forma, apreciamos los resultados en el estudio de *crop/s:*

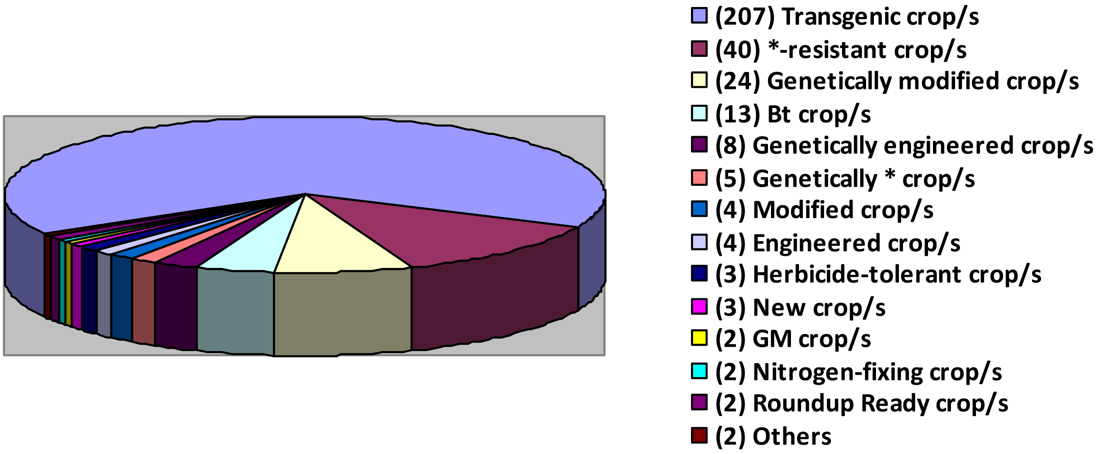

Fig. 5.21: *Denominative variants of 'Adj + N (crop/s)' in the English sci corpus.*

El colocado *transgenic* es el predominante en el corpus *sci* y *soc* para la estructura *Adj + N (crop/s)* (figs. 5.21 y 5.22). Mientras que en el caso de la combinación *Adj + food/s*, el corpus *soc* arroja que *GM food/s* es la variante denominativa más frecuente aunque es debido a que sólo un autor hace uso de la misma (fig. 5.19).

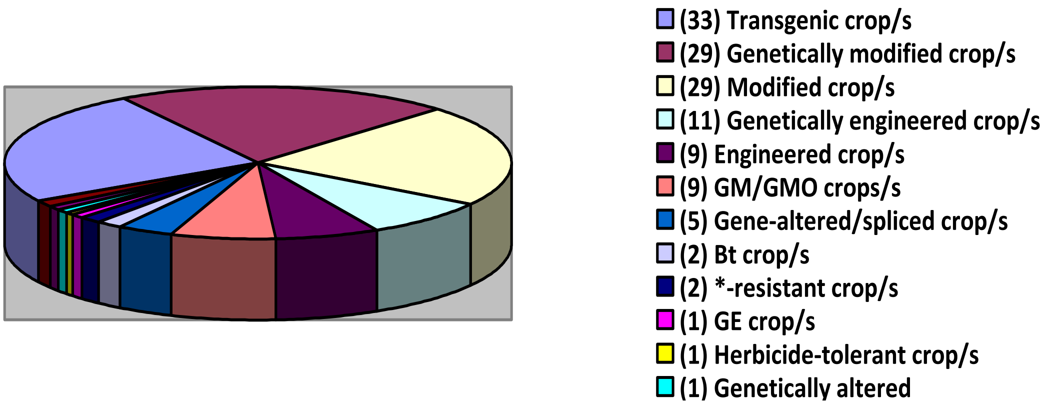

Fig. 5.22: *Denominative variants of 'Adj + N (crop/s)' in the English soc corpus.*

La preferencia terminológica de la colocación *Adj + crop/s* está compartida por tres términos en el *soc corpus*, que son, *transgenic* (33), *genetically modified* (29) y *modified crop/s* (29), los cuales constituyen dos tercios (91) del gráfico 5.22, mientras que la preferencia terminológica en el *sci corpus* está únicamente agrupada en un colocado terminológico, *transgenic crop/s* (207 occurrences) (fig. 5.21).

5.2.4. Prosodia semántica

El estudio de la prosodia semántica de *genetic* y *genetically,* nos ha llevado a investigar sus variantes denominativas: *genetic manipulation, genetic modification* y *genetic recombination.* Los resultados arrojan que no existen diferencias significativas en las prosodias semánticas de estos términos en el corpus *sci,* pero sí en el corpus *soc.*

En cuanto a las colocaciones de *genetically,* es interesante haber encontrado en su perfil colocativo elementos aparentemente neutrales, como *release of,* en cuyo caso, el perfil prosódico referente a las técnicas de la ingeniería genética pasa de ser neutral e inocuo a desfavorable incluso perjudicial. Esta permutación se observa especialmente en el corpus *soc.*

5.3. Normas traductológicas y aspectos ideológicos

El último estadio del análisis cuantitativo viene dado por el estudio de las normas traductológicas encontradas en la traducción de variantes denominativas.

5.3.1. Estrategias generales de la traducción de variantes denominativas

Las estrategias generales en la traducción de variantes denominativas son la traducción formal en los términos técnicos y, la traducción, tanto formal como dinámica, en el caso de términos subtécnicos.

5.3.2. Estrategias generales de la traducción de prosodias semánticas: *Adj + N (DNA, gene/s, food/s,* y *crop/s*)

Otro aspecto interesante es la aparición de prosodias semánticas duales, que consisten en que la prosodia semántica es distinta en inglés y en español. No se han encontrado un número abundante de casos, pero se pueden consultar en los anexos o apéndices al final de la tesis.

6. Conclusiones

La presente tesis se ha basado en el estudio del concepto *modificación genética* a partir de: (1) la extracción de cuatro términos clave (*DNA*, *gene/s*, *food/s*, y *crop/s*), y sus variantes denominativas, además de (2) la identificación e interpretación de las prosodias semánticas de los distintos términos y sus variantes terminológicas, y (3) la identificación de las principales normas traductológicas observadas en la traducción al español peninsular de rasgos característicos de libros de divulgación científica en inglés sobre ingeniería genética (títulos de los libros, términos técnicos y subtécnicos junto con sus variantes terminológicas y prosodias semánticas). Las disciplinas sobre las que se asientan las áreas de conocimiento, que conciernen a cada una de estas tres etapas, constituyen el marco teórico de esta tesis. Las conclusiones del marco teórico se presentan a continuación de manera sucinta:

Capítulos del marco teórico	Breves conclusiones
El género y nivel de especialidad: *Lenguajes de especialidad (LSP)*	La divulgación científica se conceptualiza como re-escritura de género y registro especializado.
Aspectos lingüísticos a estudiar: *Variación denominativa*	Un significado (término) se puede expresar por medio de varios significantes (variación denominativa).
Prosodia semántica	El perfil colocacional de significantes lingüísticos relevantes (variantes denominativas) podría revelar significados ideológicos (prosodia semántica).
Aspectos ideológicos de la traducción	Las variantes denominativas y prosodias semánticas de los textos origen podrían preservarse en la traducción al castellano dependiendo de la noción de equivalencia adoptada y las normas de traducción encontradas.

Tabla 6.23: *Cuadro resumen de las conclusiones principales del marco teórico.*

6.1. Conclusiones del marco teórico

Estas breves conclusiones pertenecientes al marco teórico se desarrollan a continuación y se dividen en conclusiones sobre la divulgación científica, sobre el objeto de estudio y en aquellas conclusiones extraídas de los resultados empíricos:

Divulgación científica

i) Para que un texto se considere especializado debe comunicar o transmitir contenido especializado. El lector al que va dirigido cualquier texto de divulgación científica posee cierto conocimiento del tema a tratar incluso en el caso de un receptor lego, que puede no ser un profesional en la materia pero sí un lector cultivado.

ii) La definición de los lenguajes de especialidad se resiste a una delimitación clara. El tratamiento del contenido especializado es lo que caracteriza al texto como especializado (Cabré and Gómez de Enterría 2006: 55) y, por lo tanto, parece más correcto hablar de usos especializados del lenguaje más que de lenguajes especializados.

iii) En la divulgación científica convergen la lengua general y la especializada (García Palacios et al. 2001: 158). Sin tener en cuenta el grado de especialización, cada lenguaje especializado contiene unidades léxicas del lenguaje general. El lenguaje especializado difiere del general en el contenido semántico y en la expresión de conceptos. Por ejemplo, *secuencia* es parte de la lengua general (*una secuencia de acontecimientos*) y de la especializada (*secuencia de ADN*).

Objeto de estudio: VD, PS y ET.

- Variación denominativa

iv) La terminología es la característica principal de un campo especializado. No hay una terminología únicamente, sino que existen varias terminologías y cada una de ellas pertenece a un determinado lenguaje especializado.

v) El discurso de la divulgación científica se transmite a partir de una serie de estrategias divulgativas. Una de estas estrategias es la variación denominativa. Este fenómeno lingüístico está estrechamente relacionado con el nivel de especialidad de un texto. Cuantas más variedades denominativas encontremos, menos nivel de especialidad se le atribuirá a dicho un texto (Freixá 2002a: 12).

- Prosodia semántica

vi) La prosodia semántica se distingue de la connotación en el sentido de que ésta última es una entidad léxica que se refiere a otra diferente de la que denota su significación primaria. Por el contrario, la prosodia semántica se forma a partir de las nociones de transferencia de significado (Hunston 2002: 141) y significado evaluativo (juicios de valor) (Partington 2004: 131).

vii) A su vez, la prosodia semántica se basa en grupos semánticos consistentes (*semantic sets*); es decir, un determinado elemento léxico coloca normalmente con un conjunto de entes léxicos los cuales pertenecen a un grupo semántico específico (e.g. favorable, desfavorable, preocupación, aburrimiento). Las características de la prosodia semántica abarcan las nociones de significado evaluativo y escondido, a simple vista, además de estar supeditado a su cotexto (Steward 2010: 159). Las prosodias semánticas tienen la capacidad de revelar aspectos lingüísticos insospechados, como la inserción de ideología.

viii) Partiendo de la premisa de que la prosodia semántica opera al nivel de la lengua general, los términos en principio no deberían verse afectados por dicho fenómeno. Sin embargo, la divulgación científica, al ser el nivel menos especializado del *continuum* de especialización y más próximo a la lengua general, podría recibir la influencia de ésta y, por lo tanto, verse afectada por los efectos lingüísticos de la prosodia semántica.

- Estrategias traductológicas

ix) El tipo de texto determina el método de traducción. El presente estudio cuenta con la rama de los Estudios Descriptivos de Traducción (DTS). Toury (1995: 38) estableció un procedimiento analítico trifásico con el objetivo de investigar un texto traducido siguiendo un enfoque descriptivo: en primer lugar (1), una fase cualitativa en la que ubicamos el texto traducido dentro de su polisistema y evaluamos su aceptabilidad dentro de su sistema cultural; a continuación, llevamos a cabo, (2) una identificación de los cambios hallados en el texto meta (sobre variantes denominativas y prosodias semánticas) comparándolos con su texto origen dentro de los pares de segmentos alineados (texto origen y meta), además de establecer una definición de equivalencia traductológica; y por último (3), la formulación de normas y estrategias más comunes que puedan ser de utilidad para futuras traducciones. Este procedimiento se ha empleado como la metodología a seguir en la explotación del corpus.

x) El concepto de equivalencia es la conexión entre el texto original y el traducido. La equivalencia se divide en *formal* y *dinámica* (Nida 1964). La primera está orientada al texto origen e intenta reproducir la forma del original, mientras que la equivalencia dinámica se centra en los recursos que le ofrece la lengua meta para recrear el mismo efecto pragmático del original. A través del estudio de la equivalencia descubrimos las principales estrategias de traducción que los profesionales han tomado en el TM, estrategias para las cuales se debe tener en cuenta el propósito (teoría del skopos) y el receptor. Ambos aspectos determinan las diferentes opciones tomadas en los TTs al español. Cuando analizamos un texto traducido es inevitable no lidiar con una serie de cambios derivados de la diferencia interlingüística entre las dos lenguas de trabajo. Es el texto traducido el que muestra si se ha preservado, modificado o distorsionado el significado del texto original de tal manera que el texto meta puede aparecer fiel o, por el contrario, domesticado.

xi) DTS es un modelo analítico que funciona a base de herramientas empíricas tales como la lingüística de corpus, ya que ésta es empíricamente descriptiva. Un aspecto que la lingüística de corpus puede aportar a los estudios de traducción es, por ejemplo, la búsqueda de concordancias bi- o multilingües en unos pocos segundos que puedan ayudar a la formación epistemológica del usuario profesional.

6.2. Conclusiones del análisis de resultados

Las conclusiones extraídas del análisis empírico son:

- Las variantes denominativas para la estructura *Adj + N* son las siguientes:

DVs (*Adj + N*)			
First most frequent collocate		Second most frequent collocate	
Sci corpus	*Soc corpus*	*Sci corpus*	*Soc corpus*
ENGLISH			
Recombinant DNA (27)	*Recombinant* DNA (8)	*Transgenic* DNA (7)	*Altered* DNA (4)
Resistance gene/s (12)	*Resistance* gene/s (9)	*Engineered* gene/s (7)	*Transgenic* gene/s (7)
Genetically modified food/s (91)	*GM* food/s (193)	*GM* food/s (91)	*Genetically modified* food/s (98)
Transgenic crop/s (207)	*Transgenic* crop/s (33)	*Resistance* crop/s (40)	*Genetically modified* crop/s (29) *Modified* crop/s (29)
SPANISH			
ADN *recombinante* (26)	ADN *recombinante* (8)	ADN *transgénico* (7)	ADN *alterado* (4)
Gene/s de *resistencia* (12)	Gene/s de *resistencia* (9)	Gene/s *alterado/s* (5)	Gene/s *transgénico/s* (7)
Alimento/s *transgénico/s* (102)	Alimento/s *GM* (190)	Alimento/s *MG* (29)	Alimento/s *transgénico/s* (91)
Cultivo/s *transgénicos* (226)	Cultivo/s *transgénicos* (65)	Cultivo/s *resistente/s* (41)	Cultivo/s *genéticamente modificado/s* (18)

Tabla 6.24: *Primer y segundo colocado más frecuente para la estructura 'Adj + DNA/gene/food/crop' (VDs) en los corpus inglés y español (frecuencias totales).*

- La variación denominativa está en relación directa con el nivel de especialización.
- Este fenómeno contribuye a generar un discurso más variado.
- Es un fenómeno lingüístico más estable y limitado en los términos técnicos.
- Las variantes denominativas experimentan una evolución terminológica.

- La prosodia semántica puede ser intrínseca o extrínseca debido a la promiscuidad lingüística.
- Los principios teóricos de la prosodia semántica se basan en los conjuntos semánticos (*semantic sets*) y en la proximidad léxica.
- Este fenómeno, la prosodia semántica, está concatenado semánticamente.
- No todas las prosodias tienen una función evaluadora.
- Todos los términos y palabras en general se pueden ver afectados por el fenómeno de prosodia semántica.
- El análisis de la prosodia semántica es un resultado objetivo de un procedimiento subjetivo relativo a cada hablante.
- La norma general de traducción de variantes denominativas es la imitación de las formas originales del inglés.
- La equivalencia formal desaparece cuando no existen equivalentes directos, como es de esperar.
- La traducción contribuye a la evolución terminológica.
- La traducción de prosodias semánticas indica que el traductor ha preservado el mismo sentido siempre que ha sido posible, que es en la gran mayoría de los casos.
- Los grupos o conjuntos semánticos (*neutral*, *concern*) coexisten dentro de un mismo texto perteneciente a un mismo autor y difieren dentro de un mismo género porque difieren de un autor a otro.
- Los aspectos ideológicos se manifiestan en forma de prosodia semántica en la traducción al español de algunas variantes denominativas.

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PhD Program in Translation and Interpreting

The Concept of 'Genetic Modification' in a Descriptive Translation Study (DTS) of an English-Spanish Corpus of Popular Science Books on Genetic Engineering: Denominative Variation, Semantic Prosody and Ideological Aspects of Translation Strategies

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International doctorate Certification

Submitted to the Universidad de Valladolid

in fulfillment of the requirements for the degree of Doctor of Philosophy

Valladolid May 2013

1. Introduction

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2. Popular Science as a Specialized Language (LSP)

3. Object of study: The Theoretical Framework of Denominative Variation (DV), Semantic Prosody (SP) and Ideological Aspects of Translation Strategies

1. Introduction

> *The most valuable of all talents is that of never using two words when one will do.*
>
> Thomas Jefferson (1743-1826), 3rd US President
>
> Quoted in Pine (2001: 10)

This chapter introduces the aims, motivations, research questions and outline of the study under a theoretical framework, and in this respect, sets the scene for all that follows. In a comprehensive and a progressive way, the theoretical framework prepares the ground for the empirical project. A pair of concluding diagrams at the end of the introduction (see figs. 1.2 and 1.3), illustrate the theoretical aspects of the linguistic disciplines approached in the forthcoming sections. These diagrams serve as a transition from the epistemological framework to the empirical part of this dissertation.

1.1. Aims and motivation

This study has the primary objective of looking into the concept of genetic modification through three linguistic phenomena: denominative variation, semantic prosody and ideological aspects of translation. For this purpose, the dissertation is based on data from a parallel English-Spanish corpus consisting of ten English popular science books on genetic engineering (GE) and their Spanish translations. The whole corpus is subdivided into the books published by scientists (*sci corpus*) and the books published by other authors (*soc corpus*). The extraction of corpus results is oriented to fulfill three core aims illustrated in the following diagram:

PARALLEL CORPUS:	→	**OVERALL AIM:**
ST: English		**To study the concept of *genetic modification* through:**
TT: Spanish		**AIM 1: Denominative variation [Terminology]** (Wordlist, keywords and term extraction)
		AIM 2: Semantic prosody [Semantics] (*Concord* tool in WST5 & *AKSIS Search form*)
		AIM 3: Translation strategies [Translation Studies] (*AKSIS Search form*)

Fig. 1.1: *Diagram of the materials (English-Spanish parallel corpus) and the scope of this study (three aims).*

This research does not only examine linguistic features that characterize popularization as scientific discourse (*first aim*), but also those features that transform scientific discourse into cultural, social and even political discourses (*second aim*). The former aim focuses on the study of a salient feature of scientific popularization –denominative variation– cross-linguistically in the English source texts (ST) and the Spanish translated texts (TT) by means of wordlists, keywords and term extraction. The latter compares semantic prosodies of statistically significant terms in the two languages with the help of the *Concord* tool in *Wordsmith Tools 5* software (WST5) and a query program for bilingual concordances, the *AKSIS search form,* developed and customized at the University of Bergen (Norway).

As for the choice of the subject matter, the texts about GE have been selected because they have provoked a translation challenge for the researcher for a variety of reasons (*third aim*). On the one hand, there is no direct equivalent in Spanish for the term *genetically engineered*. On the other hand, the subject of *genetically modified organisms* (GMOs) is worth studying from a linguistic point of view if we assume this controversial topic has a linguistic correlation. The difficulties of translating denominative variation, semantic prosody and ideological aspects of translation units into Spanish convert these three elements in the distinctive features of this dissertation:

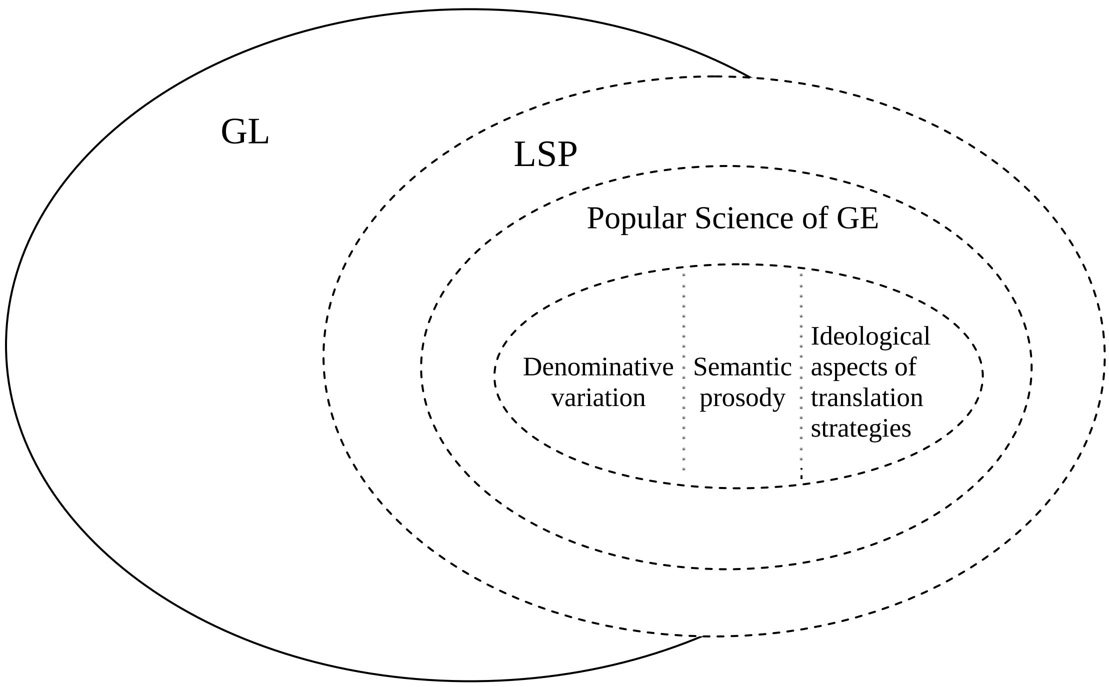

Fig. 1.2: *Figure illustrating the relationship between GL and the LSP variety under study (popular science books of GE) along with the three-dimensional object of analysis (denominative variation, semantic prosody and ideological aspects of translation strategies).*

With this in mind, wordlists, keywords and terms extracted from an *ad hoc* corpus will be addressed to examine denominative variation, semantic prosodies and translation strategies, each one of the three included in chapter 3, entitled *object of study,* which is preceded by an introduction on popular science as a specialized genre (chapter 2).

1.1.1. Popular science as language for special purposes (LSP): Denominative variation (DV)

This project chooses popular science books as its object of study (chapter 2) because: (1) it is a genre yet to be exhaustively studied, (2) it is also a genre that exhibits challenges as the texts may be considered politically sensitive, and finally (3), due to the status of English as a lingua franca, popular science is a genre with availability of enough texts translated into Spanish so as to form a representative corpus.

The motivation for selecting English and Spanish popular science texts as the raw material for this study derives from the effect of English as a global language and a tool for international communication. Let us develop further this idea of selecting popular science as the genre to be studied.

In particular, the elite of scientific experts mainly publish their research journal articles in English, at least in the United States and Europe. In a study conducted at the University of Valladolid in 2008 (Ferguson forthcoming), a group of Spanish professors at the Faculty of Science were interviewed about the role of English as the international language of academic knowledge. The interviewees reported that it was difficult not to write their research articles in English (*peer review*) as the Spanish journals are usually not indexed and hardly exist at an expert-to-expert level. As a result, English as a global language may be seen as a threat both to minority languages (Crystal 2003: 14) and multilingualism (House 2003), and that is the case of many research articles on genetic engineering in Peninsular Spanish (Castilian Spanish), which are difficult to find.

This fact implies that the pool of Spanish texts on genetic engineering belong mainly to popular science discourse. In other words, the general Spanish well-read public –who wishes to access information about genetic engineering in Spanish– are practically obliged to read popular science (e.g. popular science books, newspaper articles). And how a hotly debated issue such as genetic engineering is being transmitted to the general public and being translated cross-linguistically is the major linguistic endeavor we seek to achieve. More specifically, this study examines how a number of technical and semitechnical terms vary their key denominations across the whole corpus and hence, denominative variation will be the first linguistic phenomenon to be dealt with in chapter 3.

1.1.2. Semantic prosody (SP)

Apart from denominative variation, the second linguistic aspect that the dissertation focuses on particularly concerns semantic prosody. The interest in semantic prosody is justified by the fact that previous research has focused on the study of semantic prosody in English, only tending to overlook the study of semantic prosody in other languages (Xiao and McEnery 2006: 108). Other than English, Tognini-Bonelli (2001: 113) has explored semantic prosodies in Italian, Xiao and McENery (2006: 103-29) in Chinese, and Munday (2011) in Spanish, to name a few. Not only the lack of studies in other languages is enough good reason for the study of semantic prosodies, but also the fact that devoting part of the research to this area may help clarify whether denominative variants –presumably devoid of intended meaning– are affected by semantic prosody within a discourse –popular science– very receptive to welcome attitudinal signified.

The potential evaluative function embedded in the concept of semantic prosody, by which meanings, sometimes hidden, are associated with a usual lexical item or an unusual combination of units, may affect the objectivity of language by suggesting writer's attitude. Semantic prosody is a linguistic phenomenon systematically studied since the birth of corpus linguistics (CL) as a discipline. That is the reason why the theoretical and conceptual aspects of semantic prosody are discussed in chapter 3 together with the tenets of CL (chapter 4).

1.1.3. Ideological aspects of translation (Translation Studies)

In addition to DV and SP, chapter 3 is also devoted to deal with aspects of translation. This dissertation does not deal with the study of the cognitive process of translation but rather as a product. So as for the interest in translation, the act of translating always involves some degree of meaning modification (semantically, pragmatically) of the ST, partly because lexical entities in the ST do not have an exact synonym in the TL. But also because meaning cannot always be transported from one language to another without some translational shift, which may compromise both the formal and dynamic equivalence of the ST to some degree by inserting, accidentally or deliberately, the translators' own ideology. And this rendering may be more likely to take place with politically sensitive topics like genetic engineering. This is a sensitive field where empirical investigation might expect to find some ideological intrusions in the Spanish translations.

In order to explain translation phenomena from the selected corpus (*GE_P-ACTRES corpus*) on genetic engineering, a descriptive translation study (DTS) has been conducted following Toury's ideas. We should bear in mind that a descriptive analysis shows the functionality of language (Izquierdo 2008: 13) and thus, stating that the overall frame of the dissertation is functional implies that the lexical items to be studied have been chosen to examine the functioning of words in context, that is, their usage (e.g. the functionality of denominative variation and semantic prosody).

1.2. Research questions

The previous section above represents a summary overview of the theoretical framework that has been laid out before the postulation of the research questions that guide this dissertation. These questions are divided into three main categories that correspond to the three aforementioned linguistic phenomena: the research questions regarding denominative variation, one of the lexical features of the selected popular science texts; those questions concerning semantic prosody; and those regarding translation strategies and ideological aspects of translation.

1.2.1. Denominative variation

(1) a) What are the key lexical features and terminology, of English popular science texts, identified by corpus software tools (e.g. keyword lists)?

b) How are these key lexical features in the Spanish translated texts? Are there different ways of translating the same term from English into Spanish? What is the extent of denominative variation in the *sci* and the *soc corpus*?

1.2.2. Semantic prosody

(2) a) What are the semantic prosodies and semantic features of key lexical expressions in the English STs of popular science books?

b) What are the semantic prosodies and semantic features of key lexical expressions as they are translated in the Spanish TTs? Are the semantic prosodies in the Spanish TTs the same or different from those in the English STs? Are they the same or different in the *sci* compared to the *soc corpus?* If different, how are they different?

1.2.3. Translation strategies and ideology

(3) a) Is there any norm or tendency common to the majority of TTs? Is there any significant strategy deviated from those tendencies?

b) Are translation universals manifested in the texts? Does the appearance or absence of translation universals (e.g. explicitation, simplification and normalization) correlate with the genre of popular science books?

c) Do ideology and translator's point of view modify or maintain translation equivalence? Are translators' attitudes loading the language with value-laden wording or is it due to the incompatibility of linguistic interfaces between English and Spanish lexicon and grammar? How about DVs and SPs between the *sci* and the *soc corpus*?

We are thus confronted with an array of questions that cannot be treated in isolation. The answer to these questions may be of help when dealing with specialized translation and, may also enrich the teaching and learning of language features for specific purposes. By this way of reasoning, this dissertation contributes to translation studies by investigating how the Spanish translations select translation equivalents that have denominative variants and semantic prosodies both similar to and different from those in English.

1.3. Outline

In order to answer the research questions set out previously, the dissertation is broken down into three main parts: (I) the epistemological or theoretical framework, (II) the research design and methodology, (III) and the data analysis and discussion. Each one of these parts is subdivided into an introduction, a set of interrelated sections/chapters and a set of concluding remarks.

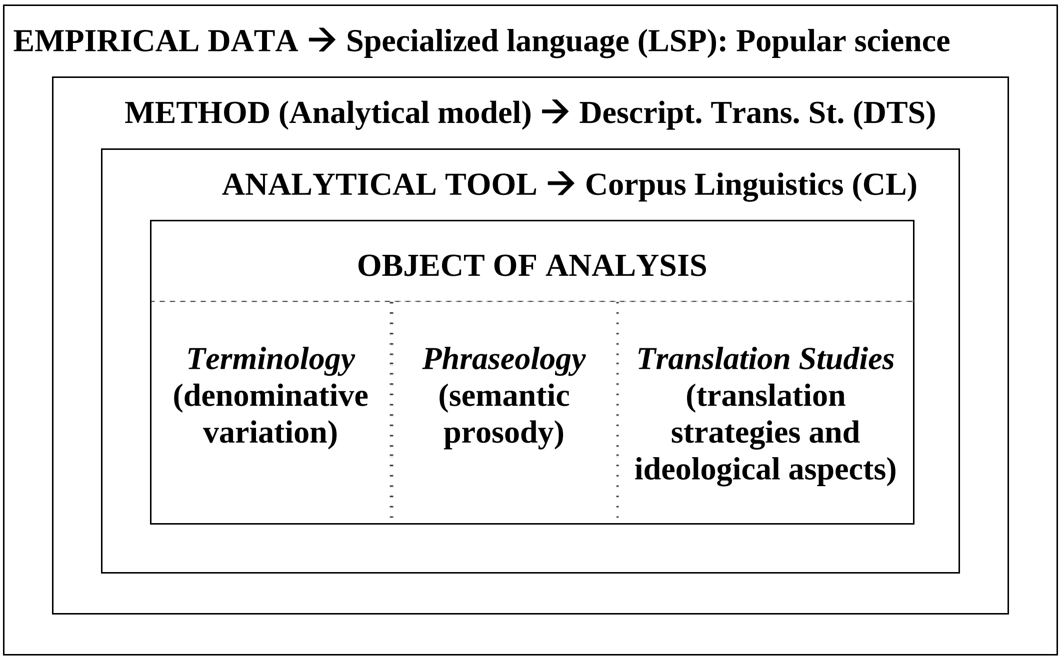

Fig. 1.3: *Research outline along with the three-fold object of study.*

The theoretical framework comprises two chapters on (i) specialized languages and popular science discourse, with reference to terminology, and also (ii) the object of study, consisting of the examination of DV, SP and translation strategies with a special focus on ideological aspects of translation. It is worth bearing in mind that the field of semantics acts as the thread connecting the three-fold object of study in the theoretical framework.

With regard to the methodology, the research design is based on the framework of corpus linguistics in order to account for the procedure of corpus compilation and exploitation.

The data analysis following a DTS approach provides the results to discuss the outcome and implications of this research. That is, the corpus exploitation includes a depurated term list from which denominative variants of four specific terms have been analyzed and compared to their Spanish equivalents (TT). In addition, the semantic prosodies of two specific terms that embrace the concept of *genetic modification* have been examined along with the translation strategies observed in the TTs. The final part of the PhD dissertation includes a summary of the main points along with some limitations and directions for future research.

1.4. Hypotheses

Once the research project has been outlined, what is remaining is the set of provisional premises or hypotheses. Thus, this section would appear to lend support to the following assumptions:

1.4.1. LSP and DV

i.) It is expected to find that the level of specialization is not homogenous throughout popular science texts. The books in the popular science corpus may contain different degrees of specialization, as the discourse of GE is embedded and intertwined with other related scientific discoveries (e.g. cloning, genetically modified vaccines). Myers rightly points out to the fact that there may be different types of specialization within the same genre (Myers 2003: 271).

ii.) Given the diverse background of the writers, it is hypothesized that denominations vary according to the authors, terminology and genre, and as a result, a fewer number of denominative variants will take place in the English *sci* compared to the *soc corpus*. The avoidance of denominative variation reduces the level of explicitation in the ST, and the explicitness of variants in the TT may imply that a change in the level of specialization may have taken place.

iii.) It is expected to encounter a higher number of denominative variants when studying semitechnical terms in comparison with technical terminology, which originates in more fixed and stable specialized contexts from expert to expert.

iv.) It is also expected that the denomination of variants is linguistically motivated (e.g. *manipulated* vs *engineered*), and for this reason, some variants may have a biased meaning.

1.4.2. SP

v.) Semantic prosody occurs in general language and is less likely to occur in specialized contexts. However, it is hypothesized that semantic prosody is strongly linked to the books published by authors other than scientists (the *soc corpus*).

vi.) Terms are assumed to be not emotionally charged, and hence, it may be predictable that terms like *genetically engineered* and *genetically modified* lack semantic prosody. Whereas *genetically manipulated* and *genetically altered* may be more prone to typically co-occur with semantic sets expressing conventionally unfavorable states of affairs, such as *risks*, *concerns, opposition* and *resistance*, but also semantic sets of the agents showing opposition, such as *ecologists.* In other words, the insertion of ideology is expected to be encountered in semantic prosodies that have semantically controversial collocates within their collocational profile.

1.4.3. Translation Studies (TS)

vii.) It seems that the study of attitudes (semantic prosody) will concern a more open set of translation strategies close to the target language (*domestication*), whereas examining other types of linguistic patterns contrastively (e.g. denominative variation of technical terms in collocations) would seem to involve a less open attitude, a different level of emotion and a more faithful translation approach to the original text (*foreignization*).

viii.) It is expected to discover the insertion of ideology at rendering denominative variants that do not have a direct equivalent into Spanish. The semantic prosodies of denominative variants may differ from one key term to another and cross-linguistically.

It is not the aim of this dissertation to discuss whether the process of modifying the DNA of one organism for the benefit of another is advantageous. In fact, it is not a man-made idea since some bacteria (e.g. *Agrobacterium*) have been achieving this feature for millions of years. Having stated that, the next chapter on LSP (chapter 2) will pave the way for the study of the state of the art of the three-fold object of study (chapter 3).

1. **Introduction**

2. Popular Science as a Specialized Language (LSP)

2.1. Language for Special Purposes (LSP)
2.2. General Language (GL) vs. specialized languag**e** (LSP)
2.3. Defining specialized languag**es** (PAL)
  2.3.1. Cabré’s tripartite model (1993)
    2.3.1.1. Pragmatic criteria
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2.4. PAL vs scientific popularization: How to detect specialization
2.5. Defining scientific popularization
  2.5.1. Semi-expert magazines
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3. **Object of Study: The Theoretical Framework of Denominative Variation (DV), Semantic Prosody (SP) and Ideological Aspects of Translation Strategies**

2. Popular Science as a Specialized Language (LSP)

The diffusion of knowledge is the only guardian of true liberty

James Madison (1751-1836), 4th US President

Quoted in Pine (2001:12)

Since the dissertation examines texts about a specialized topic, such as genetic engineering, this chapter demands an exploration of languages used with a special or specific purpose (LSP). The textual purpose determines the varying degrees of specialization in LSP that range from the highest level of specialization –PAL– to the virtual absence of specialized features –general language–. The LSP degrees between the highest and the lowest level of specialization are considered *scientific popularization*. Four communicative settings within scientific popularization were selected in order to categorize the level of specialization of the popular science books that comprise our parallel corpus on genetic engineering.

2.1. Language for Special Purposes (LSP)

In Europe, there is a tendency to consider the concept of a *specialized language* as synonymous with *language for special/specific purposes*, whereas in the United States LSP is constrained to the teaching of specialized languages (Wright and Budin 1997: 330). There are specialized languages used in particular domains (e.g. medicine, science, law), which may alternatively be considered “specialized registers”, “functional registers” (Cabré and Gómez de Enterría 2006: 15) or “situational variables of usage” (see Gläser 1995: 164). These specialized languages use linguistic devices (e.g. a special terminology or lexis and certain grammatical features) with a higher frequency than in everyday language; thus, they show a wide-ranging spectrum of specialization rather than being a completely separate language from regular, general language (GL).

The highly specialized registers –communication between experts– are called in this dissertation specialized registers proper, specialized languages proper or PAL. Edo Marzá (2008: 12-13) proposes naming specialized languages with the acronym PAL, which stands for *Professional and Academic Language* to steer clear of only considering the pedagogical point of view of LSPs. Notwithstanding, the newly coined acronym, PAL, is considered appropriate for this study to name exclusively expert-to-expert communication. Hence, PAL will have a restricted domain in this dissertation and will be equivalent to specialized languages *per se*. In this sense, PAL will include the two traditional areas enunciated by Hutchinson and Waters (1987:

16-17): English/language for Academic purposes (EAP) and English/language for Occupational purposes (EOP). These two areas refer to PAL or specialized languages/registers in plural (e.g. scientific and technical English, medical English, legal English, business English and other Englishes from social sciences among others at the expert-to-expert level) (see 2.3.). However, specialized language/register in the singular is equivalent to discourse (in this case, it is specialized discourse) and assumes the presence of any LSP text about a special subject language involving a particular degree of specificity (see 2.4.).

Therefore, specialized languages and LSP imply slightly different concepts, as it is necessary to avoid an overlap between the two. LSP not only refers to the teaching of specialized languages but to the study and use of language put for a special purpose (PAL and scientific popularization). The popular science texts selected for this study are considered representative of a language employed for the specific purpose of informing for a wide audience. To further that understanding, a language for special purposes means that we use the resources of the whole language –including everyday language and specialized language– for a specific purpose (e.g. to discuss banking or a laboratory experiment). Hence the purpose of language in a particular discourse influences which linguistic resources (lexis, grammar) we use, and these resources can also include what we consider to be everyday language. Both everyday language and languages for special purposes share a set of linguistic features from the common core (Balboni 1986: 2, Robinson 1991: 21) of natural language as illustrated in figure 2.1.

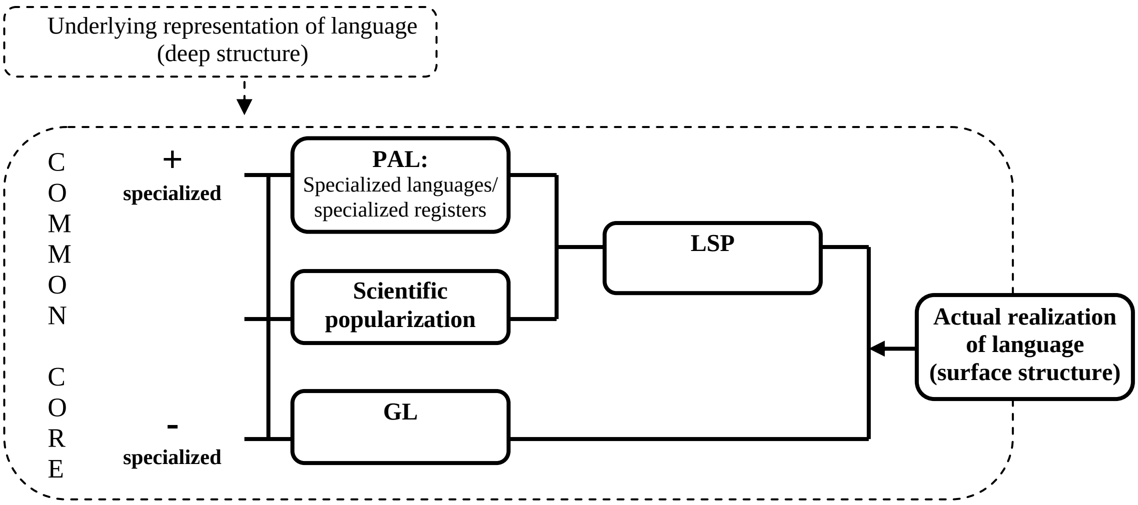


Fig. 2.1: *Diagram of deep and surface structure of language comprising General Language (GL) and Language for Specific Purposes (LSP).*

Figure 2.1 shows Widdowson’s hypothesis that LSP is not a textual variety (Widdowson 1979 quoted in Balboni 1986: 3), but an actualization in the surface structure that emerges from the language deep structure. In other words, the common core of language holds the underlying representation of language (deep structure) that gives rise to the actual realization of language (surface structure) in the form of general language and language for special purposes. Every LSP (LSP_1, LSP_2, etc.) is subdivided into specialized languages *sensu stricto:* (PAL) and scientific popularization. Both specialized languages and scientific popularization trigger the existence of several specialized genres (e.g. research article) in terms of the topic and the level of specialization as shown below:

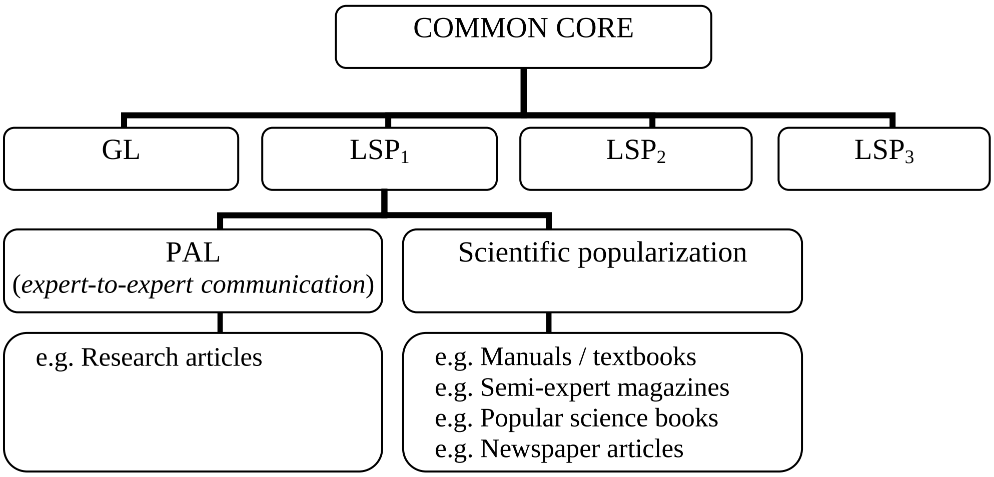


Fig. 2.2: *Diagram of several genres according to PAL and scientific popularization.*

This diagram categorizes several examples of genres according to both formal criteria and linguistic resources that vary in frequency (e.g. terms) depending on the communicative setting. Only five genres were considered to illustrate this diagram, as these are consolidated genres with distinguishing degrees of specialization. Popularization is primarily identified as the genre whose audiences are non-specialists (Gotti 2003: 293). However, in this dissertation, we broaden the concept of *scientific popularization* as any communicative setting (e.g. semi-expert magazines, textbooks, popular science books, newspaper articles) other than expert-to-expert (e.g. research articles). The popular science books selected for the study are located at a low position in the scale of popularization, and therefore, in the specialization within LSPs. This is because the low frequency rate of linguistic devices from LSP occurring in scientific popularization is usually proportional to the level of specialization in a text. Thus, the aim of determining the degrees of specialization in a language (also called LSP varieties) and how they differ from each other are the key issues –although difficult ones– of language for special purposes (Robinson 1991: 19).

However, if we consider that specialized language refers to specialized communication, then everyday language is not exempt from dealing with specialized subject fields. Therefore, the question that arises at this point is where the boundary is located between general language and specialized language. LSP features will be defined in relation with general language in the forthcoming section.

2.2. General Language (GL) vs. specialized language (LSP)

Much has been discussed about general and specialized language, and as a result, there is still not a definite theory on the question of the delimitation of the general-purpose language and domain-specific languages. This is due to the unclear boundary between everyday language and language for specialized communication. Due to the characteristics shared by general and specialized language, the division between the two is a far-from-easy task. In spite of the controversy, there are two prominent views about the relationship between general and specialized language (Cabré et al. 2002: 4):

(a) One of **exclusivity**, in which linguists seek to draw the boundaries between GL and specialized languages (e.g. Sager et al. 1980: 21):

Specialized languages in plural (between experts) = PAL

(b) The other of **continuity**, in which GL and specialized language are seen as a continuum of specialization (e.g. De Beaugrande 1987: 3; Douglas 2000: 1; Balboni 1986: 4, Varantola 1986: 11):

Specialized language in the singular (specialized discourse) =
PAL + scientific popularization

In the *first view*, the concept of exclusivity distinguishes extremes of specialization within a specialized language –only shared by experts– and, also, language used for a general purpose (Sager et al. 1980: 69). It is argued that a specialized language is a restricted form of GL (Gledhill 2000: 2). Cabré (1993: 132-4) also argues that specialized languages are considered half way between natural and artificial languages and, function pragmatically as subcodes of language; whereas general language is identified as the "less 'disciplined' structure of 'general knowledge'" (Sager 1990: 19), acquired and shared by all native speakers of a language and devoid of a specific social function:

> [GL is] independent of the speaker's (or learner's) social role or professional needs; it includes the Threshold Level, which permits survival and everyday communication and expression (Balboni 1986: 3).

It is the social and professional purpose that makes specialized languages (PAL in particular) be employed more self-consciously than GL. At the same time, PAL may well deserve being labeled as *specialized languages* since they are conceptualized as the highest development of a language used for a special purpose. In Sager et al.'s words (1980), specialized languages are normally used for communication between experts in a disciplinary domain (e.g. biology), rather than for laymen or the general audience, as pointed out in the quote below:

> Special Languages are semi-autonomous, complex semiotic systems based on and derived from general language; their use presupposes special education and is restricted to communication among specialists in the same or closely related fields (Sager et al. 1980: 69).

Although restricted, Robinson (1991: 20) comments that Sager et al. 1980's definition is unequivocal by mainly taking into account the users and the communicative setting of a well-defined discourse community –the community of experts–.

Another distinction between specialization proper and the absence of specialization resides in the fact that the "semantic difference between general and special languages is not only quantitative but also qualitative" (Sager et al. 1980: 4). For example, PAL texts tend to be precise, relevant, objective and unambiguous:

> En su grado máximo de especialización, se trata de textos básicamente informativos, muy concisos, con poca redundancia o redundancia nula, con una sintaxis muy restringida, con recursos que reafirman su objetividad y despersonalización (Cabré and Gómez de Enterría 2006: 62).

Nevertheless, the main difference between special and GL lies in the use of language (Cabré and Gómez de Enterría 2006: 27; Sager et al. 1980: 13). The language employed for particular purposes supplements the GL and builds upon the systemic nature of language by means of exploiting linguistic resources for the expression of complex concepts and complex relationships among concepts (Sager et al. 1980: 15-6). The linguistic resources of PAL do not imply a grammar that is completely different from ordinary language, but a greater frequency of the use of certain constructions –a different distribution of grammatical and lexical structures–, as we have commented above (see 2.1). Since PAL is thematically marked, its genres are concise and deprived of emotionality, the frequency of its units is outstanding and the degree of elaboration is high, usually comprising semiotic symbols (Cabré 1999: 87).

Despite the fact that Sager et al. (1980) do not deal with the issue of scientific popularization in detail, these three linguists mention that popular science does not contain a specialized message since further education is not needed for a speaker to understand the discourse of popular science:

> A message is special when what society considers as special education or training is required to understand it. This criterion excludes the language of literature, as well as general journalism and popular science. It is more difficult to define special languages in terms of production as journalism and popular science messages are produced by specialists (Sager et al. 1980: 68).

This quote raises the difficulty of classifying popular science texts as specialized, especially when they are issued by specialists. It is, however, in the *second view* –continuity– that specialized language is conceptualized as a number of functional variations of natural language within the continuum of specialization including other LSP varieties –such as popular science–, not only PAL. And therefore the popular science texts of this study are considered specialized whenever experts and specialists (e.g. scientists, journalists that are specialists on the matter) on genetic engineering are the text producers.

What seems to be clear from these two views is that GL is the starting point to characterize and understand the process of creation of specialized language. This is mainly because specialized knowledge departs from general knowledge and specialized languages are built upon the ground of natural languages (Cabré 1993: 136). If we assume that specialized languages are assembled with the common core of language as the raw material, then it is not basically true to state that a specialist in a given field of study, unable to establish daily-life communication in another language, is capable of understanding an expert-to-expert text in a foreign or second language (cf. Cabré 1993: 147). In order to understand a highly specialized text in another language, the reader should be first in command of the GL variety in which the text was produced. Apart from being acquainted with the GL, there are other parameters that we should be aware of and that also define specialized languages.

2.3. Defining specialized languag<u>es</u> (PAL)

There are three main criteria to identify specialized languages: the thematic, the communicative and the formal criteria. In terms of the *topic*, Sager et al. (1980: 72) call them *subject specialized languages*. The fact that a text is about mathematics, biology, economics or law indicates that there are prototypical topics to be considered specialized texts.

The criterion of a specialized topic is insufficient to define specialized discourse, given that daily activities also involve knowledge from specialized domains. The communicative and the formal criteria are the elements that best facilitate the distinction between general and specialized languages. With regard to *communicative factors*, there are three: pragmatic, functional and linguistic factors (Cabré 1993: 151) that will be examined in the next section;

and with respect to *formal criteria*, the notion of genre will be dealt with in 2.3.2.

2.3.1. Cabré's tripartite model (1993)

In order to characterize languages for special purposes of different fields of study, Cabré and Gómez de Entería (2006: 37) establish two axes: a thematic axis (horizontal) and, an axis comprising the level of specialization (vertical). The horizontal one makes *specialized languages/registers* in plural equivalent to PAL specific domains. It is the vertical axis that turns *specialized language/register* in the singular (LSP) into the hyponym of PAL and scientific popularization. The vertical axis is subdivided according to three distinctive features (*communicative factors*) –pragmatic, functional and linguistic– (Cabré 1993: 151) that are shown below:

VERTICAL AXIS (*y*) [level of specialization]

1) Pragmatic criterion

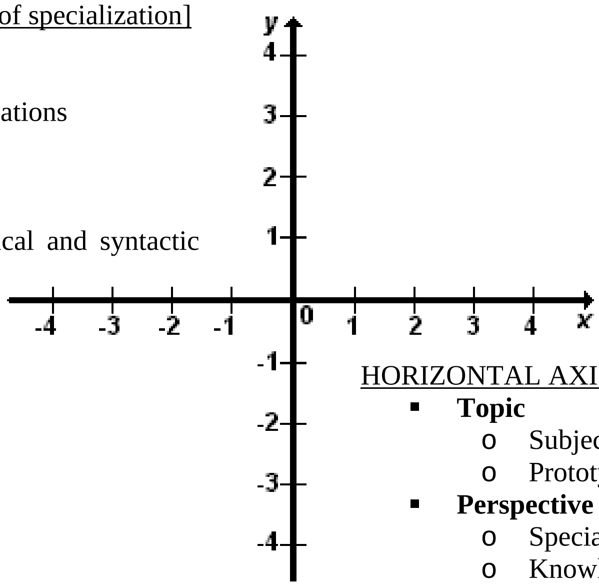
- Users
- Communicative situations

2) Functional criterion

- Text type functions

3) Linguistic criterion

- Lexical, morphological and syntactic characteristics



HORIZONTAL AXIS (*x*) [thematic]

- **Topic**
  - Subject specialized languages
  - Prototypicality
- **Perspective**
  - Specialized point of view
  - Knowledge transfer

Fig. 2.3: *Diagram of the horizontal –thematic– and vertical axes –pragmatic, functional and linguistic criteria– for characterizing LSP (based on Cabré's model of 1993).*

In the horizontal axis (x), the thematic criterion detects as many specialized topics (x_1, x_2, x_3, *etc.*) as human activities of specialization. A classification that is structured by subject domains is the Universal Decimal Classification or *UDC system* (http://www.udcc.org/about.htm). In the vertical axis (y), the pragmatic, functional and linguistic criteria are represented depending on the level of specialization (y_1, y_2, y_3, *etc.*). The same field of study (e.g. x_1) can be approached at least from a technical (y_1), popular (y_2) or general perspective (y_3), whose standpoints encompass *ad hoc* linguistic features and a number of users (e.g. experts, specialists or laymen). The expansion of these criteria in the forthcoming paragraphs will help to clarify the notion of PAL compared to scientific popularization.

2.3.1.1. Pragmatic criteria

Prima facie, it is clear that specialized languages are pragmatically considered a vehicle of communication of specialized knowledge (Lerat 1997: 17). From Cabré's three criteria to classify LSPs, the pragmatic is the one that primarily entails a social dimension, and thus, a specialized register is activated, due to the discursive context in which a text is originated.

Sager et al. (1980: 2) argue that the definition of specialized languages only in linguistic terms raises some difficulties because it is the extralinguistic or pragmatic factors, –that is, the users–, the discourse community and the communicative situation –rather than linguistic ones (e.g. terminology)– what shapes specialized languages.

There are at least several pragmatic features that describe specialized languages. They are user-oriented and their receivers belong to a discourse community from a certain geographical location. In addition, PAL is an interactive, written and a socially-determined controlled activity.

- **USER-ORIENTED**: From a pragmatic point of view, the user group, the topic, the sociolect and the communicative situation will determine different domains of usage. Both the addresser and the addressee are experts. Therefore, it is assumed that the user group or the discourse community share the special knowledge being communicated.
- **DISCOURSE COMMUNITY**: The more specialized a language is, the more restricted the users are and the more international their units and rules are (Cabré 1993: 147; Cabré and Gómez de Enterría 2006: 22). The discourse community of experts will be scientists who publish, *inter alia*, research articles, reports and patents. On the contrary, the less specialized the level is, the less restricted the user group will be.
- **MODE:** The mode depends on the channel of communication. Specialized register is mostly used and largely refers to written communication and much less to spoken language because it is mainly conveyed in written rather than oral form, especially in academic discourse (Robinson 1991: 31). Along the text, written semiotic systems may appear to supplement specialized languages (e.g. chemical symbols).
- **GEOGRAPHICAL LOCATION:** Specialized registers are predominantly used in developed countries (Lerat 1997: 13) in order to meet the necessity of describing the advances and development of science and technology in the industrialized world.
- **INTERACTIVITY**: A particular specialized language (x_1) shares features with other specialized languages (x_2, x_3, *etc.*) and with the general language (see *banalization* and *terminologization* in fig. 3.2), and therefore, PALs are far from being isolated systems (Kocourek 1982 quoted in Cabré 1993: 135).

- **CONTROLLED ACTIVITY**: Writing science from a specialized perspective is usually a controlled, lexically dense and revized activity (e.g. drafting, self-revision, peer reviewing). Grammatical complex oral discourse is less controlled and spontaneous than the act of writing.
- **SOCIALLY-DETERMINED**: The rationale of LSP is social, since there is more than one human activity that requires certain degree of specialization. Specialized languages are consciously created (Sager et al. 1980: 4), because specialized knowledge is the product of a social convention (Sager et al. 1980: 72).

2.3.1.2. Functional criteria

At the same time, the pragmatic criterion is in need of the instrumental character of language, meaning that the functional nature of language is used with a variety of objectives. It is the inherent communicative function –in particular, the referential function– the one that leads the way to choose what genre is appropriate to communicate each degree of specialized knowledge.

- **FUNCTIONAL NATURE**: According to the traditional theory of terminology (see 3.1.1.1.), Picht and Draskau (1985: 11) use the term *monofunctional character* so as to refer to the specific social framework in which special register is used. It is assumed that the specific social framework of PAL is devoid of emotional or poetic functions (Balboni 1986: 4), so that connotative or figurative meanings are avoided. Research articles tend to be precise and unambiguous and represent objectivity with an impersonal style proper of high-specialized registers. Thus, research articles stand for the referential function of language.
- **DYNAMIC NATURE**: The level of abstraction is in accordance with the topic, the users and communicative purposes (Cabré 1993: 140). They are not static and have the potential to create different genres according to their communicative function. Although, the function of specialized languages is primarily referential, the functional criterion presents variation based on the usage and the communicative setting along the continuum of specialization giving rise to other LSP varieties.

2.3.1.3. Linguistic criteria

Specialized knowledge comes across through a set of linguistic devices. PAL shows a series of marked characteristics that are deviant from the general language. The unmarked character of the GL implies that there are no pragmatic or linguistic characteristics that make the general or standard language special (Cabré 1993: 128-9, 136). For that reason, the frequency in use of certain marked structures confer special registers the status of specificity.

The monofunctional character of specialized registers emerges in the text in the form of linguistic features that are shared and non-shared between other specialized languages.

- **SHARED CHARACTERISTICS**: Special registers are assumed to share similar linguistic and pragmatic characteristics. Among the linguistic characteristics, the frequency of marked structures –morphological and syntactical– and vocabulary –lexical– will determine different linguistic expression systems. From these elements, the lexical (e.g. terminology) is the most salient one from which a large number of words become terms (Balboni 1986: 3). The type of structures and vocabulary will be selected not only according to the communicative setting but also to the level of accuracy chosen by the author of the specialized text. Regarding morphological and syntactical features, written specialized technical language tends to be characterized by an economy of words, greater use of nominalization, denser noun phrase structures and a particular use of verbal tenses often different from the GL. It is not basically true to state that specialized communication necessarily has a more complex clause structure –in fact very nominal language tends to yield less clausal complexity.
- **NON-SHARED CHARACTERISTICS:** The specialized language used in different disciplines is quite distinct, the greatest difference being between the hard sciences (e.g. physical sciences and engineering) and the social sciences (e.g. sociology, marketing, etc.).

Not only do lexical, morphological and syntactic characteristics define specialized registers. Indeed, the specialized part in specialized languages lies often in genre as much as in grammar and vocabulary. Specialized languages appear in certain genres that are identified by particular discourse communities. Therefore, genre is also relevant in the characterization of specialized register within LSP.

2.3.2. Formal criteria: Genre analysis

It is especially in the vertical axis (level of specialization) where the concepts of genre and register mainly take place. The pragmatic, functional and linguistic criteria are parameters that explain specialized language descriptively whereas the analysis of genre tends to formulate specialized register prescriptively (Robinson 1991: 26). It is the prescriptive parameter that accounts for the rules to write a specialized document, since specialized language conventions are not learned spontaneously but consciously (Cabré and Gómez de Enterría 2006: 44).

2.3.2.1. Genre and text type

The concept of genre is interrelated with the notions of text type, register, discourse and style. Terminological instability is evident, since differences between these four concepts are not always clear. De Beaugrande and Dressler (1981: 183) claim that "our typology turns out to be fuzzy and diffuse; it is only reflecting the state of affairs in real communication". However, the knowledge of the meaning of these terms constitutes the mainstay that offers insights for the deepening into genre analysis.

In the last two decades, several genre theorists and genre analysts have employed the concept of *genre* as an ideal theoretical framework –although, complex– in order to analyze both the form and the function of scientific discourse (Hyon 1996: 693). Several linguists (Hyon 1996, Paltridge 2007, Yunick 1997) have investigated the main approaches to the notion of genre from three different scholarly traditions: Australian systemic functional linguistics (Sydney school), North American New Rhetoric studies and English for Specific Purposes (ESP).

In terms of the differences and similarities, the three schools share the common ground of focusing on the social function of language use in order to apply the results in teaching contexts (see table 2.4), but they differ in the way linguists extrapolate the outcome to language learning environments (Yunick 1997: 322). This may be due to the different theoretical background in which the three traditions are built. The ESP and the Sydney school tenets are grounded on linguistics, whereas the North American school is based on psychology.

In the Sydney school, Halliday (1978) inaugurated this tradition in which genre was understood as a social process of the interacting members of a culture who focus on particular goals that are usually staged (Martin 1984: 25).

Not only the Sydney school, but also ESP departs from Halliday's social language theory –Systemic functional linguistics–, in which language is used and shaped to accomplish a purpose (Yunick 1997: 322). In the ESP tradition, each genre is written to fulfill a communicative need within a particular discourse community. When a set of texts has a similar communicative purpose, they tend to share the same structure and therefore, belong to the same genre. This communicative need assigns an internal structure and a conventional form (Bhatia 1993: 13); that is, a set of rhetorical moves and an external layout.

In the New Rhetoric, Bakhtin put the foundation of this school in the US (Yunick 1997: 322) by stating the importance of studying (*a*) the relation between text and context and, (*b*) the functions of texts in society more than the external form. Bazerman (1997: 19) supported the idea of analyzing textual function in society within a social context by emphasizing that "genres are not just forms. Genres are forms of life, ways of being. They are frames for social action".

All these theoretical foci complement each other. Along with the teaching context and the scope of study, genre analysis from the three traditions is summarized in the table below:

School	***Theoretical background***	***Teaching context***	***Scope of study***	***Linguists***
English for Specific Purposes (ESP)	LINGUISTICS: Halliday's influence. It evolves into the teaching of ESP	University students of English as a foreign language (EFL)	Moves in the rhetorical organization of discourse	Bhatia, Johns Dudley-Evans Swales
Australian Systemic Functional Linguists (*The Sydney school*)	LINGUISTICS: Based on Martin's connotative semantics and Halliday's systemic functional linguistics	Mother tongue education in primary and secondary schools for native speakers and immigrants	Lexicon, grammar, discourse structure and social function	Halliday Martin
North American New Rhetoric Studies	PSYCHOLOGY: Bakhtin's and Foucault's structuralism and Vygostky's psychology	Mother-tongue education at advanced (post-) graduate levels	Social purposes: textual function in society rather than form	Bazerman Berkenkotter Huckin

Table 2.4: *Table of the theoretical background, teaching context, scope of study and representative linguists of the three schools of genre (based on Yunick 1997).*

Focusing on the scope of study from table 2.4, the concept of *genre* is understood as (*a*) the overall rhetorical and discourse structure of a text (Swales). But it can also be equivalent to (*b*) different categories or sections of a text (subgenres).

In the former meaning, the notion of genre facilitates an analysis of the syntactic properties and linguistic features of a text, that is, an analysis of the rhetoric-discursive textual organization (*moves* or semantic units expressing the author's purpose) to describe global organizational patterns. This is how Swales (1990) understood genre, which goes beyond the sentence and the notion of text type, by means of studying the rhetorical functions along with the role the text plays in the discourse community in which it was originated (Robinson 1991: 25). For example, genre can account for different communicative functions such as informing a patient about the possible symptoms of a disease by employing a specific verbal tense or by modal verbs of the type *can*, *may, might, should* depending on the seriousness of the illness.

According to the second meaning, the journal *Biotechnology Advances*, for example, contains several genres: Review articles, patent critiques, guest editorials, book reviews, patent abstract, conference reports and special issues. In this dissertation, we will attach to the denomination of *genre* comprising both *moves* and the subsections of a text. For instance, the introduction section in a research article will be considered as a genre, whereas the abstract could be considered either as a subgenre, when it is a part of a research article, or as a separate genre, as it can appear autonomously in a book of abstracts. Genres are constantly being created, as in the case of *Frequently Asked Questions* (FAQs) that emerge in a pragmatic and collaborative environment in the Internet (Chierichetti 2006: 172).

For Hatim and Mason (1990: 140), a text type is a “conceptual framework, which enables us to classify texts in terms of communicative intentions serving an overall rhetorical purpose”. Following Trosborg (1997: 12), the communicative intentions emerge from the text in the form of descriptive, narrative, expository, argumentative and instrumental text types.

2.3.2.2. Register and discourse

After examining genre, the notion of register is conceptualized as “the realization of a set of systems (field, tenor and mode) that mediate relation between context” (Yunick 1997: 328). The Hallidayan concept of register identifies meaning at the level of grammar and lexis, and can be distinguished from each other by the *field* (the topic being discussed), the *mode* (written or spoken) and the *tenor* (participants). These three elements help to identify specialized languages, since they are user-oriented (tenor), the specialized subject topic pertains to a discourse community (field) and they are a written controlled activity (mode).

The main difference between the Hallidayan register and the genre in ESP lies in the communicative purpose. Halliday states that genre is “*the* organizing concept of genre analysis” (emphasis added), and he does not clarify if the purpose is part of the field or the mode as it is “only a component in Hallidayan register” (Yunick 1997: 328). In practice, genre is the “content-plane” of register, and register is the “expression-plane” of genre (Biber et al. 2007: 8). Register is then understood as a “semantic meaning potential within which linguistics choices are made” (Yunick 1997: 327). Hence, the concept of register is synonymous with discourse/field (Robinson 1991: 20), as in scientific discourse/field/register. This is the reason why we have commented in section 2.2. b) that specialized register/language in the singular (LSP) allows varying degrees of specialization along the continuum (cf. specialized languages in plural or PAL). Therefore, a given communicative purpose makes register a flexible parameter, as the speaker/writer can choose the type of linguistic choices based on a spectrum of specialization (e.g. low/medium/high specialized register). In this way, genres are materialized through registers. Whereas genre is activated at the level of discourse, register is activated at the level of vocabulary and syntax.

2.3.2.3. Style

Style is neither an organizing component of register nor of genre, but an inherent element to discourse. It is the author's own technique to express the message by making use of distinct discursive practices, *inter alia*, concise/imprecise, direct/indirect, high lexical density/low lexical density, paratactic/hypotactic, less/more person-centered (e.g. whether the text involves a great deal of personal pronouns). Scientific research articles are usually impersonal in tone (with fewer personal pronouns, lacking the second person singular) and often carry a denser information load. Therefore, each genre tends to have its own style. For example, when enumerating scientific processes in an experiment, scientists tend to write in a paratactic style rather than using subordinated clauses. The concept of style is broader in Gläser (1995: 170-172), as it is expanded into five levels of abstraction or specialization in LSP (see figure 2.6 below).

The notions of style and genre along with the pragmatic, functional and linguistic criteria are a useful foundation to deal, in the following section, with the thorny issue of measuring specialization, in order to select what books are included in our popular science corpus.

2.4. PAL vs. scientific popularization: How to detect specialization

For a text to be specialized, the requirement of containing a specialized subject matter must be met along with the purpose of transmitting knowledge. Sometimes the detection of specialization is not easy, because the level of specialization is not intrinsic to a text (Cabré et al. 2001: 180). In fact, what exists is specialized knowledge, not specialized language (Robinson 1991: 21). Language undergoes a process of stratification when a subdivision of the general language has acquired a certain degree of specificity through a special lexicon and grammatical structures in order to communicate knowledge about a particular area of human activity for a given discourse community. There are two salient features that can guide us to make the identification of specialization clearer: the functional character of language and the degree of specificity.

The former implies that a specialized language gradually loses traits of specificity when more than one function –referential– is contained in scientific discourse. In figure 2.5, the bigger the intersecting oval, the more tendency for the text to contain other functions –emotional, personal or poetic functions– not only the referential one. Hence, the lower specialized the text is, the more space there is for polysemy, connotation, variation, reformulation, and ambiguity than in PAL.

The latter feature shows that general and specific languages do not necessarily imply opposites, but the absence or presence of specificity, respectively. Sager et al. (1980: 100) argue that "communication between specialists and laymen requires a high degree of general reference”. What seems to be clear is that the more specialized the language is, the farther it is from the frequency of use of GL resources. This is shown by the intersecting ovals that are shown below:

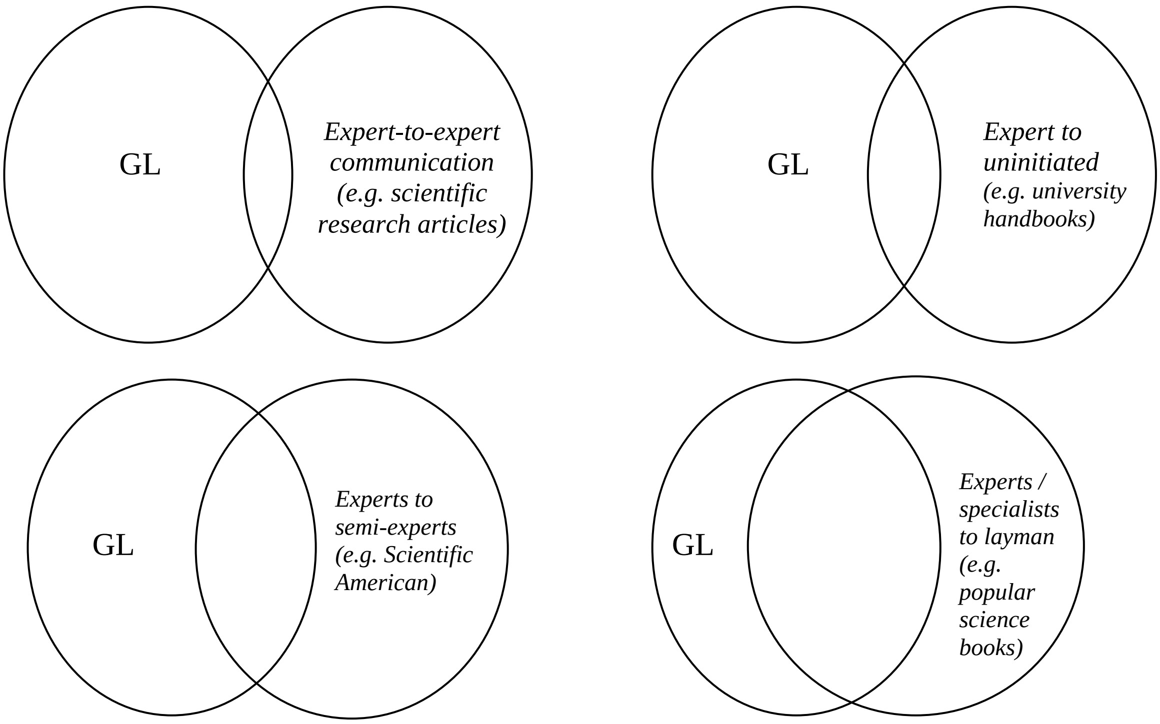


Fig. 2.5: *The gradual dependency of GL from a high to a low level of specialization.*

The size of the intersecting oval is in direct relation to the amount of GL used in specialized communication. The smaller the intersecting oval, the more addressed the text is to specialized audiences. And *vice versa*, the bigger the intersecting oval, the less elite and specific communication it is.

Not every case is as straightforward as the examples presented in figure 2.5. One interesting but controversial issue is that texts within the same genre or even parts of the same genre vary in their specificity (Douglas 2000: 33). We have hypothesized (see 1.4) that the popular science books comprising the parallel corpus are expected to differ in their specificity owing to the fact that the text producers are grouped into two sets of authors: scientists, and a miscellaneous group of journalists, ecologists and economists. The writers of the books –experts and specialists– address issues of genetic engineering with a lens focused on a non-specialized and heterogeneous audience.

The different lenses or levels of specificity in LSP varieties have received several names: *styles* in LSP (Gläser 1995: 170), *communicative functions* of texts (Göpferich 1995: 309) and *communicative settings* (Pearson 1998: 36).

	Gläser (1995)	**Göpferich (1995)**		**Pearson (1998)**
	Styles in LSP texts	*Communicative function of texts*		*Communicative settings*
PAL	*Academic scientific and technological style*	PRIMARY TEXTS	*Progress-oriented actualising texts*	*Expert-to-expert communication*
Other LSP varieties	Didactic style		Judicial normative texts	Expert to initiates
	Popular-scientific style		**Didactive-instructive**	Teacher-pupil communication
	Directive style		Compilation texts	**Relative expert to the uninitiated communication**
	Practical style of everyday communication	SECONDARY TEXTS		

Table 2.6: *A comparison of the different levels of specialization according to Gläser (1995), Göpferich (1995) and Pearson (1998).*

These three classifications have similarities but also differences in the levels of specialization that differ from one author to another. The three linguists agree that the highest level of abstractness is addressed to the insiders of a particular field of knowledge, being the impersonal style predominant and, at the same time, absent from a didactic purpose (Gläser 1995: 170). This level is called "academic scientific and technological style" (Gläser 1995: 170), "process-oriented actualising texts" (Göpferich 1995: 309) or "expert-to-expert communication" (Pearson 1998: 36).

An intermediate level of abstraction is referred to as "popular-scientific style" (Gläser 1995: 170), "didactive-instructive texts" (Göpferich 1995: 309) or "relative expert to the uninitiated communication" (Pearson 1998: 37). This level is addressed to "the intelligent layman", "the uninitiated" or "people in all walks of life" (Gläser 1995: 170). Within this intermediate level –*scientific popularization*–, several degrees of specialization can be encountered. On the one hand, our popular science books address the intelligent educated layman, but not necessarily people in all walks of life. On the other hand, semi-expert magazines (e.g. *Science*, *Nature*) not necessarily address the general public, but the initiated and even specialists in other fields different from their own as indicated below:

> *Scientific American* is an American monthly with a general audience; many of its readers have some scientific or technical training. It publishes rather long articles (authors are told to keep them to about 4,000 words), all of them by research scientists. *New Scientist*, a British weekly, has shorter articles (2,000-2,500 words) and a broader readership that includes many secondary school students. Gail Vines, one of the editors (in a letter pointing out that scientists' articles sometimes need to be edited to make them readable) notes that this readership is not exactly the general public (Myers 1990: 144).

Therefore, it may be striking that our popular science books can belong to this group in spite of the fact that there is a considerable qualitative difference between the semi-expert magazines and popular science books. However, a common unifying characteristic in both the popular science books and the magazines is that the relation between the author and the writer does not need "to achieve the same level of understanding of the terms used as long as the broad thrust of the message is understood" (Pearson 1998: 38).

Another stage in the scale of technicality and abstraction is Gläser's "didactic style" (1995: 171), which overlaps with Göpferich's "didactive-instructive texts" (1995: 308). Gläser's contains textbooks and other teaching material comprising figures of speech, the pedagogical *we* and analogies from the learner's everyday experience, characterized by a redundant and rephrasing style to make concepts clearer (although this does not mean that the textbooks do not contain a medium-high level of abstraction). Göpferich's combines the genres of textbooks, popular science articles and operating instructions. Thus, Göpferich's didactic-instructive texts correspond to two LSP styles for Gläser (the didactic and popular-science style) and for Pearson (expert to initiates and relative expert to the uninitiated communication).

Another level of specialization is the "directive style" (Gläser 1995: 172) or "judicial normative texts" (Göpferich 1995: 309), which include patents, laws and regulations. This style is strictly impersonal, unambiguous and devoid of emotive features. Modality is a key feature in this level (Gläser 1995: 172). A particular characteristic of legal language is that it performs a double function: it is a specialized language for its community of experts and, at the same time, tries to be closer to citizens for those affected to understand the judicial language variety (Arntz and Picht 1995: 40).

The rest of the degrees of specialization are unique by each one of the authors. Firstly, as we use specialized topics in daily activities, Gläser (1995) includes the "practical style of the everyday communication" as one of the specialized levels within LSP. This style is "entirely common core language although it touches upon LSP vocabulary in various spheres of activity" (Gläser 1995: 172). Secondly, Göpferich (1995: 308-9) embraces dictionaries and encyclopaedias under the category of "compilation texts". This linguist distinguishes as "secondary texts" those texts derived from the other three discussed levels (judicial, progress-oriented and didactive-instructive). Thirdly, Pearson (1998: 38) establishes the level of "teacher-pupil communication" in order to "describe people who have no prior knowledge of a particular subject field but are required to acquire it for educational or professional purposes", especially in secondary education textbooks. The didactic purpose of this communicative setting complements another level of specialization enunciated by the same author –expert to initiates– that may be observed in the genre of university coursebooks. It must be emphasized that the communicative purpose of popular science texts differs from those containing a didactic style in the following manner:

> Popularising traditional texts forms are intended for a general audience of non-specialists who are interested in specialist subjects for their leisure time activities or general education but who need not be concerned with such subjects for professional reasons. Dissemination of specialist information from current research is often done in a user-friendly way. The style of popularised articles and book reviews reflects rhetorical devices used by journalists, e.g. striking heading and subheads, "introductory hooks" ("Aufhänger") as opening passages (chiefly consisting of an everyday event, an anecdote, a quotation, etc.), and colloquial vocabulary, in particular idioms and phrases (Gläser 1995: 185).

This quote echoes that Gläser's popular-scientific style and Pearson's relative expert to the uninitiated convey information for the purpose of intellectual enrichment, entertainment or practical application (e.g. semi-expert magazines, popular science books). Pearsons' teacher-pupil communication (e.g. high school textbooks) and expert to initiated (e.g. university coursebooks) are driven by an educational and future professional need. A mixture of both purposes is in Göpferich's didactive-instructive texts, which contain both a didactic approach (textsbooks) and an entertaining style (popular science articles).

The textual enhancement in grey in table 2.6 was used to identify the level of specialization of our corpus according to different linguists. As popularization is a hybrid genre, a classification of popularizing texts is discussed in detail in the following section.

2.5. Defining scientific popularization

The popularization of science has received several labels (Broks 2006: 17). One positive designation has been referred to *democratization of science*, but a negative one has assigned *vulgarization* a pejorative sense. The positive part comes from the fact that the 20th century made a milestone for making popularization a profession leaving behind its charity nature proper of the previous century (Calvo Hernando 2005: 3). The pejorative name comes from the fact that the level of difficulty is sacrificed for the sake of reaching a wide-ranging group of non-experts, specialists in other fields and the general public. Not all scientists are willing to make this "sacrifice" of adjusting scientific data to a new linguistic environment. Having talked to José Antonio López Guerrero, Director of Scientific Culture at the CBM (Molecular Biology Centre) and Doctor in Biological Sciences from the University of Madrid (Autónoma, UAM), he claims that researchers are not committed enough to imparting their knowledge to those who are not scientists. With the objective of spreading knowledge to other citizens, López Guerrero makes his own contribution to a program in the Spanish National Radio (RNE) usually on Friday night. He has also designed some pages in which he shares his opinions, insightful comments, research articles, seminars and popularization programs, and has published four books especially addressed to the lay public (see online resources in the bibliographical references).

In the linguistic arena, Fernández Polo (1999: 78) argues that there has been little interest shown in the research of scientific popularization. Probably this is due to the fact that it is an area difficult to classify seeing that it covers a wide range of genres and levels of specialization, as shown in figure 2.6. However, Polo's claim held true until the late 90's, as nowadays there is a growing interest in this area.

In spite of the increasing attention, scientific popularization has not acquired the status of a teaching subject in university language departments. This is particularly so because applied linguistics has focused on the improvement and development of the teaching of specialized languages for academic purposes (Myers 2003: 265). Nonetheless, initiatives are not undermined by this situation. It is interesting to comment on a longitudinal study conducted at the Universitat Pompeu Fabra in which L2 students of German were tested on the linguistic devices proper of economic popularization in a translation class (Gross 2001). Students had the chance to work with parallel texts and extract both onomasiological and semasiological relations among different lexical items and textual characteristics based on compatibilities and constraints of use. The idiomatic sensibility of students was trained through the tasks of interlingual summaries and the transfer of outlines or excerpts of information that were recontextualized in the TT.

However, what is essential in that pilot study is that scientific popularization does not include only one communicative setting but a palette of different LSP styles. This palette covers all the communicative settings in which scientific knowledge is rewritten from the expert-to-expert environment. Scientific popularization undergoes a number of adjustments both at a macrostructure and at the microstructure level. In this vein, Pagano (2001) outlines popularization of science as follows:

> Textos de popularização da ciência normalmente são reescrituras de segmentos de informação gerada no âmbito acadêmico e que precisam ser repassados para uma comunidade não necessariamente académica (Pagano, 2001; quoted in Colussi 2002: 13-14).

This quote affirms that science popularization implies a rewritten text (*reescrituras*) generated from an academic community. This process of genre-rewriting is done through a number of communicative strategies to later spread the expert scientific knowledge to an audience that is not necessarily academic. Chapter 3 will devote more time to the process of rewriting and translation of popular science. This practice of rewriting is known as "scientific translation for the laity", "the popularized version of a technolect" or "metamorphosis of a technical text for the general audience" (Gläser 1995: 180).

These denominations help to characterize the popularization of science. This concept is not a straightforward definition but usually based on what it is not (Myers 2003: 265). In simplistic terms, it is neither communication among experts nor from a general-purpose perspective. To more precisely pin down scientific popularization, the three criteria –thematic, communicative and formal– that were applied to define specialized languages (PAL) will also be employed at describing scientific popularization:

- **Thematic (TOPIC):** The access to new scientific innovations is not any more a restricted heritage owned by scientific experts exclusively (Martín Camacho 2004: 7). Popular science arises to shorten the widening rift between experts and non-experts by making accessible the transfer of information and communication. However, it is significantly relevant that not only scientific discoveries are spread in scientific popularization but, more and more, the social understanding and influence on society. Not all, but an increasing number of textbooks (see Slater et al. 2008: 316-42) and semi-expert magazines (see Cibelli et al. 2002: 16), include a section devoted to social issues, at least in the case of genetic engineering. The social impact is one of the main differences between expert-to-expert communication and scientific popularization, as in the examples below:

  > We will be eager for the day when we will be able to offer therapeutic cloning or cell therapy arising from parthenogenesis to sick patients (Cibelli et al. 2002: 16 from *Scientific American*).

  The insertion of opinions and social issues within scientific popularization is more prominent when the level of specialization is low. Whereas public acceptance of genetically modified organisms (GMOs) takes up a separate chapter of a university coursebook entitled *Plant Biotechnology* (Slater et al. 2008: 316-42), the social debate of GMOs is mixed with scientific data in popular science books and scientific newspaper articles.

- **Communicative (PRAGMATIC CRITERIA)**: Unlike experts, the discourse community of scientific popularization can contain a mixture of addressers. The users are not experts in the field but usually specialists in other scientific areas, initiated (e.g. university students), uninitiated or layman, as it occurs in *Scientific American* or TV documentaries (Myers 2003: 265). A specialist on stem cells may be a scientist or a technician that is not an expert in that domain, or for instance, an educated layman, a journalist, an economist, a university student may be also considered specialists, as long as they have been reading enough to understand and produce texts about stem cells at a popularizing level. Therefore, experts is not synonymous with specialists.

- **Communicative (FUNCTIONAL CRITERIA)**: When the referential function is added an entertaining purpose or a didactic aim of facilitating knowledge to other users, the monofunctional character of specialized registers turns into the multifunctional nature of scientific popularization (e.g. emotive or expressive, conative or persuading, aesthetic or poetic). This does not mean that the referential function is not part of popularizing texts, it is in fact inherent, but there may be other functions as salient as the referential one that change the nature of monofunctional specialized languages into communication more subject to include connotation, polysemy, reformulation and ambiguity. There is a lesser frequency of the argumentative function in popular science texts. Expressions such as *I argue that* or *my contention is* are rare (Gotti 2003: 296).
- **Communicative (LINGUISTIC CRITERIA)**: The addressee is in direct relation with the linguistic resources in use. The first book of the corpus, published in 1995, announces in the preface that the content can be understood "without a university qualification in genetics" (Russo and Cove 1995: VII). Hence, the less specialized the addressee is, the more redundant and metalinguistic elements the text will contain (Cabré 1993: 156). With regard to semi-expert magazines, it is not basically true what Gläser (1995: 170) states about the fact that no preliminary knowledge is required on the part of the addressee to understand articles in semi-technical books and periodicals, such as *Nature, New Scientist, Scientific American* and *Science.* At least shallow understanding and preliminary knowledge are essential to cope with the information conveyed in these journals. They show enough level of technical abstraction and specificity although the information is expressed through a more personal style (the inclusive *we*), figures of speech, analogies and visual elements like graphs (Gläser 1995: 170).
- **Formal (GENRE)**: The rhetorical conventions of research articles (the different moves in the *Introduction–Method–Results–Discussion structure*, IMRD) are gradually rewritten as varying organizational patterns that differ from textbooks, popular science magazines and popular science books to scientific newspaper articles. These four rewritten text types were chosen for being salient genres in scientific and technical discourse. It goes without saying that there are other genres, since scientific popularization is an umbrella term that covers a great variety of specialized levels. For example, in a written mode, there are articles in the "Science Issues" (http://royalsociety.org/) on the *Royal Society* Website. *Eurekalert* (http://www.eurekalert.org/), run by

the AAAS (American Association for the Advancement of Science, <http://www.aaas.org/>), also holds a number of scientific newspaper articles. Even the Internet news tells us about scientific discoveries and risks in the food chain (e.g. BIOTEC list http://listserv.rediris.es/archives/biotec.html). In the spoken mode, we can mention popular talks for high schools and universities (*Semana de la Ciencia* (Science Week)), organized by the Spanish Association of Science and Technology (Fundación Española para la Ciencia y Tecnología, FECYT). Gutiérrez Rodilla (2005: 20) coins the term *intercambio familiar* (informal exchange) as a form of specialized discourse both in written and oral mode. For example, lab logs and blogs, letters and e-mails between experts and specialists are part of a written specialized informal exchange. An example of an oral genre may be a meeting between experts and specialists in a familiar environment, such as the lab and the hallway. Myers (2003: 272-3) broadens the notion of popular science by not only examining words in discourse, but also including visual elements, movement and other codes experienced in museums or in a day out.

All in all, popularization has not only been defined by these three criteria, but also against PAL. Specialized languages and scientific popularization offer two contrasting views of science, although their different perspectives of science can frame the same facts. In Myers' words:

> […] popularizations and scientific articles present two views of what a scientist does, two views that are incompatible but that both play a part in creating the cultural authority of science (Myers 1990: 142).

Their incompatible views of science become irreconcilable because the originators of scientific knowledge –scientists– consider popular articles as spin-offs; whereas the receivers of that knowledge or users of popular articles find technical knowledge inaccessible, as explained below:

> Either the popular article is seen as watering down the difficult truths of the professional version, giving the false impression of easy comprehension, or the professional version is seen as complicating the simple truths of the popular version unnecessarily using jargon and technical details to exclude untrained readers (Myers 1990: 141).

These two contrasting views of science have a linguistic correlate. Myers (1990: 142) calls specialized languages with the name of *narrative of science* because the content referred to scientific processes is focused on the foreground. By contrast, scientific popularization is denominated *narrative of nature*, due to the fact that the object of study (e.g. a transgenic plant) and its surrounding sociocultural context is given top priority. Therefore, the internal rhetorical structure of PAL is motivated by a different thematic force from that of scientific popularization, as shown in the following quote:

> The professional articles create what I call a narrative of science; they follow the *argument of the scientist*, arrange time into a parallel series of simultaneous events all supporting their claim, and emphasize in their syntax and vocabulary the conceptual structure of the discipline. The popularizing articles, on the other hand, present a sequential narrative of nature in which the plant or animal, not the scientific activity, is *the subject*, the narrative is chronological, and the syntax and vocabulary emphasize the externality of nature to scientific practice (Myers 1990: 142) (emphasis is ours).

The greatest difference between the two is that the connection of scientific activity is lost in the narrative of nature (Myers 1990: 148). And, as a result, both narratives are conceptualized as different kinds of authority to which the reader is oblivious (Myers 1990: 192).

2.5.1. Semi-expert magazines

Let us go further into the distinction between narrative of science and narrative of nature through the genre of semi-expert magazines. Within the narrative of nature, Myers (1990: 185) breaks down popularization in two sections:

- *Sophisticated* popular articles, such as those in *Scientific American* or in *New Scientist*.
- Popular articles in newspapers and supplements of general interest.

Within the first group, there are different specialized scientific magazines –that are called semi-expert in this dissertation–, some more specialized than others (Myers 1990: 185). For example, the *Popular Science* magazine (http://www.popsci.com/) usually contains a lower level of specialization than *Nature* (http://www.nature.com/).

When comparing professional article journals with popular journals, authors can be the same but the readership is necessarily different, because *narratives of science* are transferred into *narratives of nature* (Myers 1990: 168). The popular science reader conceptualizes the community of scientists not only as an authority but also as a master:

> […] popular narratives, which often try to build up the authority of the scientist as a genius with an immediate relationship to nature (Myers 1990: 183).

At the same time, the scientist turns into a popularizer scientist who is a spokesperson of a given field and essential to the survival of that discipline (Myers 1990: 145). Although not all scientists have in mind the importance of language to communicate science (Calvo Hernando 2005: VI), the popularizer scientist plays the role of the communicator mediator:

> The information scientist may, however, fulfil an important mediating role by relating the diversity of information and making it more accessible by controlling and re-interpreting the *special language* which individual scientists and technologists do not have the time to develop more reliably (Sager et al. 1980: XIX) (emphasis is ours).

The communicator mediator addresses a public whose curiosity about the topic is previously assumed. According to Myers (1990: 146), neither *Scientific American* nor *New Scientist* try to grab the reader's eye with popular debate or public interest. However, it is more and more common to find small sections entitled "The Ethical Considerations" at the end of certain popular articles in *Scientific American* (see Cibelli et al. 2002: 16), especially in an evolving strand of the biology discipline like GE.

Popular science books try harder to be catchy (e.g. section titles) by getting the reader involved in scientific controversies and the immediate practical implications. Although it is true that issues related to food and health are of interest to a large group of readers without having to present a scientific controversy.

Far from promoting controversy in semi-expert magazines, there are several expectations on the part of the editors of popular articles whose approach to information is summarized into changes in the organization, syntax and terms:

- Organization (genre):
  - The popular article should be as informative as an advertisement (Myers 1990: 145).
  - The subject matter should be stated quickly in a popular article for the reader not to lose interest in the topic (Myers 1990: 170).
  - The direct confrontation with nature must be emphasized rather than just concepts and findings, since a brief review of literature is considered a distraction by some editors (Myers 1990: 171).
  - Editors try to bring out the narratives focused on the organisms (plants, animals or microorganisms) and try to prevent authors from organizing their manuscripts with simultaneous elements as in their articles for professional journals (Myers 1990: 171).

- Among the organizational changes by the editor of *New Scientist* is that mathematical concepts are changed into simple observations (Myers 1990: 175).

- Syntax:
  - Introductory statements are rephrased as question-answer structures which is one of the most powerful syntactical patterns of popular science texts (Myers 1990: 175).
  - Compound and complex sentences are changed into several more simple sentences and this modification is considered a straightforward improvement of readability (Myers 1990: 178).
  - Passive and impersonal constructions are converted into active voice because active voice is more realistic and it emphasizes the intervention of the scientist (Myers 1990: 180).
- Terms:
  - The most frequent changes involve lexical selection concerning substitutions of scientific terms in favor of comprehensible lexical units. Terms are substituted by similar clarifying terms (e.g. *oviposition* for *egg-laying*; *germination* for *seed*; *growth cycle* for *year*). The original term may have experienced a change in the narrative –from science to nature–, so that terms related to the scientist processes are avoided (*oviposition, germination, growth cycle*), and instead of those, terms that show direct reading of nature are used (*egg-laying, seed, year*) (Myers 1990: 182-4).
  - Technical terms –*pheromone, cloaca, vesicles*– are often defined and written in parentheses (Myers 1990: 183).

Apart from editors' expectations, other relevant facts become more obvious when it comes to non-verbal language:

> The differences in the narratives of the articles for professionals and those for popular audiences are even more apparent in the illustrations than in the verbal texts. Because space is at a premium, most scientific journals discourage extensive photographs and figures. But the illustrations in a popular journal are a large part of the magazine's appeal to a casual reader; the illustrations in *Scientific American* are particularly lovely and eye-catching. They also contribute to the popular narrative's chronology, and to its focus on organisms rather than concepts (Myers 1990: 148-9).

Regardless of simplified and lacking nuance, illustrations and computer-generated images are part of the appeal to the reader. Images in popular science journals show organisms and human figures and they often become creative designs. Illustrations are also part of textbooks to make content livelier and more interesting and they tend to be austere by only showing the relevant parts of organisms and human figure and this way, they are more detailed and complex than the ones in semi-expert magazines. Not only verbal communication but also images are in direct relation with the level of specialization.

2.5.2. University coursebooks

In addition to semi-expert magazines, university coursebooks are also a genre that will be examined in this section. The average level of specialization of university coursebooks is usually closer to research articles than to semi-expert popular science articles. This is due to the fact that research articles and textbooks are academic genres, whereas semi-expert magazines belong to a more popular domain. Research articles and university coursebooks are addressed to experts and future experts, whereas semi-expert magazines are aimed at specialists in other subject domains. In this respect, the focus of a research article is on theories and methods, only theories with regard to university coursebooks and finally, what people say and think (either scientists or the general public) in the case of popular science articles (Parkinson and Adendorff 2004: 388).

Parkinson and Adendorff (2004) compare these three genres in order to use popular science articles in teaching scientific literacy. The results of their study are summarized below (table 2.7), with special attention to university coursebooks.

Table 2.7 shows that scientific data in research articles are new to the rest of the scientists in the community of experts. The significantly relevant knowledge endorsed as fact from a research article is summarized and condensed in university coursebooks (Parkinson and Adendorff 2004: 382). The type of information included in a popular science journal is also a summary of received knowledge. As a result, reliability is based on facts in the case of research articles and university coursebooks, whereas it depends on authorized experts with respect to popular science articles.

With regard to rhetorical structure, the IMRD structure is modified in textbooks and as a result, there is a great deal of information report and sequential explanation of different processes (Parkinson and Adendorff 2004: 382). As opposed to Myers (1990: 146), Parkinson and Adendorff (2004: 388) structure the information in a popular science article in the form of debates between contesting voices. Therefore, debates are much more overt to evaluate knowledge than the other two genres (Parkinson and Adendorff 2004: 388).

Genre	A RESEARCH ARTICLE	A UNIVERSITY COURSEBOOK	A POPULAR SCIENCE ARTICLE
Setting	Academic genres		Popular genre
Focus on	Theories and methods	Theories	What people say and think
Content organization	New information	Old information Summarize all knowledge that is currently endorsed as fact	New knowledge claims not yet endorsed as fact by the research community Provisional facts
Reliability	Based on facts		Based on authorized experts
Rhetorical structure	IMRD structure	A great deal of information report and sequential explanation	Debates between contesting voices
Evaluation of ideas	Less overt	More overt	Much more overt
Person references	Removed person references for objectivity’s sake	Fewer than research articles Generic “scientists”	Abundant person references Specific name of scientists
Source of information	The scientist as writer	Unspecified research articles	Specific technical and non-technical information
Power relations	Equal between reader and writer (colleagues)	Writer (scientist) is over the reader (university student)	Unequal between writer (scientist) and reader (specialist, layman)

Table 2.7: *A genre-based comparison between a research article, a university coursebook and a popular science article (based on Parkinson and Adendorff 2004).*

A section about ethical issues appears as part of university coursebooks more often than before (e.g. *Concerns about GM crops, Public and Science*). However, it is in popular science where the evaluation of ideas is much more overt and intertwined with scientific information. A number of concerns is usually spread evenly throughout the popular science book.

In terms of style, textbooks usually have a greater impersonal style than research articles. Textbooks tend to contain mainly generic references (e.g. scientists), while popular articles contain the specific name of the scientists (e.g. proper names), or authorities (Parkinson and Adendorff 2004: 381).

Whereas the writer of research articles is the scientist, unspecified research articles are primarily the source of textbooks (Parkinson and Adendorff 2004: 381). In the case of the popular science articles, the authors tend to specify technical and non-technical information (e.g. the e-journal *Biomed*; Ronald M. Green, director of the Ethics Institute at Darmouth College).

As far as terminology is concerned, terms in textbooks are usually fairly established. Definitions tend to be rigid and unambiguous as part of the glossaries that usually come at the back of the handbook or as explanatory glosses in line with the text.

With regard to power relations, the presence of the writer is felt over the one of the reader in the genre of textbooks; in other words, the writer is both the expert and the transmitter and the reader is the receiver of established knowledge (Bhatia 2004: 33).

2.5.3. Popular science books

Up to this point, popular science and scientific popularization may have been used interchangeably. However, they may represent overlapping concepts, although not always. Popular science is product-oriented and it tends to collocate with *books*, *newspaper articles*, *(semi-expert) magazines* and other medium-low specialized genres. In this dissertation, popular science includes popular science books and newspaper articles. Both scientific popularization and popularization of science are process-oriented and refer to the procedure of transmitting knowledge to an audience other than experts. However, a university coursebook may be classified as scientific popularization but not as a popular science text. Therefore, university coursebooks can be considered high or medium specialized, in any case, less specialized than research articles:

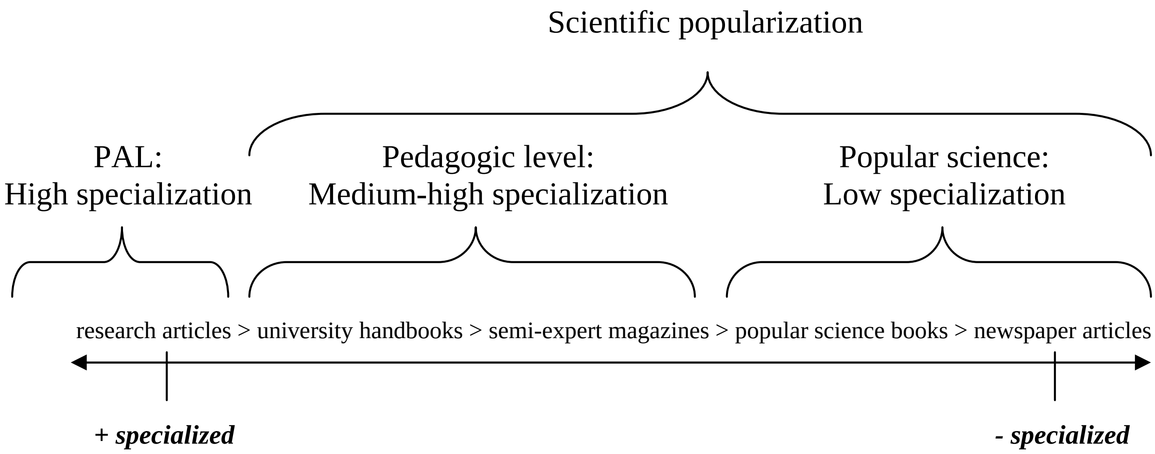


Fig. 2.8: *Continuum of specialization of PAL and scientific popularization.*

These five genres are considered specialized; even a popular science text or book is a special kind of text. Popular science books show a low level of abstraction and specialization, since they address the general public. Taking into account that scientific knowledge is transferred from the setting it originated –science– to society, the path that the knowledge takes is unidirectional (Myers 2003: 256).

In terms of the topic, a text about genetic engineering that only discusses the social consequences of a new technology (e.g. *terminator seeds*) without explaining what this new technique is about will not be called a specialized text in view of the fact that the perspective of that text is from the general language (e.g. the impact on society). The popular science books about genetic engineering that did not attempt to transmit specialized knowledge to the reader but only focus to discuss information from a general-purpose approach (e.g. foster public debate) were not included in the corpus. In appendix 8.3, there is a section of excluded books lacking a specific purpose which was detected at the time of selecting the books that comprise the parallel corpus.

In fact, the selected popular science texts deal with science and the potential impact of genetic engineering (GE) technology on society. Thus, the GE books are half way between GL and PAL, as they explain genetic engineering as a scientific technique and the uses of GE that raise ethical questions. Transmitting GE as a scientific technique will imply a greater frequency of features proper of PAL, whereas the discussion of the GE techniques raising ethical questions will include general language features. The language of the books and especially the GM debate (about genetically modified organisms) “hinges on the relationship between scientific and non-scientific language” (Cook 2004: 77).

With regard to pragmatic criteria, popular science books have a less clear language community than, for example, the genre of research articles.

> Un texto es divulgativo cuando el contenido especializado se retoma para ser transmitido a un destinatario lego, con el fin de que conozca esa información y, eventualmente, la tenga en cuenta en *su vida cotidiana* (Cabré et al. 2002: 8) (emphasis added).

According to the quote, a pragmatic function of popular science is that the addressee can be any reader that wants to apply the content of the popular science books to daily life (*su vida cotidiana*). As for the functional criteria, one of the prominent functions, apart from the referential, is to convince the reader about a particular stance or provoke a reaction for or against by means of an expressive load semantically speaking. In the GE corpus we may find a pro-GE technology or an anti-GE stance, or even a mixture of the two. Hence, popular science books are more ideological and, therefore, more primed to lexical processes as semantic prosody than research articles. Chapter 3 will explore the issue of semantic prosody, along with the tool to measure it quantitatively –corpus linguistics– (chapter 4).

Regarding linguistic resources, the simplification of content and syntax modifies the article’s organization of space, where the IMRD structure is completely lost. Since research articles are lexically denser than popular science books, usually more nominalizations are found in high-specialized levels. Popular science books are lexically loose and, therefore, more prone to definitions and paraphrases. A summary of ideas related to popular science books is included in the following table:

Aspect to be compared	**Research articles**	**Popular Science Books**
Discourse level	Expert-to-expert communication	Experts/Specialists to the general public
Discourse community	Clearly defined	Less clear language community
Communicative function	Referential	Referential and expressive
Style	Impersonal and objective	Personal and even subjective
Terminology	Lexically dense	Lexically loose (denominative variation)
Explicitation	Nominalizations	Tendency to paraphrasis
Semantics	Less ideological	More ideological (semantic prosody)
Level of specialization	High	Low
Direction of knowledge	Bidirectional (feedback)	Unidirectional (from science to society)
Discussion section	Innovative theoretical arguments	Lack of new scientific knowledge
Aim	Accuracy	Clarity

Table 2.9: *Similarities and differences between research articles and popular science books.*

One of the outstanding differences is the lack of new scientific knowledge added to the conceptual structure of the discipline in popular science (Gotti 2003: 293). Although clarity is preferred over accuracy, it is hypothesized here in this dissertation that popular science books are characterized by violating the preciseness constraint at some point. According to Gotti (2003: 46-51), the principles of ambiguity, imprecision and redundancy violate the principle of accuracy in specialized discourse. These three features drift popular science books apart from the characteristics of research articles. We reach the conclusion that the notions contained in this table regarding popular science books are closer to the characteristics of scientific newspaper articles in several ways.

2.5.4. Newspaper articles (scientific journalism)

Newspaper articles is the second category in Myers' classification of popular science (1990: 185), being the *sophisticated* articles the other popular science form we discussed above (2.5.1.).

As for the popular science actors, the founder of the Spanish Association for Scientific Journalism, Calvo Hernando, argues that writers and journalists play more than a vital role in communicating advances. This is an idea that is gradually gaining ground although there is still a lot to do to improve the poor scientific popularization worldwide (Calvo Hernando 2005: 4). One of the reasons why scientific popularization may be considered poor writing is because journalists sometimes take the first source available to elaborate newspaper articles without knowing the background of that source. For example, in ecological disasters (e.g. Doñana 1998), the journalists in charge of informing the public compiled information from CSIC (Consejo Superior de Investigaciones Científicas) without mentioning any political authority in spite of the fact that this scientific organism very much depends on the government (Elías 2008: 40). It is worth remembering that the majority of quotes or resources that appear in newspapers are from *The British Medical Journal, The Lancet, Nature* and *Science*, whereas these publications do not occupy the top positions in the *Science Index Citation* (Junyent 2003: 44).

In terms of the organization, syntax and vocabulary of a scientific newspaper article, Myers (1994) compares this genre with the key elements of a research article and a popular science article, as illustrated in the following table:

<table>
<tr><th>Genre</th><th>A RESEARCH ARTICLE</th><th>A POPULAR SCIENCE ARTICLE</th><th>A NEWSPAPER ARTICLE</th></tr>
<tr><td rowspan="2">Organization</td><td>Narrative of science</td><td colspan="2">Narrative of nature</td></tr>
<tr><td colspan="2">Focused on a scientific activity</td><td>Focused on a scientific issue</td></tr>
<tr><td>Syntax</td><td>Complex sentences</td><td colspan="2">Simpler sentences
Wider use of cohesive devices</td></tr>
<tr><td rowspan="2">Vocabulary</td><td rowspan="2">Preservation of terms</td><td colspan="2">Explanation or a rough equivalent in GL</td></tr>
<tr><td>Scientists battle with editors to preserve specialized terminology</td><td>Catchy journalistic lexical entities</td></tr>
</table>

Table 2.10: *Changes in organization, syntax and vocabulary in a research article, a popular science article and a newspaper article (based on Myers 1994).*

Apart from the difference between narratives, the organization of content is either focused on a scientific activity or a scientific issue. The rationale of this focus is due to the difference between scientific popularization and scientific journalism. The latter does not refer to economics or politics, but it only deals with science as its object of study (Elías 2008: 15). Scientific popularization publishes advances and discoveries departing from the main source –the scientists–, whereas scientific journalism not only focuses on the source but also socially comments on the necessity of a certain experiment, the relevance and the consequences by means of interpreting the social context (Elías 2008: 16-18). It may be argued that, depending on the author, popular science articles may or may not be comprising elements of scientific journalism, or instead, they transmit knowledge in an explanatory manner, in the way textbooks are written.

In Parkinson and Adendorff's perpective (2004), popular science articles are structured in debates. Fernández Polo (1999: 88) states that a newspaper article tends to insert the findings and results of the experiment at the beginning –since this is the most relevant information for a newspaper readership–, whereas the results section in research articles is located before the discussion and conclusions. Although newspaper articles take into account the community of experts, there is little reference to scientists. Non-scientific speakers (countries, organizations, associations, political representatives among others) mentioned in a study of newspaper articles at Universitat Pompeu Fabra corresponded to 81.77%, whereas scientific ones were rare (Calsamiglia and López 2001: 2654).

In terms of syntax, there is a tendency to find more complex sentences in a research article (Myers 1994: 141). A wider use of cohesive devices (Myers 1994: 142) may explain the fact that the journalist presents science as an accumulation of facts (Myers 1990: 148). As for the use of actives or passives, Myers (1994: 141) emphasizes that “the contrast in grammatical voice between research articles and popularizations is not as striking as we might expect”.

With regard to vocabulary, scientific journalism cannot dispense with GL that is the basics of journalism, and with scientific language or the grounding of science (Elías 2008: 21). Since the audience of scientific newspaper articles is society in general, there is a gradual loss of terms that translates into explanations and rough equivalents in the general language (Myers 1994: 142). Scientists have no problem at using terms in their research articles, while they battle with editors of semi-expert magazines to preserve specialized terminology (Myers 1994: 142). At the newspaper level, terms turn into catchy journalistic lexical entities (Myers 1994: 143).

In another study conducted at Universitat Pompeu Fabra, less than a quarter of the analyzed news contained scientific descriptions but rather political and socio-economic consequences (Cassany and Martí 2001: 2668-2678). The strategies used to avoid scientific information in that corpus of news were:

- Avoidance of the term and details of experiments, reformulation of the specialized knowledge and inclusion of banalized terms (e.g. *crazy cows*).
- Contextualization of a new concept cognitively with details and paraphrases plus the insertion of the term (e.g. *prion*).
- Narration of the scientific information by explaining or inserting elements of mystery and suspense (e.g. *the protein turns into a monster*).
- Assessment of the scientific information with opinions (e.g. *the causes intrigue us* instead of *interest us*), rhetoric questions, redundancy (e.g. *protein called prion*, experts would not have needed the explanation that *prion* is a type of protein) and inaccuracies (e.g. *altered protein, protein subject to be altered*).

Another strategy of scientific journalism is that it not as interested in describing the methods as in the final result or product. It is hypothesized in this dissertation that these strategies of scientific journalism may possibly be found in the popular science books of our corpus.

2.6. Final remarks

This chapter has described genres of specialized communication so that the researcher is acquainted with the level of specialization, along with the linguistic and pragmatic features of popular science books.

This chapter also lays the ground to start building the theoretical tenets corresponding to the three-fold object of study. Since terms are representative of the domain, the most salient linguistic resource –terminology– will be examined in detail in the following chapter to account for the technical language of genetic engineering in popular science books, altogether with semantic prosody and ideological aspects of translation strategies.

1. Introduction

2. Popular science as a Specialized Language (LSP)

3. Object of Study: The Theoretical Framework of Denominative Variation (DV), Semantic Prosody (SP) and Ideological Aspects of Translation Strategies

3. Object of analysis: The theoretical framework of Denominative Variation (DV), Semantic Prosody (SP) and Translation Strategies (Ideological aspects of translation).

The diffusion of knowledge is the only guardian of true liberty

James Madison (1751-1836), 4th US President

Quoted in Pine (2001:12)

In chapter 2, we argued that the frequency of use of certain marked structures confer specialized registers the status of specificity. Thus, this chapter plunges into the study of denominative variation as a marked feature of popular science. Another characteristic that is predicted to be encountered is semantic prosody that will be studied in order to detect ideological connotative changes in key terms as they undergo translation. The last part of the chapter is devoted to translation strategies and whether there are different ways of translating the same term from English into Spanish, so as to find out what the extent of denominative variation is.

3.1. Denominative variation

Denominative variation is a terminological phenomenon. Terminology is the most salient quantitative feature of specialized languages, along with specialized phraseology. In view of the functions, terminology has been attributed two: The representation of specialized knowledge and the transfer of knowledge across communicative settings (Cabré 1999: 244). This two-fold purpose has several applications (Sager 1998: 250): Term creation and standardization, the structuring of terms in special subject fields (conceptual systems) and the representation of terminology in automated systems (e.g. machine translation). At this point, it is clear that the study of terminology is only relevant to the vocabulary of LSPs. What we are implying is that terminology is the key factor that determines the level of specialization in a text (Picht and Draskau 1985: 6). Technical language makes a text more difficult for an observer to understand, as this usually involves more specificity. However, the frequency and use of terminology varies greatly depending on the communicative setting:

> [T]he occurrence of discipline-specific terms is very high in fully specialized texts (i.e. those produced by specialists for their peers) and in pedagogic specialized texts (written for training new specialists). Fewer technical terms are employed instead in

> popularizations, where discourse relies chiefly on words drawn from general language (Gotti 2003: 297).

Consequently, it seems clear that a high density of terms would not appear in our corpus of popular science books on genetic engineering. To put it another way, the density of terminological units is in accordance with the level of specialization. A deeper understanding of terminology and other lexical processes (e.g. denominative variation) in science are reviewed from a theoretical perspective in the next section.

3.1.1. Theories of Terminology

In order to extract terms from our corpus, it is necessary to understand how terms behave and how they deviate from the behavior of words in the GL (Sager 1998: 258). Term behavior differs from one terminological theory to another, given that the evolution of Terminology as a discipline goes from prescriptivism to descriptivism. The beginnings are associated with the General Theory of Terminology that further evolved into current updates such as the communicative and sociocognitive approaches.

3.1.1.1. General Theory of Terminology (GTT) (Wüster)

The School of Vienna created the first theory of terminology, known as The General Theory of Terminology (GTT), in the 1950s. Wüster was the main proponent whose ideas flowed from the elaboration of his dictionary *The Machine Tool* in 1938. His focus was on:

- *An onomasiological approach* that categorizes concepts and later finds their denominations. Every single concept has a unique term, so that there is a relationship of univocity between the signified and its signifier.
- *Normalizing terms,* for communication among experts to be standardized and unambiguous. Conceptual and lexical variation (synonymy and polysemy) are not recognized, because specialized domains are understood as uniform, objective, close and static (Cabré 1999: 76). Terminology standardization comes in the form of ISO standards and other types of documents from standardization organizations (e.g. *Inforterm: International Information Centre for Terminology; BSI: British Standardization Institution*).
- *Logical and ontological relations*. Since concepts are the primary object of study, the relations of meaning can be formulated as taxonomies (hyponymy) and part-whole categories (meronymy). The former is a logical and hierarchical organization (*x* is a type of *y*), the latter is a simplified ontological system (*x* is a part of *y*). Nevertheless, terminology has a more complex system of relations than taxonomic

and meronymic relations. The complexity of semantic relations is exemplified in the form of extended ontologies with eccentric- or helictite-shaped ramifications that include, *inter alia*, contextual and historical information (see sociocognitive theory).

The GTT was considered a flawed and reductionist theory for advocating:

- *A study of terms in isolation* out of their pragmatic context. The development of terminology is interdisciplinary, which means that a term usually pertains to a unique specialized field of knowledge although it can be used in other specialized areas of expertise (Cabré 1993: 168).
- *Normalization*, which reduces the possibility of employing several equivalent terms suitable for a specialized communicative setting within the same register.
- *A prescriptive theory* that resists a descriptive approach. An explanatory focus proves that there is considerable overlap in a number of subject fields, so that terminologies are shared (e.g. genetics and engineering within modern biotechnology).

For all these reasons, the GTT is considered insufficient to explain the multidisciplinarity and complexity of terminological processes.

3.1.1.2. Communicative Theory of Terminology (CTT) (Cabré)

The GTT has different theoretical underpinnings from those of the Communicative Theory of Terminology (CTT). The communicative theory is strongly rooted in the following basic principles:

- Unlike GTT, the CTT is based on *a descriptive approach* that consists of the extraction of terminological units currently used by the domain users (Cabré 2001: 34). The extracted terms do not necessarily comply with normalization standards or are not already lexicalized, but are language-in-use terms.
- *Adequacy* of either semasiological or onomasiological approach (Cabré 2001: 32) with a tendency for the former, for which terms are first identified and, then, its semantic relations are studied. The objectives of terminology are the search, the selection and the classification of terms proper of a specialized domain (Cabré 1996: 24), and as a result, terms appear to have one or several denominations depending on the context.
- *A term is* not an isolated and autonomous unit, but is understood as *a set of features* –pertaining to lexical units– that determine the potentiality for a lexical entity to be a term (Cabré 2001: 33). This potentiality is activated through the pragmatic factors (e.g. users) mentioned in chapter 2 (see 2.5.).

- *Multidimensional, interdisciplinary and multidisciplinary terms*. Terms are understood to be multidimensional (banalized, terminologized), interdisciplinary (the principle of polyedricity under the Theory of Doors) and multidisciplinary (cumulative relationship of meanings). Multidimensionality is quantified in the horizontal axis, while interdisciplinary and multidisciplinary are represented in the vertical one. These three aspects will be explained below (see 3.1.2.1.).

A large number of the CTT principles are shared by the next theory, the sociocognitive approach to terminology.

3.1.1.3. Sociocognitive Terminology (Temmerman)

The underlying principles of the Sociocognitive Theory of Terminology (SC) are explained below:

- *Mobility*. This approach is based on the idea of the mobility of words. Words are not constrained to be static, but have the potential to move figuratively in GL (Temmerman 2000: xiii). This movement may also be activated by the level of specialization of a text. In this PhD dissertation, popular science terminology is hypothesized to achieve this power through terms and the low specialized adjacent context. For example, terms used in popular science discourse may be influenced by surrounding emotive language and connotation (see 2.5.).
- *Units of understanding*. This theory conceives concepts as *units of understanding* (Temmerman 2000: 236). These units are considered *categories* when they hold a prototype structure. (Temmerman 2000: 43). When a concept does not have a prototypical structure, it is likely to display univocity (Temmerman 2000: 44). We understand by *prototype* the “best example for each category in his [the speaker’s] mind” (Temmerman 2000: 61). A prototypical structure usually embraces synonymy and polysemy, since the interpretation of language is linked to the understanding of the world (Temmerman 2000: 62). As a matter of fact, some categories are more prototypical than others.
- *Experience*. Textual interpretation of a category is made through experience, notably sensory perceptions. It is through the lens of a discourse community’s own understanding that a category is shaped. The Sociocognitive Terminology is nurtured from cognitive semantics that connects the world with language and human mind (Temmerman 2000: 61). Experiential and paradigmatic meaning implies that units of understanding are “influenced by previously acquired meaning” (Temmerman 2000: 69). Metaphors, for instance, play a vital role, since they are embedded in our conceptual systems and experience. Metaphorical models make the connection between language units and the world of experience (Temmerman 2000: 44).

These principles are expressed through terminological records (also called *templates* or *category descriptions*). Templates must include four units of information (Temmerman 2000: 233):

- The category unit (category type, intra- / intercategorial analysis)
- The linguistic unit (morphology, synonyms, collocations, usage)
- The reference unit (context, bibliographical references)
- The identification unit (author, date)

The units of understanding are analyzed intra- and intercategorically. The intracategorial parameter is in need to look for the prototype structure of units of understanding. To this end, definitions (not only logical and ontological, but intensional, extensional and part-whole), and historical and procedural information are investigated to show the degree of essence of a particular unit (Temmerman 2000: 120). The intercategorial dimension displays the perspective and intention of terms coming from the cognitive structure of the corpus texts; that is, whether terms are conceptualized as entities, activities or umbrella terms. Since the study of terms contributes to the advancement of knowledge, Temmerman (2000: 75) gives the example of three terms in life sciences: *Intron* (entity), *blotting* (technique; activity) and *biotechnology* (umbrella term). Definitions are subject to variation depending on the intercategorial status of units of understanding. Since the object of study is primarily meaning, simple and multiple terms are not distinguished, not even from phraseology (Temmerman 2000: 235).

From this approach, we understand that it is crucial not only to study text, but also context, therefore, we will review the sociocultural environment of GE in the documentation stage (see chapter 4.3.2 and 5.2).

3.1.1.4. A comparison of terminological theories

The main tenets of the three studied theories are compared in the table below (table 3.1). With regard to the proponents, it is well-known that Wüster was not a linguist but an engineer driven by the urge for categorizing concepts. The procedure he used to identify and classify terms was mainly through the help of another expert. His view was towards the standardization of unequivocal terms, because the unique semantic value of terms contributes to the preciseness and unambiguity of PAL discourse.

Cabré and Temmerman are linguists that take into account the pragmatics and cognitive aspects of communication for the study of terms from a dynamic point of view. This dynamism includes linguistic variation that is translated into the synonymy and polysemy of terms. This is because the communicative and cognitive theories understand the terminologies of subject fields as multidisciplinary and multifaceted. These current theories recognize that many concepts are not clear-cut as a result of a communicative purpose and experientialism. The sociocognitive theory advocates for the study of experiential units of understanding through the history of a term and the context of the discipline the term is embedded in.

Theory	**Traditional (GTT)**	**Communicative (CTT)**	**Sociocognitive (SC)**
Proponents	Wüster	Cabré, Sager	Temmerman
LSP	Static	Dynamic	Dynamic
Scope	Objectivism Standardization	Communication Pragmatics	Hermeneutics Cognitive semantics
Discipline	Homogeneous	Multidisciplinary	Multifaceted
Meaning relations	Logical, ontological	Multidimensional Interdisciplinary	Mobility Experience
Ling.variation (Synonymy & Polysemy)	Eliminated (Monosemy)	Recognized (As a result of a communicative process)	Recognized (As a result of progress in understanding)
Approach	Onomasiological Concept > Term	Semasiological Term > Concept	Semasiological Term > Understanding
Object of study	Definitions in a concept system	Units of specialized knowledge (USK)	Units of understanding: Prototype structure of *categories* and templates of meaning description
Concepts	Well-defined	Not always clear-cut	Not always clear-cut (metaphorical models)
Term-concept relation	Univocity: One-to-one Permanent	Polyedricity: One-to-many Evolving	Sociocognitive: Categorial features Evolving
Term status	*In vitro* Isolated	*In vivo* Language in use Linguistic context	*Experiential units* Conceptual systems of previously acquired meaning

Table 3.1: *Traditional, communicative and sociocognitive theories of terminology.*

Regarding the signifier, a term is not necessarily a normalized entity, but a product of actual language-in-use specialized communication (Sager 1990: 13, Cabré 1999: 139) (cf. the process of normalization was compulsory in GTT). In classical terminology, terms are conceived *in vitro*, that is, they were analyzed as isolated lexical entities so that a concept was anchored to the same invariant denomination. The one-concept-to-one-term dualism remained permanently the same and, in this way, the term became standardized. In the communicative theory, terms are actually scrutinized *in vivo* and analyzed holistically, and as a result, it is usual to find that one term expresses more than one concept in several subject fields and *vice versa*. At this point, it is necessary to further examine the concept of *term*.

3.1.2. Key concepts of Terminology

The aforementioned principles from table 3.1 belong to the theory of terminology (concepts of the discipline). But terminology is also understood as the approaches (guidelines to extract terms, practice) and applications (product).

There are as many terminologies as specialized disciplines and subdisciplines (e.g. terminology of biology, medicine, law, etc.). Translators who work with LSP texts need to familiarize themselves with the subject-domain concepts and their corresponding terms. Terms are being created every day. This implies the impossibility to know the exact amount of terms that a specific field contains. It is an impossible task to trace a line between one terminology and others given that terminologies share units of specialized knowledge –terms–. Since the terminology of GE is relatively recent, the terms of this discipline are in constant evolution and are likely to be subject to denominative variation.

3.1.2.1. What is a term?

A term is the means of expression to transmit specialized meaning. According to Pearson (1998: 26), a term is "any word or phrase used to designate a concept in a subject field". Terms can be more and less specialized, that is to say, terms can be technical and subtechnical terms, respectively. Technical terms include subject-specific (in this study, the terminology of *genetic engineering*) and non subject-specific specialized vocabulary (in this study, the terminology of *medicine*) and both categories constitute lexical entities that occur predominantly in a specialized subject domain. By this way of reasoning, terms are intrinsic elements of scientific knowledge and discourse (Budin 2002: 159). Beyond the thematic criteria, terminological units shape the cognitive structure of a text (Cabré and Estopà 2002: 7). Unlike most words, technical terminology tends to have a fixed, stable and precise meaning.

Subtechnical terms are lexical entities from the GL that have acquired the status of a term through its specialization of meaning (e.g. *study, examination, test,* Méndez Cendón 2002: 201; *activation, expression, inhibition,* Gledhill 2000: 50). In Fraser's terminology, subtechnical terms are known as *cryptotechnical* (Fraser 2006: 68).

Both technical and subtechnical are characterized by the principle of *multidimensionality* (Cabré and Gómez de Enterría 2006: 29). This tenet holds forward that there are not lexical units in the GL and lexical units in the specialized language, but multifunctional units that potentially acquire a specialized meaning –usually different from that of the GL– or a banalized meaning –different from that of PAL–. The influence of GL on LSP and *vice versa* gives rise to terminological and banalized processes:

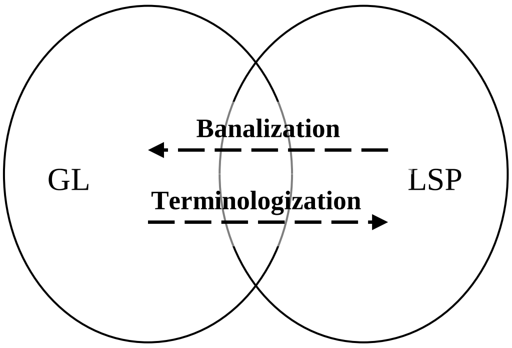


Fig. 3.2: *Visual representation of the phenomena of banalization and terminologization.*

Banalization is the process that takes place when we transfer specialized topics to daily activities. Due to the fact that “sciences and technology have considerable influence upon language in general” (Sager et al. 1980: XVI), certain lexical units that originated in the specialized discourse have taken on a trivialized meaning in the GL. Terms like *attraction* were originated in the field of electrical and magnetic theory (Lerer 1998: 32). From nuclear physics, there are words like *ground zero* and *fusion* that are employed nowadays with a figurative and connotative meaning in general-purpose language (Lerer 1998: 33) and in low specialized texts (popular science books and newspaper articles). There are also extension-in-lexis processes. Vocabulary from science and technology has entered everyday language with expressions such as *electric shock* that gives rise, for example, to *shocking news* (Lerer 1998: 32).

Terminologization is the opposite process to banalization and consists of adopting words already in everyday use and applying a new and special scientific meaning. This group of existing words that have taken on a novel meaning becomes semitechnical vocabulary and such is the case of *salt, parasite, fatigue, resistance* and *work* as the quotation explains:

> [This is] what the chemists have done with *salt*, the botanists with *fruit* and *pollen* (originally ‘fine flour’), the zoologists with *parasite*, the metallurgists with *fatigue*, and the physicists with *current, force, gravity, power, resistance* and *work* (Barber 2000: 216).

The examples above corroborate that terms are *multidimensional*, as they can move along the vertical axis: Terms move from the highest specialized communicative setting to the lowest (banalization) and also, words shift their habitat from GL to specialized registers (terminologization). Likewise, terms are multidisciplinary and interdisciplinary when they move along the horizontal axis. They are *multidisciplinary* when terms are equipped with one meaning in a given field and this meaning from the same or different domain is cumulative under the same denomination. For example, *petrol* is conceptualized both as a liquid and a solid (Cabré 2001: 35). Terms are also said to be *interdisciplinary* because they can pass from one discipline to another domain horizontally and, as a result, terms can change their meaning or acquire a distinctive nuance. For example, *root* is a different term in botanics, mathematics, linguistics, zoology (Martín Camacho 2004: 28) and music. It is also different from the general language use (e.g. the *root* of a problem). When the same denomination (e.g. *root*) appears in different domains (e.g. mathematics and linguistics), there is a great chance that they are two different concepts, they differ qualitatively or they are modulated with a different shade of meaning. Therefore, we could say that terms are polyhedral at a horizontal level. The more disciplines the term is connected to, the more sides the polyhedron will have:

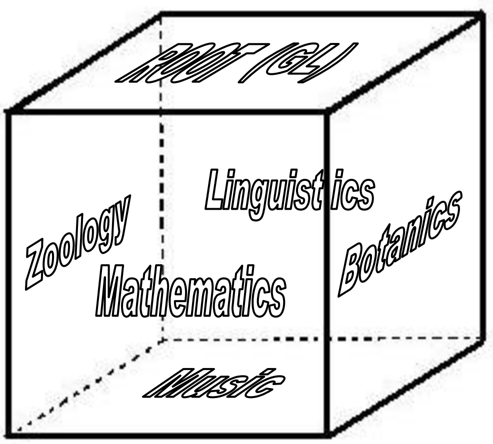


Fig. 3.3: *Polyhedral dimensions of 'root' as a general-language and specialized lexical entities.*

The notion of polyhedral terms is one of the principles of the CTT (Cabré 1999) and later developed in the Theory of Doors (Cabré 2003, 2000). The Theory of Doors is a follow-up development of the Communicative Theory of Terminology. The explanation (Cabré 2003: 195-6) is provided by the analogy of a house with a number of entrance doors. Any room (e.g. each meaning) can be accessed through a different door of entry (e.g. the different disciplines). The location of the rooms does not change, what is modified is the way and the perception to enter the house.

The principle of poliedricity was born originally in the CTT as the principle for which a terminological unit is a tridimensional entity: Linguistic, cognitive and sociocultural (Cabré 1999: 70). Sager (1990: 13) already identified these three dimensions as linguistic, cognitive and communicative.

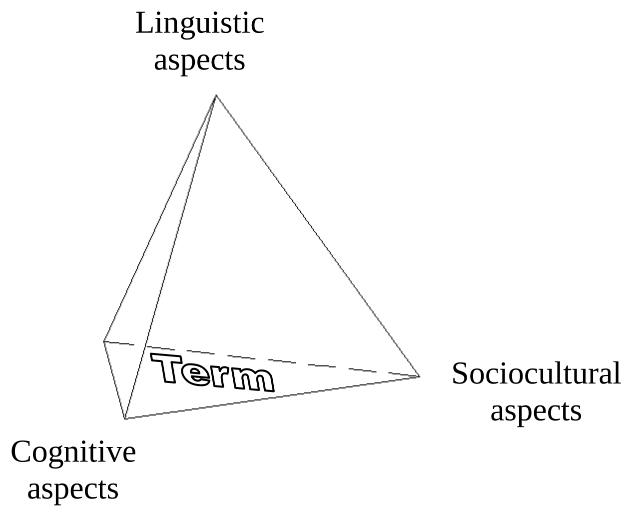


Fig. 3.4: *Tridimensional view of a term under the communicative and sociocognitive theories of terminology.*

This polyhedron represents the linguistic aspects of a term (grammatical and semantic), the sociocultural aspects that are the pragmatic-communicative ones (e.g. function, user) and the cognitive (e.g. the concept and how it is recognized). Furthermore, the grammatical include the orthographic, phonological, morphological, syntactic and semantic representations. The pragmatic characteristics consist of the agents, the geographical areas and the field in which it is used. As well as specialized languages, terms are differentiated from words by means of pragmatic aspects: the users, the situations, the topic and the type of discourse. The sociocultural aspects embrace that the more the effectiveness of a term within a discourse community, the more the verisimilitude. The cognitive aspects were already pointed out by Lerat (1997: 8) when he discussed the difference between natural and conventional meaning at the time of accounting for the distinction of general and specialized languages. Hence, it may be argued that a word carries natural meaning, whereas a term takes on a conventional meaning. What cognitively distinguishes a term from a word is that a term "reveals a higher degree of precision and/or a special content unknown in LGP" (Picht and Draskau 1985: 97) because of the activation of the pragmatic aspects of a term (Cabré 1999: 123). For example, *frame* is a general language word in unmarked textual contexts that can be reused in a specialized domain, such as cycling, by preserving the similar but also more specific conceptual features (e.g. *frame* as a term in cycling is the basic structure in which the different parts of a bicycle are articulated).

Relative infrequency of terms in GL may be a first indication for considering words as terms. Frequency is the factor included in software packages to detect term candidates when they are being compared to a GL corpus, as in semiautomatic term extraction software. But frequency is not a sufficient requirement since terms are primarily activated according to the pragmatic characteristics of a specific communicative setting (Cabré 1999: 123). The examination of context will determine if a lexical entity is behaving as a term (Pearson 1998: 26). Pearson gives the example of *part-time work.* When it is used in GL it does not stand out as a term, but it does become a term in the context of employment law when the concept is clearly defined as an exact number of hours along with the worker's rights and minimum salary (Pearson 1998: 27). The examination of context is the reason why we have examined the notion of communicative settings in chapter 2 because "membership of a subject field is an essential characteristic of termhood" (Pearson 1998: 36).

A very cogent criterion by Pearson (1998: 130) is that a term must meet the requirements of generic reference. A term has generic reference when it is *unflagged,* in other words, when it is preceded by an indefinite article or no article at all. Some of the examples provided are *a cut-off call* vs **this single sheet, *the nature of information*. Apart from generic reference, linguistic signals (e.g. *called, known as, e.g., the term X, termed "X"*) (Pearson 1998: 130) are a device easily identifiable for the retrieval of terms. We need to be careful with linguistic signals or discourse markers designed to retrieve terminological units, which may also output a number of non-terms (see 3.1.2.2.).

Leaving aside the dimensionality of terms and how it is activated, now we are dealing with term formation and how terms can be analyzed. Terms can be classified as linguistic and non-linguistic units of specialized knowledge (USK). Our focus is on the linguistic USK, which are divided into terminological (TU) and phraseological units (PU). In the CTT, a terminological unit is a polyhedral unit consisting of at least one concept and a single denomination. Izquierdo (2008: 3) emphasizes that form and meaning have established a functional relationship that is symbiotic and, therefore, form does not exist without meaning and *vice versa*.

TUs are both monolexical and polylexical, being PUs always polylexical. Therefore, monolexical units are always terms (e.g. *speech*), whereas polylexical units can be terminological (e.g. *speech act*) and phraseological (e.g. *to perform a speech act*). The monolexical terms can be made up of nouns, verbs and adjectives, being the noun the most frequent base for a term (Cabré 1999: 139), although there are also noun phrases preceded by prepositions. The most frequent node for a collocation is a verb or a noun.

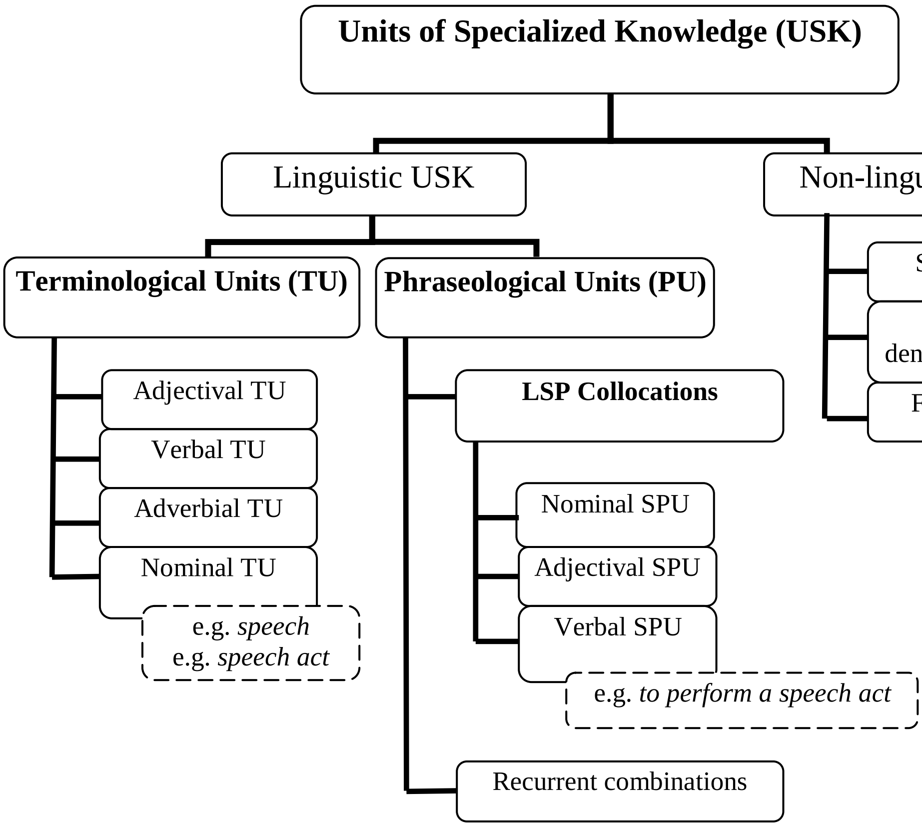


Fig. 3.5: *USK diagram (adapted and translated from Spanish) of terminological (TU) and phraseological units (PU) according to Estopá (2001: 67).*

When a new term is coined, the denomination is usually derivational and/or compositional. Or also, the new term can acquire a new meaning assigned to an existing lexical unit. Gutiérrez Rodilla (2005: 43) identifies the first process with a *neologismo de forma* (neologism of form) and the second one as a *neologismo de sentido* (neologism of meaning). The first type tends to occur in well-established subject domains, whereas the latter is frequently found in recently created areas. There is a third process called *neologismo sintáctico* (syntactic neologism) that will be discussed in subsequent paragraphs. The following table illustrates the mechanism of a *neologism of form* through the example of medical terms (table 3.6).

With regard to neologism of form, derivation and composition are formed by prefixes, suffixes and parasyntheses. In the last case, parasynthesis is the formation of words by a combination of compounding and derivational suffixes. The word *parasynthetic* is formed by*para-* (beside), *syn-* (together) and *-ic* (it is not formed by *para* and *synthetic*). Other examples are *suprasegmental, intravenous, osteoporosis* (*osteon-*, *poro-* and *-osis*; not *osteon-*, and *-porosis*) (Martín Camacho 2004: 63). Other terms –eponyms– follow a different process of word formation, usually by taking the last name of the scientist (e.g. *Huntington disease*). Gutiérrez Rodilla (2005: 32) argues that a term can also be an acronym, as in the case of *AIDS* (Acquired Inmune Deficiency Syndrome). This term has turned into a lexical unit and has coined other terms by composition and derivation, such as *anti-aids*.

TUs	**Term formation**	*Examples*
Monolexical units (*Construcción*)	Abbreviation	*SIDA, TAC*
	Derivation	*Viral (*virus + -al)
	Composition	Gastr-, hepat-, esplen- + -algia (*pain*): *gastralgia, hepatalgia, esplanalgia*
Polylexical units (*Complejización*)	Yuxtaposition	*Tolerancia inmunológica*
	Coordination	*Cromatografía de intercambio iónico*

Table 3.6: *Different lexical processes for a neologism of form in Spanish medical terminology adapted from Gutiérrez Rodilla (2005: 44).*

The *neologism of meaning* is based on existing words, such as *abort, window,* and *branch* that can also be applied to computer and internet terminology. These terms have taken on a new meaning not only in the English language, but also, as a rule of thumb, in Spanish and in minority languages such as Basque (Aierbe Mendizábal and Bayón García 2007: 273). Here we are dealing with a process of terminologization by which words pertaining to GL are turned into subtechnical terms. The value of the semantic borrowing has been transferred to phraseological units, such as *to abort a command, to open a window* and *surfing the net* (Aierbe Mendizábal and Bayón García 2007: 276).

These two processes of neologism are used with a different frequency. The majority of terms in a new discipline are coined through a neologism of meaning much more than a neologism of form, as for example in the cases of *genetic library, genetic message, genetic expression* (Gutiérrez Rodilla 2005: 58). There is also the case that an existing term from another discipline can enter a subject domain. For example, *code*, from legal language, has penetrated into biology, and thus, the polylexical term *genetic code* has been created (Gutiérrez Rodilla 2005: 57).

In order to extract terms, the marriage between terminology and computers gave birth to the term *terminotics*. Pearson’s book (1998: 204) was one of the first real attempts at bringing together the disciplines of terminology and CL. However, nowadays the term has fallen into disuse, and it has been taken for granted since the extraction of terminology, its combinatorial patterns and the creation of termbanks are only conceived through software.

One of the most productive combinatorial patterns that is detected through software is Adj + N. Estopá (2001: 75-6) offers four possible combinations for Adj + N pattern when the node and the collocate are both specialized and non-specialized:

Adj + N pattern		TU / DU
1)	Adj $_{esp}$ + N $_{esp}$	Myocardic infarction (infarto de miocardio)
2)	Adj $_{esp}$ + N $_{no\ esp}$	Lymph vessel (vaso linfático)
3)	Adj $_{no\ esp}$ + N $_{esp}$	Yellow fever (fiebre amarilla)
4)	Adj $_{no\ esp}$ + N $_{no\ esp}$	Recent study (estudio reciente) (DU) Key element (element clave) (DU)

Table 3.7: *Adj + N pattern with examples of terminological and discourse units (based on Estopá 2001).*

The example in number 1) is more specialized (both the node and the collocate) than example 4), which contains two non-specialized units. The last category is considered a discourse unit (DU), since its two elements prove not to be specialized. DUs are usually rare occurrences in a particular specialized discourse at the level of experts (PAL) and more frequent in low specialized environments.

The degree of specialization of a combinatorial pattern, such as *Adj + N*, contributes to the degree of specialization of a text and to its terminological density. The number of denominative variants under that pattern is a decisive factor in measuring the degree of specialization of a text (Cabré 1999: 89).

3.1.2.2. Denominative variation

In the late 90’s, denominative variation attracted little attention within the discipline of terminology. Since then, there has been a growing interest (Bach and Suárez 2002; Faulstich 2002; Freixa 2001, 2002a, 2002b, 2006; Suárez de la Torre 2002, 2004; De Santiago 2013) in denominative variation, especially since the advent of the Communicative Theory of Terminology (CTT) (Cabré 1999). Two tenets of the CTT relevant for the study of denominative variation are the establishment of terminology as the discipline we know nowadays, far from a static compendium of terms and the recognition of denominative variation as an observable fact. Thus, denominative variation is widely accepted in the CTT and sociocognitive theories and it is seen as a positive mechanism to facilitate the understanding of knowledge for the general public in popular science texts (Suárez de la Torre 2004: 261). It can be detected automatically when the corpus is lemmatized, so that potential terms with the same grammatical category can be identified.

A reference definition of denominative variation specifies that it does not concern any variation but the variation confined to lexical terms; that is, excluding paraphrasis and definition of terms (Freixa 2006: 51).

> The phenomenon in which one and the same concept has different denominations; this is not just any formal variation (variation between a term and a periphrasis, or a definition, for example), but is restricted to variation among different denominations, i.e. lexicalized forms, with a minimum of stability and consensus

> among the users of units in a specialized domain (Freixa (2006: 51).

The quote also emphasizes that the main feature about denominative variation is that the level of specialization of texts determines the degree of denominative variation (Freixa 2002a: 12). Freixa (ibid) outlines the hypotheses for denominative variation to take place in discourse:

1. Less specialized texts are more subject to show evidence of denominative variation.

   > Cuanto más especializado es el texto mayor es su sistematicidad y menor su grado de variación denominativa (Cabré 1999: 100).

2. Texts with different levels of specialization include denominative variants that differ from one level of specialization to another.
3. The level of conceptual equivalence between the concept and its denominative variants is met straightforward in highly-specialized texts.

These hypotheses assume the presence of different lexical forms to address the same concept. For example, *genetically engineered DNA* and *manipulated DNA* are denominative variants or *alloterms* (term coined by Faulstich 2002: 71 in Portuguese, *alotermo* by analogy with allophone) of the key term *recombinant DNA*. Borrowing from the work of Bondarko (1991), both the denomination and the meaning function in a relationship of *one-to-many*:

> […] The principle of "the asymmetrical dualism of the language sign" […], that is, the possibility of one unit of the expression plane corresponding to several units of the content plane and, conversely, one unit of the content plane corresponding to several units of the expression plane (Bondarko 1991: 7).

On the basis that there is no need to reformulate concepts in the expert-to-expert communication, Faulstich (2002:72-3) elaborates a classification of denominative variants at a low specialized level. The taxonomy is completed with linguistic terminological variants and terminological variants of register. The former comprises lexical (e.g. in Portuguese *software educacional* and *software educativo*), morph syntactic and graphic variants. The latter embraces geographical (e.g. *aipim kin* in Southeast and South of Brazil and *macaxeira / mandioca* in the North, Northeast and Mid-West of Brazil to designate any plant of the legume family), discoursive (e.g. *parotidite* for *parotitis* and, *papeira* for *mumps*) and temporal variants. For instance, the concept of *fever* (content plane) can have several denominations in the form of abbreviations (graphic variants) and polylexical terms (expression plane). More than one abbreviation is possible: *UEF*, *UEP*, *FUO*, *PUO*. They stand for different denominations: *Unknown Etiology Fever, Unknown Etiology Pyrexia, Fever of Unknown origin, Pyrexia of Unknown Origin* (Gutiérrez Rodilla 2005: 68). Using eight different terms to refer to the one and same object may be confusing and wasteful but, if this phenomenon arises, there may be a *raison d'être*. Stylistic reasons motivate the necessity to avoid repetition and, therefore, specialized texts are also subject to stylistic changes (Freixa 2002b: 111). The causes of denominative variation have been identified as stylistic, dialectal, functional, discursive, interlinguistic and cognitive (Freixa 2006: 52).

- An example of dialectal causes may be provided by some interlingual translations to the different Spanish language varieties. According to some authors (Gutiérrez Rodilla 2005: 62), it is necessary to avoid multiple translations. With the influenza A virus, *influenza A* (<Eng<Lt. *influenza*) was predominant in Spanish-speaking Latin-American countries whereas *gripe A* (<fr. *grippe*) was used in Spain.
- The functional has to do with the adaptation to the level of specialization. The semantic value of highly-specialized terms is shared in the discourse community of experts, but this sharing is virtually lost at an educated layman level. It is a matter of specialization degree for a language community to employ *influenza A virus subtype H1N1* or the clipping *flu* (e.g. *2009 flu pandemic, swine flu*).
- Variation produced by discursive causes may be due to making a more varied discourse by avoiding repetition or by being more emphatic and expressive (Freixa 2006: 60). For example, denominative variation can oscillate between the term and the chemical nomenclature: *vitamin* B_2 and *riboflavin*. The latter corresponds to the *International Union of Pure and Applied Chemistry Nomenclature (IUPAC)*.
- Interlinguistic variation is proper of languages in contact. It is a proven fact that the English term, *DNA*, is preferred to the Spanish one, *ADN*, on the part of Spanish experts. Another case of interlinguistic variation is due to the co-existence of the local term and the loanword (Freixa 2006: 56). A relatively recent example from Spanish newspapers is the less used form *patera* that has been displaced by *cayuco,* since *cayuco* has been widely spread by international newspapers to report on the issue of immigrants from Africa to Europe.
- Cognitive causes may be due to two reasons (Freixa 2006: 64): The voluntary ideological stance (e.g. *Frankenstein food* vs *genetically modified food*) and the lack of conceptual consistency, as for example in novel GE techniques (e.g. *technology protection system, terminator technology* and *genetic use restriction technology*).

It is not always possible to identify the cause of variation, but it seems feasible to detect the degree of denomination variation when studying different denominations. The degree of denominative variation usually increases when the level of specialization decreases. The maximum range of variation is found in popular science, the minimum appears in expert-to-expert communication and a medium degree of variation occurs between specialists (Cabré 1999: 85). Adapting the *x*- and the *y*- axes from fig. 2.3 in the previous chapter, *x* represents the degree of denominative variation and *y* is maintained as the level of specialization.

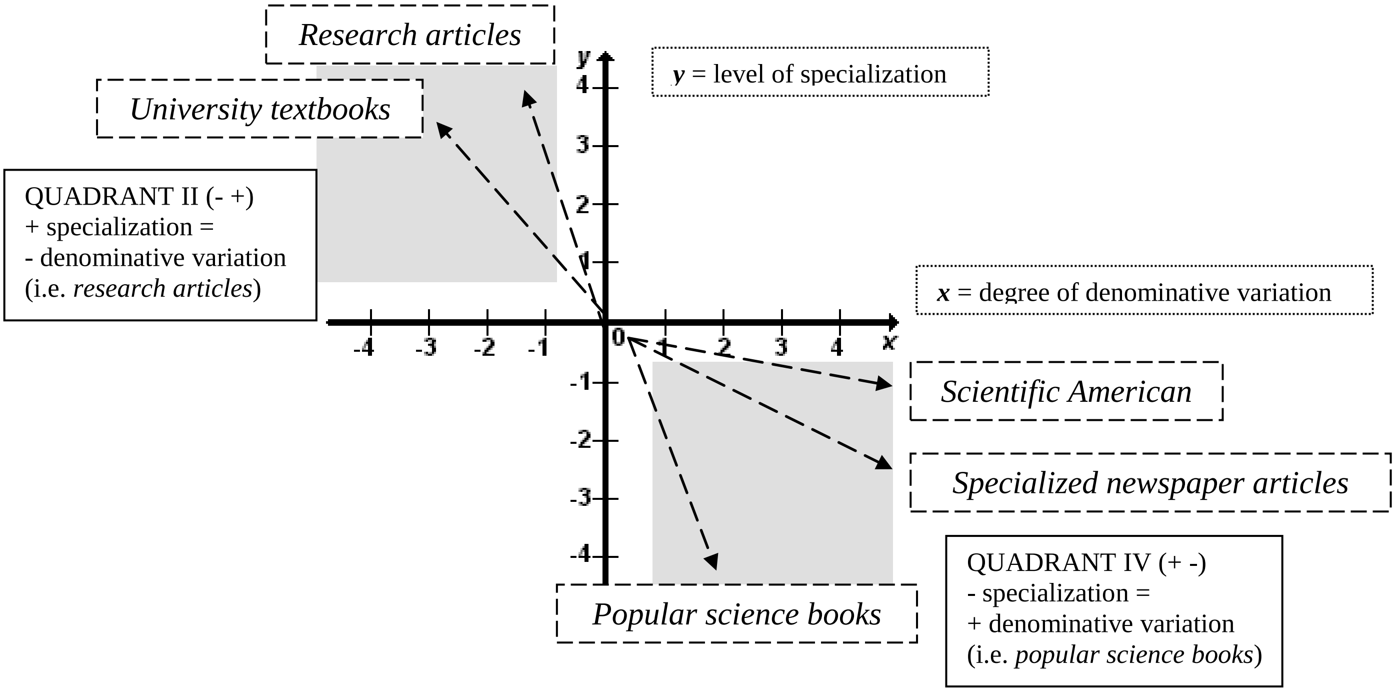


Fig. 3.8: *x- and y-coordinates to represent the degree of denominative variation and level of specialization.*

In the second quadrant, *x*-coordinates are negative (denominative variation) and *y*-coordinates are positive (level of specialization), whereas, in the fourth quadrant, it is the opposite. Fig 3.8 is a visual way to represent the level of specialized communication as directly proportional to the communicative setting and function.

Not all texts are affected by denominative variation to the same extent. Topics that are closer to the public are often the ones that show a higher degree of denominative variation (Freixa 2006: 55). The field of GE comprises food, agricultural, pharmaceutical and medical applications among others. It is hypothesized in this PhD dissertation that we will observe in our corpus that food and agriculture are the areas closer to consumers and are probably more exposed to experience denominative variation than in other related topics, such as pharmaceutical and medical applications.

The relationship of denominative variation with translation studies is that denominative variation is present in the translation of specialized texts (Suárez de la Torre 2002: 996), which is the rationale of this dissertation. Some studies (Bach and Suárez de la Torre 2002; Fernández Polo 1999; Suárez de la Torre 2002, 2004) investigate the role of denominative variation in English and Spanish contrastively taking a sample of texts from *Scientific American* and *Investigación y Ciencia* as the corpus of study. These studies are based on reformulation markers such as *and, or, that is* and *termed as*, since discourse markers are a useful linguistic signal for the retrieval of similar and equivalent terminological variants. Other studies examine the implications of different denominative variants in Spanish (Cataldi 2003, 2004), although it is not always possible to specify the reason for every denominative variation.

With respect to the studies by Suárez de la Torre (2004) and by Bach and Suárez (2002: 121-5), linguistic signals or discourse markers are used in order to assist in the transmission of knowledge (Pearson 1998: 130). With regard to this subject, Bach and Suárez (2002: 121) found that a term was mainly followed by another denominative equivalent preceded by a discourse marker. Not always the discourse marker was rendered as such in the TT and, in this respect, it was not easy to identify the term as another denomination of the same concept. Their study of denominative variation in English and Spanish revealed the inconsistency of translation choices by examining some of the following discourse markers:

Discourse markers (DMs)				
TO			TT	
1)	Explicative	*In other words*	Consecutive	*Pues [so, thus]*
2)	Explicative	*Known as*	Disjunctive	*O [or]*
3)	Explicative	*Known as*	Punctuation	*,*
4)	Disjunctive	*Or*	Explicative	*Esto es [that is]*
5)	Explic. / Disjunc.	*Or / Known as*	Absence of DM	*Ø*

Table 3.9: *Discourse markers used to detect denominative variation in Bach and Suárez (2002: 121-5).*

Metalinguistic items (e.g. *known as, called*) can also be preceded by a definition or by paraphrasis. When a definition is provided, is usually by juxtaposition (Gotti 2003: 299), although definitions are not very frequent in popular science (Gotti 2003: 297). Apart from juxtaposition, punctuation such as colon, semicolon and parentheses can indicate denominative variation. However, not every connector in the table establishes a relation of equivalence. The study of the linguistic behavior of each one of these discourse markers has helped Suárez de la Torre to deepen into the issue of denominative variation, and the findings of one of her studies on scientific popularization are summarized as follows (Suárez de la Torre 2004: 329):

1) Denominative variation in the ST completely coincides with the linguistic devices employed in the TT.
2) Denominative variation is partially the same as the TT.
3) This linguistic phenomenon does not match ST with TT segments.
4) Finally, denominative variation is eliminated from the TT.

Suárez de la Torre (2004) investigated English-Spanish translations in a number of articles from *Scientific American* and their Spanish counterparts. The results summarize two main points. The first is that denominative variation implies a lexical change as well as a semantic change. As expected, the second one is that denominative variation diminishes the level of specialization in an LSP text.

Another study consisting of Spanish newspapers –another genre within popular science texts–, reveals that denominative variation operates as a lexico-semantic strategy used to recontextualize information for the general public (Cataldi 2004: 57, 61). The denominative variants examined in Cataldi's research (2004) are those that correspond to the key term *planta transgénica,* which has dissimilar variants in Spanish newspaper articles issued from 1999 to 2000. The selected denominative variants were classified into several semantic sets: science, politics, ecologists and biotechnology companies. The perspective of each group shows evidence of the communicative intentions about the concept that is to be transmitted (*transgenic plant*).

A key to account for the rationale of denominative variants is the context in which denominations are embedded in. The context of denominative variants does not only hold the purpose of informing about the scientific content, but also to indicate the perspective of a particular term. The context in favor of biotechnology techniques shows the denomination of *organismo modificado genéticamente* as the most frequent denomination within the scientific newspaper articles (Cataldi 2003: 229). In the newspaper articles from the perspective of politics, there is terminological instability, since the most common denominations are *organismo modificado genéticamente* and *organismo genéticamente modificado* (Cataldi 2003: 240). The texts from the ecologist group illustrate that not only *organismo modificado genéticamente* is frequent, but also *organismo manipulado genéticamente.* The adjective *manipulated* is accompanied by a co-text showing evidence of alert, advice and potential effects about health (Cataldi 2003: 248-50). In Cataldi's study, the texts from the point of view of biotechnology companies reveal that the most frequent terms are *organismo modificado genéticamente* and *modificado.*

The lexical reduction demonstrates that there is a tendency to avoid *genéticamente*. In this way, the transfer of DNA from one organism to another is lost in the denomination bearing the lexical reduction. Therefore, each subfield demonstrates a divergent point of view different from the others. The awareness of intentionality in each and every denominative variant distinguishes several discursive representations of the same concept in the different subfields. The following is a summary of the most relevant findings:

- Denominative variation is a prototypical strategy of popular science discourse, since the majority of the texts from her corpus displayed variation with a frequency of occurrence of 77% (Cataldi 2003: 290).
- Explanation and argumentation are not as prominent as denominative variation and persuasive purposes (Cataldi 2003: 290).
- It is a context-dependent linguistic phenomenon (Cataldi 2003: 290). *Manipulated* is a variant which was not found in the texts about biotechnology companies, as it may imply a negative view of GMOs (Cataldi 2003: 262). However, *manipulate* was deemed to be positive in the scientific and academic subgroup (Cataldi 2003: 238). In the ecologist group, *Frankenstein* and *monsters* were found to be variants of *genetically modified plant(s)* (Cataldi 2003: 252).
- In the scientific and academic group, *maíz* (maize) was encountered as a variant followed by an abbreviation *Bt* from bacterium *Bacillus Thuringiensis*. It is the only product that appears with an abbreviation, since maize is the most cultivated cereal in Spain and Europe (Cataldi 2003: 286). The reason for that is not clear, but the fact is that the meaning of the term plus the acronym is not transparent to the general public.
- Neologisms, like *antitransgénico* (Cataldi 2003: 155), show that the formation of terminological units is often motivated.
- A process of nominalization was detected in *planta transgénica*. The adjective was converted into a nominal category *–un transgénico–* (Cataldi 2003: 286). This change of grammatical category is known as the third process of neologism, which is a syntactic one. The most common change is that adjectives turn into nouns. Another example of a syntactic neologism is when an intransitive verb acquires a transitive value, as in the case of *to enter data* (Gutiérrez Rodilla 2005: 59).

These results correspond to the examination of denominative variation across several genres in Cataldi's study (2003). This particular phenomenon is predictable when there is a change in the register (Freixa 2001: 63). For example, *prurito* (itch) in medical reports and *irritación* (skin pain) in patient information leaflets. Any lexical change is subject to at least a minor variation that can be denotative or connotative (Freixa 2001: 59). It is the study of conceptual equivalence the most arduous task at examining denominative variation (Freixa 2001: 58). In other words, when different denominations cohabit in a relation of synonymy, the meaning may or may not have the same pragmatic values:

> Un término puede tener variantes denominativas en relación de sinonimia; estas variantes pueden tener los mismos valores pragmáticos o valores diferentes (Cabré 1999: 136).

Although denominative variation can trigger conceptual variation (Freixa 2006: 67), our purpose is to study denominations (e.g. semantic, orthographic) rather than conceptual variation. Therefore, it makes sense to talk about equivalent denominations rather than synonymy. Furthermore, Suárez de la Torre (2004: 65) emphasizes that there are not sufficient criteria to distinguish variants from synonyms. Denominative variation and synonymy may imply some overlap, but denominative variation is preferred to name the linguistic phenomenon that occurs at a specialized level, whereas synonymy may be run aground at the level of GL. Faulstich (2002: 86) considers synonymy as an equivalent expression (of a particular word/term) that is usually contained in definitions or paraphrases. To shed some light on this issue, the main difference stems from the fact that denominative variation confines to denominative units that are lexicalized to a great extent whereas synonyms in the form of definitions and paraphrases may be not. Then, we may argue that the study of denominative variants is at the level of synonymy but they are not considered synonyms. In this dissertation, it is clear that denominative variants is the object of study since the collocates of the most recurrent *node* terms are examined within the combinatorial pattern *Adj + N*. It should be noted that conceptual variation may be encountered not only at examining synonymy but also in the behavior of denominative variants.

To conclude, we could say that the precision of scientific language may be fractured when equivalents arise. Yet, this is a natural phenomenon in scientific language from the point of view of current theories of terminology. The principle of polyedricity dealt with in chapter 2 applied to terms and concepts can explain the phenomena of conceptual and denominative variation (Cabré 2008: 10) and, the sociocognitive theory advocates for understanding the world in which the area of study –GE– is rooted. Therefore, the next section is devoted to the examination of the selected discipline and specialized field of knowledge.

3.1.3. Terminology of genetic engineering (GE)

We have stated that a term is used in a subject domain when it is employed by the discourse members to design a concept. The specific domain of our corpus is genetic engineering, which is a subfield within the broader discipline of biotechnology.

3.1.3.1. Basic terms: What is biotechnology?

The diagram (fig. 3.10) below shows a multifaceted discipline under the umbrella term of *biotechnology*. It interacts with other fields of knowledge so that it covers a wide range of disciplines.

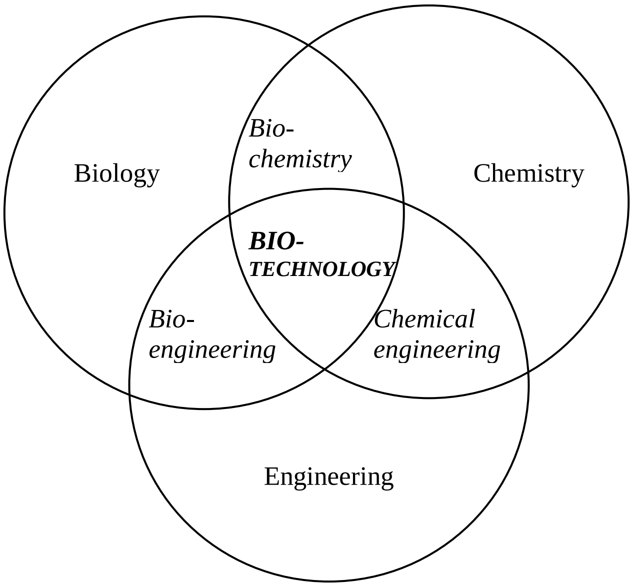


Fig. 3.10: *Biotechnology disciplines according to the Institute of Biotechnology (IBT) in Jülich (Germany) (http://www.fz-juelich.de/ibt/research/).*

With regard to the concept, Ramón Vidal (1996: 11) defines biotechnology as the use of living organisms for industrial purposes. From this characterization, we can deduce two things. The first one is that biotechnology more accurately pertains to the subfields of genetics and industrial microbiology. The second one is that the genetic manipulation of living organisms can be carried out at least at three different levels: Microorganisms, plants and animals.

The Spanish Association for the Application of New Technologies in Agriculture, Environment and Food (ANTAMA 2008: 2) distinguishes several biotechnology applications:

- White biotechnology/grey biotechnology: Industrial processes (e.g. bio-fuels, bio-plastics, bio-plants). It was called *white* because of the white color of the laboratory coats.
- Red biotechnology is for medical and pharmacological purposes.
- Green comprises agricultural biotechnology.
- Blue represents marine biotechnology.

Our focus is on green biotechnology and its products (e.g. food). The figure below illustrates the hierarchical relations of the four basic concepts of green biotechnology (fig. 3.11). As for the denomination of these four concepts, García Olmedo (2006: 11) is aware of their terminological instability. In the preface, García Olmedo comments that GMOs have always been in nature, but the acronym is confined just to the living organisms modified in the laboratory by the genetic engineering technology. With regard to the first term, *biotechnology*, this domain copes with any technique –natural or artificial– employed for any living organism or a part of it (i.e. the making of beer and cheese by traditional methods). However, the daily use of this term is a bit more restricted (García Olmedo 2006: 11). It is generally referred to as *modern biotechnology* (Bauer and Gaskell 2002: 3) and is understood as a gene transfer technology. It has the meaning of molecular biotechnology, in which genetic engineering techniques have been employed to produce genetically modified organisms as the result of those techniques.

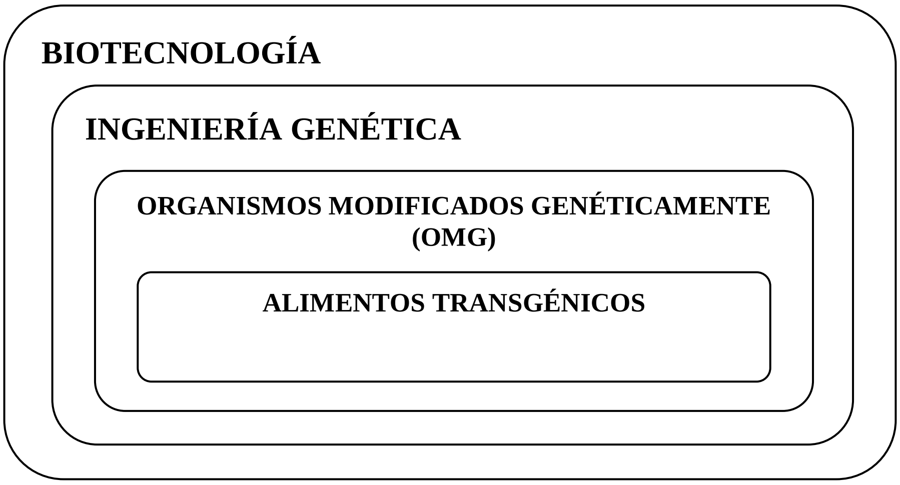


Fig. 3.11: *Flow chart of the four basic terms in this study –Biotechnology, GE, GMO and transgenic– according to Pedauyé Ruiz et al. (2000: 21).*

Another term, *organismos modificados genéticamente* or *GMOs* in English are the product obtained from the GE technology, say, microorganisms, plants and animals that are currently useful to man as food or as a medical application. Therefore, *biotechnology* is the discipline, *GE* is the technology or techniques, *GMOs* is the general name of the resulting products whose specific names are identified as *transgenics* (e.g. *transgenic food*, *transgenic animals*). Any transgenic organism has been genetically modified, however, a genetically modified organism does not imply that it has undergone a process of transgenesis, that is, a gene of interest has been inserted from a different species.

It is necessary to understand the denomination through the concept and also to study its semantic accuracy. Cook (2004: 72) states that one of the aspects that hinder communication in the GM debate is that there is an absence of definition of terms. Odgen (2001: 337-9) discusses the differences and appropriateness of another set of four related terms: *agricultural biotechnology, genetic modification, genetic engineering* and *transgenic technology.*

- *Agricultural biotechnology* adds very little towards the indication of a technology about genes modified in the laboratory, since traditional biotechnology has been used from time immemorial for the production of beer and cheese though processes (natural fermentation) carried out outside the laboratory.
- *Genetic modification* indicates a bit more of accuracy. But still, modification does not assume the presence of an insertion technique of genes.
- *Genetic engineering* seems to capture the existence of a technique through the noun (*engineering*), but it does not make explicit the novelty of this modern technique (*nueva biotecnología, the new technology*) compared to traditional biotechnology.
- *Transgenic technology* seems the most appropriate term, as it is the most transparent. The premodifier makes reference to the transfer of genetic material enabling genes to cross the species barrier. However, as already mentioned, not every genetically modified organism is a transgenic one.

Another recurrent term has been *recombinant DNA (rDNA).* It was used in 1970s and gave way to modern *biotechnology* in 1980 and later on, to *genetic engineering, genetic manipulation* and *genetic modification* (Bauer and Gaskell 2002: 3-4). In a Congressional Testimony of FDA officials, Maryanski (1999), Biotechnology Coordinator in the FDA's Center for Food Safety and Applied Nutrition (CFSAN), argued that *genetic modification* only refers to genetic engineering techniques in Europe, but the US considers the term both as the genetic modification in a laboratory and by conventional breeding methods:

> The United States uses the term genetic modification to refer to all forms of breeding, both modern, i.e. genetic engineering, and conventional (Maryanski 21 October 1999).

We agree with Odgen (2001: 338) that "we scarcely notice its effect [of a term] unless we train our attention on it". The "effect" of terms can be easily felt in those terms that embrace ideology intralinguistically, that is, across the discourses of opposing agents (e.g. *biotechnology companies* and *ecologists*) within the same language.

3.2. Semantic prosody

I have appointed a Secretary of Semantics –a most important post. He is to furnish me with forty to fifty dollar words. Tell me how to say yes and no in the same sentence without a contradiction. He is to tell the combination of words that will put me against inflation in San Francisco and for it in New York

Harry S. Truman (1884-1972), 33rd US President

Quoted in Pine (2001: 54)

3.2.1. Defining semantic prosody

It should be said at the outset that there are several definitions of the concept of *semantic prosody*, as it is an evolving concept which is still being reshaped. The two common features to all definitions are that:

(1) semantic prosody arises from corpus linguistics and the key-word-in-context tool (Hunston 2007: 249), and that,

(2) the concept of *collocational* is an implicit characteristic attached to it (Xiao and McEnery 2006: 107). Stubbs (1996: 172) previously asserted that *semantic prosody* is a pattern of collocations.

These two features are the starting point of the three definitions gathered up to the present moment by Whitsitt (2005). The clash between them lies in the different proponents: Louw, Sinclair and a miscellaneous group of linguists that either follow these two or combine both views (Partington, Stubbs and Whitsitt among others).

Although the term was coined by Firth in 1957 and later attributed to Sinclair (1991), the *first* definition comes from Louw (1993), who made it vigorous in the linguistic ground when stating that semantic prosody is “a consistent aura of meaning with which a form is imbued by its collocates” (1993: 157). It is a similar definition to Xiao and McEnery’s (2006), in which interaction is the common ground:

> The collocational meaning arising from the *interaction* between a given node and its typical collocates (Xiao and McEnery 2006: 105-6) (*emphasis added*).

In subsequent years, Louw revisited his definition and restated the following characterization:

> A semantic prosody refers to a form of meaning which is established through the proximity of a consistent series of collocates, often characterisable as *positive or negative,* and whose primary function is the expression of the attitude of its speaker or

> writer towards some pragmatic situation (Louw 2000: 57) (*emphasis added*).

This time, Louw emphasizes the function of the collocates by indicating pleasant or unpleasant actions that follow the node. A group of linguists have also identified a set of semantic prosodies as negative and positive, as illustrated in the following table:

Author	*Negative prosody*	*Positive prosody*
Sinclair (1991)	HAPPEN SET IN	
Louw (1993, 2000)	Build up of END UP *verb*ing	BUILD up a
Stubbs (1995, 2001)	CAUSE	PROVIDE
Partington (1998)	COMMIT	
Hunston (2002)	SIT through	

Table 3.12: *Adapted from the studied semantic prosodies gathered in Xiao and McEnery (2006: 106).*

The table has demonstrated that the majority of semantic prosodies are negative, or imply an unpleasant state of affairs. A commonly quoted example of negative semantic prosody is *commit* (Partington 1998: 68), which strongly collocates with items that belong to the semantic field of offences and crimes. The column on the right is integrated by only two verbs, *build up* and *provide*, to which a desirable or attractive semantic prosody has been assigned. When a particular semantic prosody is not expected to be encountered, Louw (1993: 157) conceptualizes semantic prosody as a process of creating a form of irony. This linguist is aware of the ironic effect the collocation holds when a positive collocate follows a negatively evaluated verb (1993: 163) like *commit*. The film entitled *How to commit marriage* (1969) is indicative of irony and, therefore, of the speakers' insincerity (Louw 2000: 57).

Semantic prosody is in principle subject to affect any word:

> [S]ince all words have characteristic environments, it follows that all words are potentially associated with particular prosodies (Stewart 2009: 45).

However, a word may lose its potential negative or positive value when it is encountered in the terminology of specialized scientific registers. That is, particular words are register-specific by containing no attitudinal meaning (Hunston 2007: 263).

> Corpus semantics holds that the concrete meaning of text segments can only be derived from the context in which they occur. However, this is true only for general language text segments and not for terminological units occurring in a domain-specific language. In

> theory, terminological units do not have a meaning; rather they designate a concept that is defined language-neutral and has a unique position within a conceptual ontology (Teubert 1999: 12).

This quote suggests that the terms that have been selected for the data analysis of this study have, in theory, a neutral semantic prosody. Since the level of specialization of our corpus is low, the remaining question is that the context the terms are embedded in will hold concrete meanings that may impregnate terms with a particular aura of attitudinal meaning, that is, a specific semantic prosody. Another pending question is whether some denominative variants operating at the level of synonymy are more subject to semantic prosodies than others. Partington (2004: 144) accounts for the varying degrees of negative prosody from a synonymic group of verbs, out of which, *set in* holds the most aggressive prosody, followed by *happen, occur* and *take place*, whereas *come about* appears to be neutral. This means that the vast majority of prosodies associated with *set in* are probable to be unfavorable (Partington 2004: 153). In consideration of synonyms cross-linguistically, Stewart summarizes the main finding of some previous studies (e.g. Xiao and McEnery's 2006) by emphasizing that "collocational behavior and semantic prosodies of near-synonyms are unpredictable across the two language pairs" (Stewart 2009: 32).

Semantic prosody is a phenomenon linked to register and therefore, a specific semantic prosody that is attached to a concrete register works as a relevant mechanism of textual cohesion (Stubbs 2001: 215). Not only is it bound to register but also to syntactic structures (Partington 2004: 144). Thus, meanings are conventionally associated with lexico-syntactic structures (Stubbs 2001: 216). Empirical evidence has proved that the GET-passive structure has a strong probability to collocate with unpleasant lexicon (Stubbs 2001: 215).

Returning to the definitions compiled by Whitsitt (2005), the *second* definition is attributed to Sinclair (1996). This linguist employed the term to refer to the discourse function of a unit of meaning (Hunston 2007: 249), that is the implied attitudinal meaning of a set of words. While semantic prosody is an identifying and obligatory feature for Sinclair, it is a gradable property of a word that indicates favorable or unfavorable contexts of meaning for Partington (Hunston 2007: 250). Sinclair emphasized the idea of pragmatics that Stubbs took so as to rename semantic prosody as *discourse prosody* as follows:

> 'Pragmatic prosodies' might be a better term, since this would maintain a standard distinction between aspects of meaning which are independent of speakers (semantics) and aspects which concern *speaker attitude* (pragmatics) (Stubbs 2001: 66) (*emphasis added*).

Louw also highlights the importance of pragmatics by saying that the function of semantic prosody is to express the writer's or speaker's attitude (Louw 2000: 58). Semantic prosodies are often delexicalized and may appear in fixed expressions to convey, for instance, disapproval or irritation. Semantic prosody deals with forms which are functional, attitudinal and pragmatic, rather than purely lexical. Semantics and pragmatics go hand in hand provided that linguistic aspects of meaning are used to convey the speaker's attitude. Louw (2000: 49) declares that semantic prosodies are part of all readers' prior knowledge since "are mainly engaged at the subconscious level" (Tognini-Bonelli 2001: 114).

> [A] study of how words are used can reveal relations between language and culture: not only relations between language and the world, but also between language and speakers with their beliefs, expectations and evaluations. A major finding of corpus semantics is that words and phrases convey evaluations more frequently than is recorded in many dictionaries (Stubbs 2001: 6).

Hunston states that the 'good-bad' dichotomy (that is, the negative and positive semantic prosody that Louw's quote states (2000: 57)) is a bit simplistic and, instead, it could be argued that semantic prosodies can be attributed to the speaker's desire of expressing different things, such as frustration, guiltiness, solitude, melancholia or exoticness among others. Albeit a collocation has less fixed pragmatic uses than an idiom (Gledhill 2000: 16), pragmatic functions of disappointment or vagueness are referred to as *semantic associations*, a term coined by Hoey (2005: 26). For example, Gledhill (2000: 15) mentions that the speaker's intention in the following utterances is to express rapidity and disappointment, respectively: *sell like hot cakes* (to sell quickly) and *pull a fast one* (to deceive by stealth).

Finally, the *third* definition makes semantic prosody equal to the notion of connotation, a concept that has received little attention in the bibliography (Stubbs 2001: 198). Based on this idea, Hunston (2002) defines semantic prosody as follows:

> It usually refers to a word that is typically used in a particular environment, such that the word takes on *connotations* from that environment (Hunston 2002: 141) (*emphasis added*).

Partington (1998: 65-6) discriminates between three word senses of a connotation: situational, cultural and expressive. The situational or social depends on the demographic group (e.g. *this is shit, dude!*). The cultural are bound to society values as with the usage of the word *woman*, which suggests a meaning apart from the aspect it explicitly designates (e.g. attributed negatively in certain cultures). The expressive implies the speaker evaluation of items (e.g. favorable, unfavorable). These three word senses can be grouped into two: one is opposed to denotation (factual aspects about the world, the situational and cultural meanings), the other is the expression of value judgments (the expressive connotation). This last feature –value judgments– is an inherent characteristic (Partington 1998: 66) of what it is considered semantic prosody.

Even though evaluative language has usually been treated in linguistics under the concept of connotation (Stubbs 2001: 198), it is necessary to distinguish between the two. Louw (2000: 50) specifies that connotation is a form of schematic knowledge whereas semantic prosody is more likely to express an attitude. To illustrate connotation with an example, we took the noun *black* from Munday (2009: 175-6). Apart from its denotative meaning of *darkest color*, it can hold at least two connotative meaning: a negative sense (*depressive and sinister*) and also a positive one (*elegant and cool*). If we expand the scope of connotation to the realm of semantic prosody, we can say that the use of *black* in a given utterance may express secrecy and a mystery attitude in terms of pragmatics.

Steward (2010) shed light on this issue with the following ideas. Connotation has three distinctive features (Steward 2010: 28-29): the lack of co-occurrence (that semantic prosody does not have), a pejorative attitude (which may not always be the case) and the well-established link between the word and the speaker based on world experiences.

3.2.1.1. Semantic preference and semantic prosody

Semantic prosody has emerged “almost exclusively within the field of corpus linguistics” (Stewart 2010: 54). The combination of CL methods with the study of meaning generates an optional heading for this section. It could also have been titled *corpus semantics*, a term used by Teubert (1999: 10) and Stubbs (2001: 20) to signify that CL focuses on the signified and the embeddiness of words in their contexts of use conforming language patterns.

The rationale for the coining of the term *semantic prosody* may have been accounted by the following. When it comes to patterns, the original meaning of the word *prosody* was and is still used to name regularities of suprasegmental features of spoken language (stress, rhythm and intonation). When it comes to the field of semantics, these regularities to be discovered are called *language patterns*.

It seems clear that before the advent of computers, semantic prosody was not systematically studied because,

> Semantic prosodies have been largely inaccessible to human intuition about language and they cannot be retrieved reliably through introspection (Louw 1993: 157).

Two distinct aspects are concluded from the quote above. Firstly and according to Louw (2007: 343) and Partington (2006: 4), unless there are corpus data, these patterns are often not available to unassisted introspection. Secondly, it is also necessary that semantic prosodies be retrieved through software, since unpredicted meanings in discourse are inaccessible to our perception (Louw 1993: 173). It should be noted that intuitive introspection may also help predict unexpected collocates, but it is true that it cannot register them systematically unless we record them in written form. Stubbs (2001: 16) offers arguments about meaning as an unobservable feature but, however, inferred from corpus-based examples:

> It is impossible to observe the meaning of a word: meaning is an invisible (arguably mental) phenomenon. However, it is quite possible to observe evidence from which meanings can be reliably inferred. A major type of evidence of the meaning of a word is the other words round about it, especially repeated patterns of co-occurrence (Stubbs 2001: 16).

This quote emphasizes the importance of the neighborhood of a node word. The collocates establish a relationship with the node and also between the collocates themselves (Stubbs 2003: 225). Attributes to define the whole set of a node and its collocates have been *prosodic profiles* (Louw 1993) and *semantic coagulation* (Teubert 1996). The relation between the node and its collocates may hold a weak or strong collocational attraction. Once a semantic bond is acknowledged, two interrelated processes are materialized to form semantic patterns. These complementary processes, which are two sides of the same coin, are known as semantic preference and semantic prosody, as illustrated in the table below:

Processes of semantic patterns	*Level*	*Meaning*	*Example of collocations*
Semantic preference	Lexical (collocation)	Denotational	*Blonde hair* (GL) (*Not *yellow hair)* *Modified gene* (LSP)
Semantic prosody	Semantic (semantics)	Connotational	*Sit through* an event *(negative)*
Discourse prosody	Discourse (pragmatics)	Attitudinal	*Sit through* an event *(boredom)*

Table 3.13: *Processes of semantic patterns through semantic preference, semantic prosody and semantic association*.

Although there is “no convincing descriptive theory of units of meaning” (Stubbs 2001: 62), table 3.13 shows the evolution from a formal understanding of meaning (semantic preference) to a more pragmatic and cognitive view of semantics (semantic prosody and discourse prosody). Although it is not easy to draw a neat horizon line between semantic preference and prosody (Stubss 2001: 66), semantic prosody emerges to surface when it deviates from denotational semantic preference.

Semantic preference refers to the natural relationship of two-word combinations when items share semantic features (e.g. *long hair*).

> [W]ords collocate in language use with specific semantic groups as well as with individual words. For example, the word *hair* may collocate with semantic groups such as length (*long, short*) and colour (*red, blonde, black*) (Baker et al. 2006: 145).

In other words, semantic preference indicates the typical co-selection of lexical items, whereas semantic prosody points at non-obvious general semantic preferences (Partington 2004: 144). It is the semantic preference (typical co-selection) of non-obvious collocates the *sine qua non* condition for semantic prosody to emerge to the surface of popular science.

In the LSP context of genetic engineering, the term *gene* is likely to show a semantic preference for words like *recombinant*, *modified* or *spliced.* Sinclair (1996: 29) stated that adjectives should be semantically interchangeable except for collocations. . No semantic prosody is assigned when expected neutral collocates are in the surrounding of other unbiased lexical items. It is predicted for our corpus that when the LSP framework turns into social discourse, the semantic preference tends to imply pleasant or unpleasant things, and hence, lexical units are said to have a positive or negative semantic prosody. For example, *GE* is associated with words that belong to a semantic set of conveying beneficial or harmful in ethical debate depending on the agent (Bayón García 2007).

In a nutshell, semantic preference refers to the very immediate collocates, whereas semantic/ discourse/pragmatic prosody broadens the collocational window up to the adjacent collocates within the same sentence. Whereas semantic preference focuses on the characteristics of collocates, semantic prosody shows a trait of the node word (Xiao and McEnery 2006: 107). By employing mathematical symbols, semantic prosody,

> [D]escribes a phenomenon whereby a particular item *x* collocates frequently, not with another item *y*, but with a series of items which belong to as semantic set {*S*} (Partington 2004: 150).

Unlike semantic preference, semantic prosody does neither operate with a single word nor remains at the level of collocation, although it may be associated to a two-word combination (Partington 2004: 150), but its effect affects or extends within the whole phrase (Hunston 2002: 141). This indicates that the meaning does not belong to the node word but to the phraseological level.

To use a metaphor, both semantic preference and semantic prosody could be identified with a house with either one or two floors, respectively. If the meaning of an utterance is neutral, denotational and inherent (e.g. length), as in the case of *long hair* mentioned above, we could build the metaphor by saying that the language pattern in question has only one floor. If the foundations are more firmly set, it is possible to build an extra level, that is, meaning appears to be more developed, connotational, non-inherent and cultural (e.g. when *sit through an event* collocates with boring, tiresome, etc). Hence, the language pattern has an added value, therefore another floor. The denotational-connotational dichotomy is known as referential-emotive in Nida's terminology provided that referential meaning is understood as the word usage of a particular cluster around a neutral position (Nida 1964: 113).

The same reasoning follows Hunston's (2002: 60-2) example of *sit through*. It usually collocates with items that signify *boredom* or *discomfort* in discourse pragmatics. In Partington's study (2004: 147), the semantic prosody for the collocates of *utterly* is not just positive or negative, but expresses the lexical evaluation or speaker's stance in the form of *absence of quality* (e.g. helpless) and *change of state* (e.g. changed).

3.2.1.2. Concordance, collocate and collocation

The second feature attached to semantic prosody is collocability. This characteristic is measured through frequency that can compute the actual co-occurrence of linguistic patterns. To put it another way, collocability is the tendency of words to form patterns of *collocation* (e.g. V + NP) that conform a *concordance* (e.g. a list of detached phrases). Within the concordance there is a node accompanied by *collocates*, that is, the co-selected words to both sides of the query word. There is usually a span of 4 words to the left and right of the node word (Hunston 2002: 69), which is considered the habitat of the collocation (also known as *Key-Word-In-Context*, KWIC). Sorting collocates alphabetically to left or right makes it easier to detect patterns of usage. It is also important to take into account that not every pair of contiguous words that appears to be the node of the collocation can be identified as a polilexical term, but as a *false positive* (Ahmad et al. 1994: 275) (e.g. *screening women* is not a terminological unit or TU).

Collocation is a concept usually ascribed to Firth (McEnery and Wilson 2001: 24). Partington summarizes the aspects of collocation into a three-dimensional framework: textual, associative and statistical. The first two are qualitative parameters being external and internal respectively. The latter element –statistical– is quantitative. A summary of collocational aspects is illustrated in the following chart:

Collocational dimension	*Operational level*	*Dependency*	*Principle*
Textual	Lexical co-selection	Situation (co-text)	Co-selection
Associative	Communicative competence	Function	Idiom
Statistical	Collocational normality	Genre, register and style	-

Table 3.14: *Three-dimensional frame of collocations, their operational level and their dependency.*

Initially, a defining feature of collocation with regard to the textual aspect is identified by the general phenomenon of words which habitually keep company (Firth 1968: 106). A well-known Neo-Firthian example illustrates that *bark* is part of the meaning of *dog* and *vice versa* (O'Keeffe et al. 2007: 59). Word-forms co-occur together because they share semantic features and, thus, meaning appears dispersed over word-forms (Stubbs 2001: 63). Therefore, words are said to be co-selected and, thus they are structured into semantic fields or semantic sets already aforementioned. The co-selection of lexical items operates to also gather grammatical items from the lexicon. However, only certain word classes may appear in a given slot (Partington 1998: 19). Then, where does the restriction of word classes come from? Sinclair (1991: 110) notes that the openness of choice is available at the paradigmatic level but constrained at the syntagmatic level (e.g. collocations).

If we go further into this issue, Sinclair (1991: 109) accounts for the way in which meaning is derived from text by means of two principles: The open-choice and the idiom principle.

- *The open-choice principle:* Language is based on this paradigmatic principle by which grammatical patterns are selected to be part of the language. It is the combinatorial force of lexical elements to co-exist. The majority of grammars hold this principle (Sinclair 1991: 110).
- *The idiom principle:* This principle accounts for "the restraints that are not captured by the open-choice model" (Sinclair 1991: 110). This principle justifies the idiomaticity of language, as in the examples of *Merry Christmas* and *happy birthday* (not *happy* Christmas, not *merry* birthday). That is, that although language is based on the first principle, it is constantly being reshaped by the idiom principle. A group of semi-preconstructed phrases are allocated in the language system, notably collocations, which are considered a syntagmatic language element (Anderman and Rogers 2008: 9). L2 students try hard at learning collocations such as **sustained our breath* that should be corrected as *held our breath* (Munday 2009: 172). Munday (ibid) states that the "incorrect or unusual collocation often occurs in the speech of language learners and may be a feature of translationese". Brand (2008: 105) also emphasizes that this principle offers the explanation "for phraseological phenomena that can be genre-specific". To recap, the

> principle refers to the idiomatic nature of language in which semantic prosody is included.

Summing up of what has been said about collocations, *semantic preference* contains a textual collocational feature. For example, semantic preference accounts for the typicality of *blonde* co-occurring with *hair* and not with *car* (O'Keeffe et al. 2007: 14). Since meaning is the situation (Stubbs 2001: 44), the strength of attraction between collocates depends on the situation or context. As quoted in Tognini-Bonelli (2001: 4), "for Firth, every utterance occurs in a culturally determined context of situation" (see also Malinowski 1923). This cultural aspect is intrinsically related to the associative facet of collocation. The associative or collocative dimension is the second characteristic of a collocation (being semantic preference the first one) as expressed in the following manner:

> This could be referred to as 'psychological' or 'associative' definition. It is part of a native speaker's communicative competence to know what are normal and what are unusual collocations in given circumstances (Partington 1998: 16).

The psychological meaning of a collocation is part of a speaker's community, whereas the psychological meaning of a semantic prosody may only reside in one speaker. Meaning is transferred from the surrounding collocates to the search word(s)/collocation/core item(s). This transferring of meaning is what is called semantic prosody (e.g. neutral, positive or negative) that is contingent upon co-text (Stewart 2010: 89). In other words, it would be more accurate to state that "semantic prosody is contingent upon the broader phenomenon of co-occurrence rather than collocation alone" (ibid). Therefore, semantic prosody is conceptualized as a process of transferring meaning to a node word and also as the transferred meaning that can be neutral, favorable or unfavorable.

The third aspect concerns statistics. If the co-occurrence appears as a unit with greater than random probability (Hoey 1991: 6-7; Bowker 2002: 64), that is, statistically significant, then the result is a *pattern of collocation*:

> The object of creating concordances is to look for patterns of language use, based on repetitions. Identifying such patterns may help us to note discourses, particularly if the patterns are relatively common (Baker 2007: 77).

Statistics also implies that collocations as much as semantic prosodies are semantically consistent. The semantic consistency of a collocation entails that a collocation is lexicalized, this means that it is easily recognizable and the frequent co-occurrence of components (node and collocates) "never leads to promiscuity" (Whitsitt 2005: 290). The semantic consistency of a semantic prosody triggers that collocates in the immediate surroundings must be statistically significant to form a semantic set (e.g. discomfort, absence of quality) and, the nature of the semantic set will assign a particular prosody (e.g. favorable). Cross-linguistically, patterns of collocation as much as semantic prosodies may differ from one language to another, which means that they are not universal, as shown below:

> Collocational normality is dependent on genre, register and style i.e. what is normal in one kind of text may be quite unusual in another (Partington 1998: 17).

Although we have argued that semantic prosody can go beyond the notion of collocation, there are two remaining aspects of collocations: *stylistics* and *delexicalization*. In this section we have been referring (cf. O'Keeffe et al. 2007: 14) to logical collocations (e.g. a dog barks, blonde hair), but collocations may be illogical –deviated from literal word sense– so as to be exploited for stylistic purposes in hyperboles, antitheses and other figures of speech (e.g. *genetically modified gene* vs *genetically 'distorted' gene*). In specialized writing, the collocation of keywords belonging to the GL –including those illogical– "may have a stylistic function and accentuate the author's message" in LSP texts (Gläser 1994/5: 59). When collocations are logical, they are said to be delexicalized. Stubbs (2001: 63) suggests the example of *physical assault,* in which the adjective adds little to the node, vs *intellectual assault,* in which the premodifier has its own independent meaning.

3.2.2. Studies on semantic prosody

Research on semantic prosody has mainly appeared in articles and conference papers, but Steward's book (2010) is the first entire volume devoted to discuss and analyze this far-from-straightforward subject. To wrap up the aforementioned ideas, the following table summarizes the common features of semantic prosody and the distinctive elements put forward by the two main proponents:

Common features	*Sinclair's approach*	*Louw's approach*
Evaluative or attitudinal	Belongs to the unit of meaning	It is a feature of the word and is transferred / attached meaning
Hidden	Not restricted to semantically "neutral" lexical items	Restricted to semantically "neutral" lexical items
Contingent upon co-text	Beyond 'good-bad' dichotomy	Binary distinction of 'favorable / unfavorable'

Table 3.15: *Common features of semantic prosody along with specific features suggested by Sinclair and Louw (based on Stewart 2010: 160-1).*

The evaluative nature is intrinsic to semantic prosodies that can be hidden to the naked eye. Semantically neutral lexical items, such as *reducir* (reduce) and *aumentar* (increase), can have different semantic prosodies that may not be noticeable at first glance (see figs. 3.16 and 3.17). The contingency upon co-text comes from the detection of semantically consistent collocates in the adjacency of the node word. Surrounding collocates will conform semantic sets that will be converted into types of semantic prosodies.

Notwithstanding, the very same word can hold both negative and positive prosodies. For example, words like *create* have a mixed semantic prosody (e.g. *havoc* vs *a good impression*) (Stubbs 1995: 252). This could be accounted for with the aid of a figurative idea. By employing another metaphor, form and meaning behave like body and personality. Our individual personalities allow us to have the tendency to behave either angrily or amiably depending on the person, but we are still the same person in the same body. We could apply this simile to Firth's famous words by saying that the same word may behave differently when it changes the company it keeps. If the company is likely to belong to the group of people that make oneself irritated, then the semantic prosody will trigger an unenthusiastic, pessimist, indifferent attitude in terms of meaning.

A study conducted by the author (Bayón García 2007) shows examples of semantic preference when comparing several reports issued by a biotechnology company (e.g. Monsanto) and ecologists groups (Greenpeace and Friends of the Earth). The object of study focused on verbs, since verb phrase collocations (V+ NP) are one of the promising areas for analyzing semantic prosody (Partington 1998: 77). The examined verbs –*aumentar* and *reducir*– are semantically opposed, as shown below:

	Monsanto	*Greenpeace and Friends of the Earth*
"AUMENTAR"	El *valor* de los cultivos	Sus *costes* [los de los agricultores]
	Su *bienestar*	Los niveles de sustancias tóxicas = *Peligros*
	La *transparencia*	Su *control* sobre los sectores agrario y alimentario

Table 3.16: *Right collocates of the Spanish verb 'aumentar' (increase) (Bayón García 2007: 20).*

In table 3.16, the Spanish verb *aumentar* + NP constitute 69.2% of the total occurrences with the verb *aumentar* in the context of a multinational company like Monsanto and, it tends to collocate with *value*, *welfare* and *transparency* (R1 collocates). Surrounding lexical items also belonged to a positive semantic set as the R1 collocates. In the case of the ecologists, the concordance lines of *aumentar* + NP represent 30.8% of the total occurrences of the verb *aumentar*, and show that the same verb is likely to co-occur with immediate collocates such as *costs* (of farmers), *toxic levels* and *control* (about the agricultural and food sector) and meaning-related adjacent lexical items (the ones that will conform a certain semantic set). Suffice it to say that Monsanto's collocations suggest an antagonistic meaning in comparison with the collocations found in the ecologists' reports. The same attitudinal meaning is found in the verb *reducir*:

	Monsanto	*Greenpeace and Friends of the Earth*
"REDUCIR"	La *pobreza* extrema	La *eficacia de los antibióticos* para combatir enfermedades
	El uso de *pesticidas*	
	El *impacto medioambiental*	Las *contaminaciones* cruzadas

Table 3.17: *Right collocates of the Spanish verb 'reducir' (decrease) (Bayón García 2007: 21).*

In table 3.17, the Spanish verb *reducir* + NP constitutes 82.7% and 17.2% of the total occurrences registered for Monsanto and the ecologists, respectively. As for the company it keeps, the node word tends to co-occur with *poverty*, *use of pesticides* and *environmental impact.* The three of them reveal a positive sense of the verb *reducir,* a meaning that is supported by other lexical words in the adjacency. On the contrary, NGOs show a tendency to collocate with less positive NPs, such as *the effectiveness of antibiotics* and *contamination*. It seems clear that the NPs that collocate with the node word express distinctive value judgments, both favorable and unfavorable semantic sets. Therefore, repeated evaluative patterns are offered in terms of pleasant/unpleasant to imply approval/disapproval of the use of GE technology. We should not forget that topics are inseparable from the power of speakers (Stubbs 2001: 165).

The assignation of a semantic prosody undergoes the process of examining the meaning of the semantic sets (favorable and unfavorable) provided by the study of R1 collocates and adjacent collocates in the immediate surroundings.

Semantic prosodies may not be apparent to the native speaker's intuition, since they are not deterministic (Partington 1998: 72). In other words, an indeterministic or unfixed semantic prosody, as with *aumentar* or *reducir*, activates the use of the verb phrase freely on the part of the speakers to fulfill their particular perlocutionary purposes (e.g. persuading, frightening). Evaluative utterances are especially useful for persuasion (Partington 2004: 153) and often uncover prosodies that reveal the speaker's reason to utter a statement and, therefore, they work as "functional discourse units" (Stubbs 2001: 65).

The findings for *aumentar* and *reducir* may offer a baseline to express the discourse or pragmatic prosody of the business world, and on the other hand, the concerns about natural environment. It is, then, remarkable to emphasize that semantic prosodies may be grounded on cultural assumptions and worldview (Stubbs 2001: 105), and that they are a powerful component in suasive writing (Louw 1993: 163).

To sum up all that has been said up to now, semantic prosody consists of a collocational set of words indicating semantic association. In Whitsitt's words (2005), semantic prosody proposes two new things:

> 1) [I]t would provide a demonstration of how a new principle of language – Sinclair's idiom principle – works […]
> 2) [A] new lexical item, like the verb *set in*, which has acquired a negative meaning which it had not had, through a process of semantic transfer about which we had been unaware, and resulting in the fact that this new item must almost always appear "now" only with other unpleasant words (Whitsitt 2005: 287).

Whitsitt (2005: 287) as well as Louw (1993: 159) state that there is semantic transfer from one word to the rest of the collocates. Semantic transfer should be the idea which best defines what semantic prosody refers to, and that best distinguishes it from a concept like connotation (Whitsitt 2005: 286).

The second issue that the quote brings up is that the significance of semantic prosody translates into two main facts:

(1) It can detect predominant uses of an utterance in a specific text and,

(2) It may lead to the ideological analysis of those predominant uses.

By virtue of these two characteristics, lexical choices (immediate collocates) play a crucial role in constructing the representation of reality:

> Word choice signals the kind of discourse we are involved in, and with it the speaker's evaluative and descriptive criteria (Cook 2004: 86).

The question that remains to be answered is grounded on the reason why the semantic prosodist ever decided to examine a particular word (Whitsitt 2005: 294). In this study, the answer is in the frequency of words: how frequently keywords collocate throughout the corpus, whether the keywords appear in every book or are scattered unevenly along the text. After that, prosodic profiles will be identified and delimited for detailed analysis.

3.2.2.1. Semantic sets (anti- and pro-GM) and metaphors in GM discourse

In chapter 2, we argued that popular science books are more ideological and, therefore, more primed to lexical processes like semantic prosody than research articles. With the help of CL and the visited notion of semantic prosody, it will be possible to transcend and study the meaning of GM discourse in society:

> Recent developments in the use of corpora stress the potential of corpus linguistic methodologies for the study of social meanings, ideologies and the construction of social reality (Mahlberg 2007: 191).

Any attitudinal meaning regarding the beneficial (positive semantic prosody) or detrimental part (negative semantic prosody) of biotechnology encourages some ethical debate. The public assess either risk or benefit in terms of the person or institution telling them (Myers 2003: 273). For example, the European institution measuring the impact of biotechnology is the Eurobarometer:

> Eurobarometer reports, which are based on the deficit model, define knowledge purely in terms of GM technicalities, and correlate lack of knowledge with negative attitudes to GMOs (Robbins et al. 2004: 91).

This implies that people more acquainted with natural sciences may have a more positive attitude towards GE technology. The *deficit model* accounts for the unaware public that is like empty vessels in need of being filled with scientific knowledge (Robbins et al. 2004: 91). In a study of four British newspapers, the anti-GM standpoint is characterized as emerging from the public's ignorance of the technology (Cook et al. 2006: 17). The two newspapers in favor of GMOs include *The Times* and *The Sun*. The two anti-GM newspapers are *The Daily Mail* and *The Guardian*.

The use of metaphors ascertains that the GM debate is associated with other related political events of the time, such as the invasion of Iraq (Cook et al. 2006: 5). Drawing upon the issue of war, the use of the expression *bioterrorism* implies that the activists against GM are bioterrorists (pro-GM newspapers), while it entails that the GM environmental impact converts biology into a form of terrorism (anti-GM newspapers) (Cook et al. 2006: 15). Another example is the lemma *invasion* (invasions, invade, invasive). The opponents characterize GM crops as *invasive superweeds*, while on the pro-GM side they are described as a phenomenon "unlikely to invade our countryside" (Cook et al. 2006: 14).

Apart from newspapers, the rest of the texts selected for the corpus in Cook's et al. (2006) consist of interviews, focus-group sessions and miscellaneous GM materials comprising expert and non-expert reactions. In overall terms, the approach was taken at a macro-level of social frame and the micro-level of linguistic choices. Results show that regarding the social frame, science was seen as a social talk in which human relations, public concerns and arrangements of power and authority came into play. As for the linguistic dimension, the pro-GM stand describes issues as primarily scientific, both by newspapers and experts; but this view was rejected by the anti-GM press and campaigners, and by the focus-group participants, as expected.

Translated into data, the ways of characterizing GM stances are shown in the following two tables. The first table comprises the two views, the pro- and the anti-, from two newspapers in favor of GMOs including *The Times* and *The Sun*. It is interesting to note in that table that the word *Frankenstein* is used more often by GM proponents and, this way, indicates that GM products are characterized more as *Frankestein food* by the opponents than by the opposition itself (Cook et al. 2006: 8) (table 3.18).

Ways of characterizing anti-GM		**Ways of characterizing pro-GM**	
Balanced	Society wants/decides	Polarized	Lack of realism
Benefits	Public	Highly selective	Does not grasp
Thoughtful	Peer reviewed	Scaremongering	Accusations
Calm	Precise	Fear	Cultural norms
Choice	Gene insertion	Hostile	Powerful
Truth	Tool	Hysteria	Destructive
Evidence	Wish	Panic	Activist
Open-minded	Impartial	Emotional	Evangelical
Open debate	Appropriate	Feverish	Hard core
Objective	Careful	Religious	Hot
Complex	Experts	Irrational	Worry
Facts	Independent	Lurid	Uninformed
Sound science	Legal	***Frankenstein***	Prejudice
Sensible	Justified	**Frankenfoods**	Luddite
Informed	Rearrangement of genetic material	Superweeds	Immoral
Information	Consumer wants/decides	Bedevilled	Cherry-picked
Lucid	Risks minimized	Demonized	Political agenda
Understanding	Rewards maximized	Danger	Unhelpful
Reasoned	Functional	Genie out of the bottle	Unscientific
Rational	Nutritional	Zero risk	Inefficient
Strength	Cutting edge	100% safe	Ignorant
Safe	Improved	Extreme views	Unjustified
Solid		Exaggerate	Unfounded
Excellent		Anti-science	Untruth
Level headed		Inappropriate	Michael Meacher

Table 3.18: *Language used by pro-GM newspapers when referring to arguments for and against GM technology (Cook et al. 2006: 18) (emphasis added).*

The second table comprises the same two views, the pro- and the anti-GM, from the other two newspapers *The Daily Mail* and *The Guardian* as more likely to be GM opponents (table 3.19).

It is interesting to notice that the companies *Monsanto* and *Syngenta* exclusively appear in the anti-GM newspaper characterization as a possible sign of pointing out to the only agents in question.

Another study (Cook 2004: 7-74) that follows the same method –social and linguistic– identifies four groups of speakers –the social actors– on the issue of GM crops and food. These are politicians, scientists, journalists and companies who make scientific popularization across society. The linguistic view of the study focuses on the uncovering of how agents frame arguments, notably by means of key phrases and metaphors (table 3.20).

Ways of characterizing anti-GM		Ways of characterizing pro-GM	
Cautious	Good science	Lord Sainsbury	Superficial
Democracy	Complex	Tony Blair	Weak
Fairness	People	George Bush	Marginalizing opposition
Farmers	Rights	America	Not substantially equivalent
Testing	Participative democracy	Corporations	Sensationalized
Take time	Wary	***Monsanto***	Heavy handed
Precautionary principle	Holistic	***Syngenta***	Unstable
Trust	More science	Rush	Untested
Decision making	Neutral	Imprecise	Side effects
Careful	Understand	Artificial	Poorly understood
Independent	Effects	Trigger allergies	Biased
Context	Long term	Frankenstein Foods	Greedy
Engage	Conscious	Frankencrops	Fantastical
Citizens	Traceability	Risk	Foist
Questions	Assess	Lack of knowledge	Farce
Listen	GM-free	Contaminate	Ban
Impact	Appal	Unpredictable	Bio-genetic cartel
Deliberation	Organic	Unprecedented	Gloss
Concerns	Certified	Unknown	Force
Social	Consequence	Distrust	Resistance
Publics	Judge	Bad science	Wipe out
Cynical	Investigate	Arrogant	Unwanted
Further research	Objective	Assume	Potential danger
Politics	Laboratory	Power	Unexplored
Economics	Determine	Government	Unforeseeable
History	Health	Intensification	Indiscriminate
Participation	Children	Money	Convinced of safety
Consultation	Elderly	Control	Cross-pollinate
Voice	Infirm	Propaganda	Hurry
Third World		Commercial interests	Stench
Serious		Patronizing	Mendacity
Contested		Sinister	Cover up
Interpret		Unwilling	Behemoth

Table 3.19: *Language used by anti-GM newspapers when referring to arguments against and in favor of GM technology (Cook et al. 2006: 19-20) (emphasis added).*

In Cook’s 2004, another relating group is the public that acts as a passive actor and, that depends on the active social agents. The content analysis of the study shows that the public are typically categorized as emotional rather than rational, and vulnerable to manipulation by self-interested opponents: including politicians, the press and NGOs (Cook et al. 2004: 438). The words *natural* or *unnatural* were felt to have no meaning, because they are evaluative and fuzzy edged (Cook et al. 2004: 443). Evaluative language will also be examined cross-linguistically in this dissertation. To further delve into cross-linguistic features, it is necessary to review the area of translation studies linked to ideological aspects of translation.

Key phrases	Metaphors and comparisons
Improved	Battle invasion and attack
Sound science	Terrorism and Iraq
Frankestein foods	Contamination, pollution, impurity
Interfering with nature	Religion and GM
Progress and change	'Beneficial species'
Luddites	A fundamental disagreement

Table 3.20: *Key phrases and metaphors of social discourse about the GM debate according to Cook (2004).*

3.3. Translation studies and ideological aspects of translation

Every word decides a question between power and liberty

James Madison (1751-1836), 4th US President

Quoted in Pine (2001: 11)

This section deals with the study of translation as a compendium of theoretical approaches (see i. and ii. below) (e.g. Skopos theory) and concepts (see iii. below) (e.g. equivalence, ideology). Translation theories and key concepts in Translation Studies (TS) will be examined so as to better understand translation phenomena. Apart from investigating translation theory, there is also an applied branch of translation that is concerned with the translation of popular science at three different levels –intralinguistic, interlinguistic and intersemiotic–.

3.3.1. Key concepts of translation

Translation as theory is one of the three main branches –theoretical, descriptive and applied– in Holmes' map (1972/2005) of Translation Studies (TS), as illustrated below:

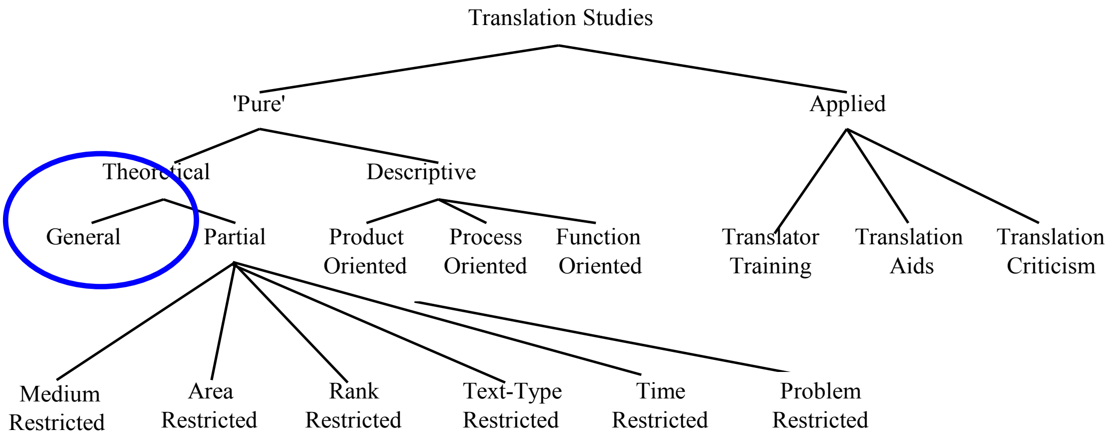


Fig. 3.21: *Holmes' classification of Translation Studies (Toury 1995: 10) (Also available to download at http://isg.urv.es/ library/papers/holmes_map.doc)*

In Holmes' classification, the theoretical branch –general node– refers to the building of principles, theories and models within the realm of TS. The American scholar mainly referred to translation –literary translation– rather than interpreting (Snell-Hornby 2006: 41). Toury (1995: 10) completed the initial map drawn by Holmes. However, a feeling of frustration cannot be avoided in trying to put forward a translation theory given the large number of subjects with which TS overlaps (Vermeer 1994: 3).

Due to the interdisciplinary character of the phenomenon of translation, it is claimed that there is not a general theory, or a general principle or a general model of TS *per se* (Tarvi 2007: 8), but interrelated partial theories, which are likely to emerge in translation rather than in interpreting or mediation (Tarvi 2007: 9). Thus, what is understood by translation theory in a broad sense comprises several areas:

> A translation theory may refer to many different things such as hypotheses, models, assumptions, beliefs, concepts and doctrines (Quah 2006: 23).

These *many different things* mentioned in the quote can be grouped primarily into models and theories. Models are understood as potential representations of reality and refer primarily to the act of translating as process. Theories are identified as proposed explanations of the internal mechanism of a given phenomenon and usually point out at translation as product after translation practice. Since translation is mainly understood as a process and as a product (see the descriptive branch in Holmes' map in figure 3.21), translation theory can be conceptualized as (i) models applied to translation as process and also (ii) theories pertained to translation as product.

Translation as a process is concerned with the cognitive activity –the mental steps– carried out by translators and interpreters. The models established in translation as a process (i) are based on other disciplines, notably psychology and linguistics, for example, Bell's (1991) linguistic and psycholinguistic model and Gutt's (1991/2000) interpretative model based on Relevance Theory) (see Hurtado Albir and Favio Albes 2009 for more proposed models about the translation/interpreting mental processes).

The concept of translation competence comes from the results of studying the cognitive process of translators. Translation competence is the common denominator to the cognitive models that attempt to explain the actual process of translating and interpreting. It is also translation competence recognized, in turn, as a concept consisting of different subcompetences (e.g. language, subject and transfer competences; see Neubert 1994: 412-3). According to Shreve (1997), translation competence is a "specialization of communicative competence" (e.g. linguistic, extralinguistic or socio-cultural knowledge, strategic component) and its development is a "continuum between 'natural translation' and 'constructed translation' (professional translation)" (Hurtado

Albir and Favio Albes 2009: 66). In other words, every model of the translating process shapes a distinctive conception of translation competence. Research teams in Spain with the aim of studying translation as a cognitive activity are at least PETRA (Expertise and Environment in Translation) from Universidad de Granada and, PACTE group (Process in the Acquisition of Translation Competence and Evaluation) from the Universitat Autònoma de Barcelona. The empirical-experimental research on this area was nurtured from thinking-aloud protocols (TAP) that further evolved into current methods of eyetracking data synchronized along with keystroke data.

The cognitive models are turned into interrelated theories (ii) when it comes to translation as a product. These interrelated theories conform current translation theory as is understood nowadays, but it was non-existent in classical antiquity (Venutti 2000: 13) or at least it is not documented.

Far from merely being considered as a tool for language teaching and learning, translation has grown into a discipline in which the question of translation theory as an aid to translators seems to be a perennial one. It was relatively recently debated in a postgraduate conference at UCL (17-18 April, 2008) entitled ‘With/out Theory: The Role of Theory in Translation Studies Research’ (http://www.ucl.ac.uk/cics/conference), where translation theory proved to be both a fragmented and an enriched conceptual framework. If we consider it as fragmented, that is due to the fact, that TS is embodied by theoretical frameworks from other disciplines that “devour” one another and create an epistemological chaos (Monzó i Nebot 2006: 174). Either fractured or enhanced, it seems that translation theory best suits the necessities of potential translators at university levels (Rabadán and Fernández Nistal 2002: 16). However, professional translators are not usually concerned with valid translation theory, because they put emphasis on the practice, as indicated below:

> Es un lugar común entre traductores e intérpretes profesionales el desprecio más absoluto por todo lo que indique una conceptualización de su actividad (Rabadán and Fernández Nistal 2002: 16).

To both professional translators and scholars, and to both models and theories, there is a (iii) set of translation concepts (e.g. equivalence, shift, ideology) that are inherent to the ‘pure’ theoretical part of TS (see Holmes’ map above). Albeit it seems we are still far from having a unified theory of translation, translation concepts are designed to “illuminate and to improve the practice of translation” (Venutti 2000: 13). Thus, for this particular study we will be based upon translation theory and translation concepts as shown in figure 3.22.

Natural languages as a vehicle of communication consist of two broad levels – text and paralanguage–. Since translation is considered a form of communication (Venutti 2000: 222), also counts with these two stages. The former, the textual dimension attempts to give answers, *inter alia*, to the question of equivalence, universals of translation and norms, that is, the translation concepts from figure 3.22. These are intrinsic *linguistic core concepts,* and in turn, textual elements that belong to the linguistic ground and the study of any translation.

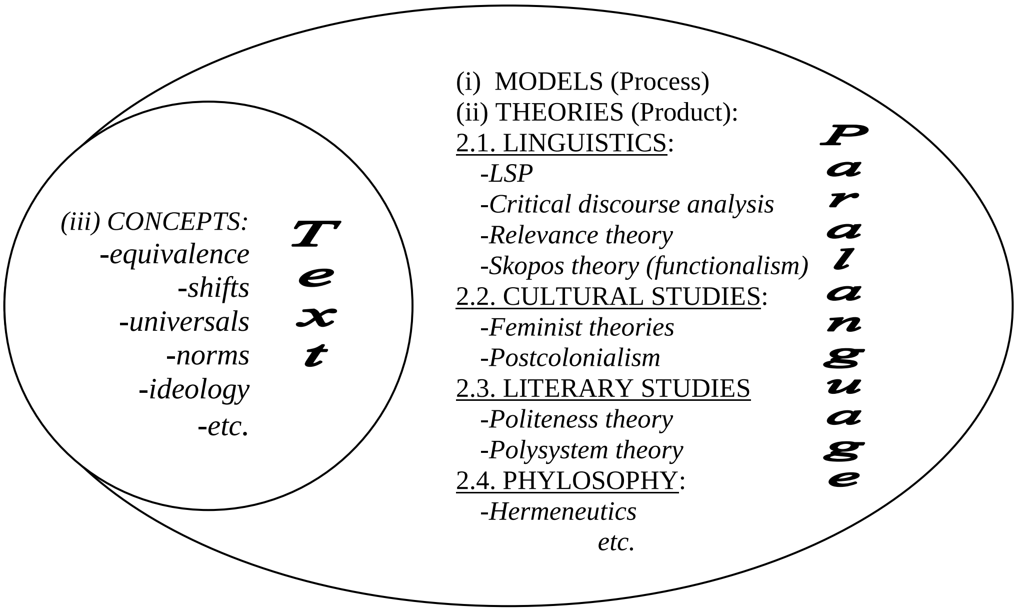


Fig. 3.22: *Intrinsic linguistic core concepts in translation theory (textual level) and extrinsic complementary models and theories from other disciplines (paralanguage level).*

The latter, the paralanguage is everything but the text proper, that is, the *social context* in which it was uttered and the theoretical framework in which the work can be associated. It is especially nowadays when social context is taken into consideration when analyzing translation as a product. The social framework and the theories that come from other disciplines, such as linguistics, cultural studies, literary studies and philosophy, will be discussed in the next section.

3.3.1.1. Translation theories

Current translation theories have flourished both in Europe and the United States:

> The study of foreign languages and literatures is firmly anchored in the Western university tradition (Snell-Hornby 1988/1995: 7).

The history of translation theory is one of turning points. There are two periods in the history of Western translation theory: before the 20th century and from 1950 onwards. Before the Second World War, there had always been a *bidimensional* approach based upon the practice of translating (Munday 2009: 1) and grounded on the word-for-word vs sense-for-sense translation. This dichotomy was followed by a *multidimensional* approach linguistically enhanced in the 50's and 60's and culturally nurtured from the 70's onwards. It was the period when theories started to be systematically studied. The bidimensional (<20th century-1960s) and multidimensional (1970s-) spheres are captured into the following chronology of Western translation approaches:

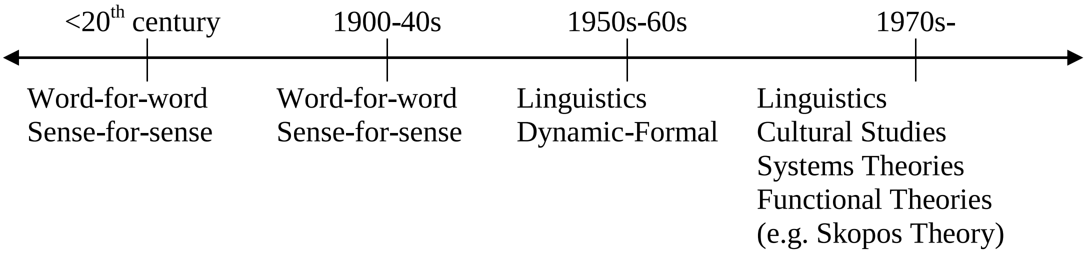


Fig. 3.23: *Chronology of translation approaches according to Quah (2006: 23).*

Before the 20th century, translation can be described as belonging to the realm of rhetoric, for lacking systematic arguments and for being considered a pedagogical activity that was exercised by Roman orators (e.g. Cicero) (Venutti 2000: 13). When Roman orators approached a Greek text, they followed the same linguistic procedures that were used for teaching Latin: rote memorization of abstract grammatical rules and translation practice. The acquisition of grammar was closely studied by translating word for word (Venutti 2000: 14). And also word-for-word rendering was applied to Bible translations in order to preserve and spread God's exact words. Remarkably, Cicero and St. Jerome acknowledged that they also transferred texts in a sense-for-sense procedure.

The act of translating, then, centered around the dichotomy *literal* vs *free*, that embraces poles apart, that is, a gradual degree of equivalence that ranges between *word-for-word* towards *sense-for-sense* translations. It is commonly agreed that this duality, also known as *source-oriented* vs. *target-oriented*, became the foundation of translation theory and has marked translation for centuries. This dichotomy has dominated the time of the bidimensional period characterized by the absence of a communicative dimension (see Rabadán 1991: 35). Instead there was a tendency to transfer linguistic substance, not functional elements (Rabadán 1991: 36).

The word-for-word vs sense-for-sense debate continued until the 20th century (Munday 2009: 3). The problem with this dichotomy is that it did not integrate the context and social circumstances in which the ST is uttered and the TT is received (Hatim and Mason 1990: 6). The change arose in the 1940s-50s when empirical work overcame the prescriptive point of view that governed earlier periods. The debate focused on the issue of translatability (Venuti

2000: 111) and meaning was understood as a social phenomenon (Venuti 2000: 112) whose context and functional elements of translation needed to be taken into account.

Snell-Horny (2006: 3) outlines, in the introduction, four main stages within the discipline of TS:

- The great precursors in the 19th century (e.g. Goethe, Schleiermacher, Humboldt). Venuti coined the methods known as *foreignization* and *domestication* previously discovered by Schleiermacher (Snell-Hornby 2006: 9).
- The pioneers of today's discipline in the 20th century (e.g. Levý, Nida, Reiss, Jakobson) from the Prague School tradition developed in the mid-1920. Around 1950, the ground was conquered by linguistic analysis (Venutti 2000: 113). The linguistically-oriented tradition after the WWII led to the idea that TS were considered a branch of either Comparative Literature or Applied Linguistics (Snell-Hornby et al. 1994: ix). Vinay and Darbelnet (1958/1995) explained translation procedures (e.g. transposition) of isolated sentences from the field of comparative stylistics. Also, Catford (1965) put forward typologies of translation equivalence. Nida (1964) distinguished between formal and dynamic equivalence and based his work on Transformational Generative Grammar.
- The *pragmatic turn* (1970s), later called the *cultural turn* (1980s), came at the time the masters of the discipline flourished. The pragmatic turn emancipated TS from linguistics and comparative literature (Snell-Hornby 2006: 35). This turn articulated two new paradigms in 1980 that correspond to two main schools of translation theory in Europe: the linguistically-oriented and the Manipulation School. Leipzig School and other scholars from Germany (Reiss and Koller) embodied the linguistically-oriented tradition. Both were descriptive, target-oriented, functional and systemic; whereas previous ideas were prescriptive, source-oriented, linguistic atomistic (Snell-Hornby 2006: 49). The Leipzig School distinguished between the author of the ST, the translator and the user of the translator (Snell-Hornby 2006: 26), later retaken in the *translatorial action theory* (see subsequent paragraphs). In 1960s-70s, Venutti (2000: 147) argued that the dominating concept was equivalence –and perhaps still is–, since there must be a relationship between the ST and TT. Other relevant linguists were Neubert from the Leipzig School, Steiner (his concept of *hermeneutic motion* and his 1974 volume *After Babel*) and Newmark (his *semantic* and *communicative translation*, concepts from *Approaches to Translation* 1981).

  Finally, the cultural turn eventually took place within the Manipulation school: It was the function of the translation in the TL the central focus over the linguistic features of the ST (Snell-Hornby 2006: 49). The entire social context including norms, conventions, ideology and values of the target society is what matters (Snell-Hornby 2006: 49). The cultural turn made possible,

> the abandoning of the 'scientific' linguistic approach as based on the concept of *tertium comparationis* or "equivalence" and moving from "text" to "culture (Snell-Hornby 2006: 49).

Bassnett and Lefevere (1990) adopted the focus of a cultural turn in their books. Functionalism encouraged the creation of new theories like the Skopos theory and the Polysystem theory that gave top priority to the receptor (e.g. Toury, Even-Zohar). When rendering a text, the genre, audience and purpose (see chapter 2 on LSP) cannot be disregarded (Hatim and Munday 2004: 14). Following the skopos functional theory, Reiss and Vermeer (1984/1996: 119) stated that a translation product –the TT– was determined by its *aim* or *purpose* (*skopos* in Greek). In this theory, the dominant element that drives all the decisions taken, is, first and foremost, the function (Reiss and Vermeer 1984/1996: 94). Translation is guided by the function of the text instead of following the prescriptions of the ST. The focus on the target language and culture leads to the selection of the most optimal equivalent, as it occurs in Optimality Theory (McCarthy and Prince, 1993). There are studies that have connected Optimality Theory to TS (Calfoglou 2008).

The Skopos theory understands that language is not an independent entity but part of culture, and therefore, the translator should be both bilingual and bicultural (Snell-Hornby 2006: 52). In other words, the two maxims of the skopos theory refer to the extralinguistic situation and the text function. The extralinguistic context in which the TT is embedded plays a crucial role. The text function determines the type of translation that can be of five different types (interlinear version, grammar translation, documentary translation, communicative and adapting). It is not equivalence what guides the translation but the skopos or purpose (Vermeer 1996: 51). The concept of culture is central to a *functional approach and the Skopos theory, which gave birth to the cultural turn (*Snell-Hornby 2006: 55). Translation is cultural transfer (Vermeer 1996).

At the same time, the expansion of translation research in 1970 onwards coincides with a spectrum of translation approaches by introducing not only linguistics on the one hand, but other disciplines such as literary studies and psychology on the other (Shuttleworth and Cowie 1997: 170).

Other studies that have contributed to the cultural turn are the *translatorial action theory* and the *cannibalistic approach*. Holz-Mänttäri's translatorial action theory is based on the everyday translator's practices with a special focus on non-literary translation (actual orders in translation companies). It is understood as "intercultural communication in a social context" involving teamwork from the client to the translator's awareness of the intended use of the TT (Snell-Hornby 2006: 57, 59). The cannibalistic approach anticipates *postmodern translation theory* and *postcolonial literary translation*, and is a reaction against cultural values of dominant and industrialized countries (Snell-Hornby 2006: 57, 60). The power is challenged between the authority of the ST, which represents the dominant culture, and the TT, as the culture of the colonizers. Rosemary Arrojo was based on Derrida's deconstruction (1979), that is, the author's ideas can be deconstructed and in this way, new meanings arise since the text is neither static nor the original meanings of the author are. Linguistic theories have been more successful when being combined with extralinguistic factors (see Cabré 1999).

The motto of the period consisted of the relative autonomy of the TT, which is a functional view, meaning that translation is a consequence of the social factors (Venutti 2000: 221). Unlike structuralism and generativism, the distinctive feature of functionalism is the fact that there is no communication without context.

- The empirical turn in 1990s explored other methods and processes of translation, such as TAP (think aloud protocols) and the exploitation of parallel and comparable corpora owing to the advent of CL, along with translation memory systems, computer-assisted and machine translation. At the turn of the millennium, a U-turn has been suggested (Snell-Hornby 2006: 150), since the study of universals of translation in a number of corpus-based studies (e.g. Baker 1998, 1996) has motivated a return to linguistics.

3.3.1.2. Translation equivalence

Sager (1997: 25) asserts that translation theory has developed upon the concept of equivalence, which is a central issue in TS. An ideal set of data to identify equivalence are parallel corpora:

> Translation corpora are an ideal source for establishing equivalence between languages since they convey the same semantic content (Granger 2003: 19).

It is also a "negotiable entity" (Kenny 1998: 78) in the sense that there is an equivalence scale in which different degrees of equivalence can be achieved.

Related to the concept of equivalence is the notion of *translation units*. They are impossible to determine before the translating act (Rabadán 1991: 188). They are valid only for a particular bi-text and their realization is intertextual: *translemic units* (Rabadán 1991: 285), equivalence units, translemes or ST-TT pair segments only occur when there is a relation of equivalence between the source and the target texts. Translemes reveal the type of equivalence we are likely to find in the whole text (Rabadán 1991: 197). Nord (1997: 43) specifies that it is only the linguistic translation theories, the ones that are based on the concept of equivalence:

> What all linguistically oriented schools of translation theory have in common, is the central concept of translation equivalence (German *Äquivalenz*), which shifted the focus of translation theory away from the traditional dichotomy of "faithful" or "free" to a presupposed interlingual tertium comparationis (Snell-Hornby 1988/1995: 15).

The "presupposed interlingual tertium comparationis" is another name for equivalence and operates as the common denominator between the ST and the TT (Rabadán 1991: 283). It was established as a static notion taking the ST as a starting point (Sager 1997: 25). It was mainly considered a lexical quality, whereas nowadays it is considered a communicative quality. Different dichotomies have entered the scene as formalized translation models of equivalence: Formal vs. dynamic equivalence (Nida 1964); semantic [formal, SL] vs. functional [TL] equivalence (Bell 1991: 7), among others.

Nida, as an expert translator of the Bible, contributed to the field with the *formal* (SL oriented) vs *dynamic* equivalence (TL oriented), by postulating that equivalence was first in content (dynamic equivalence) and, then, in style (formal equivalence) (Nida 1964: 4). Formal equivalence tries to reproduce the form of the original, whereas dynamic equivalence focuses on the TL resources to create the same pragmatic effect as the original. Nida (1964: 159) defines formal equivalence as the one focusing "on the message itself, in both form and content", whereas dynamic equivalence "aims at complete naturalness of expression […] within the context of the [receptor's] own culture". In 1965, Catford (1965: 49-50) distinguished *formal* from *textual* equivalence, in which the latter is in any text that works as equivalent in the TL. In 1970's, House draws a similar distinction: *overt* vs *covert*. Newmark (1981) introduces the concept of equivalence through two opposing translation methods: *semantic* vs *communicative* translation. Newmark (1981) already established a gradable classification between the SL and the TL. This linguist (1988: 45) categorizes translation by a degree of dependence on the SL (word-for-word, literal translation, faithful translation and semantic translation) or on the TL (adaptation, free translation, idiomatic translation and communicative translation).

In a nutshell, the first element in these dichotomies represents a similar concept, that is, equivalence from a formal point of view: language-based and system-based. The first time that the concept was encountered in the bibliography was in Jakobson, in his *On linguistic aspects of translation*. The concept is addressed from a linguistic and a formal point of view by arguing that “translation involves two equivalent messages in two different codes” (Jakobson 1959/2000: 139).

> In the linguistically oriented views on translation theory up to the early 1970s the text was then seen as a linear sequence of units, and translation was merely a *transcoding* process involving substitution of a sequence of equivalent units (Snell-Hornby 1988/1995: 16).

The quote implies that formal equivalence can be studied at the level of lexicon and also of language structure (phonology, morphology and syntax) through single items. Dynamic equivalence does not concern single units but sets of units (e.g. collocations) and the whole “communication load carried by such units” (Nida 1964: 193).

Thus, the second element is dynamic equivalence. It is commonly agreed that there are varying degrees of equivalence and that there has been an increasing emphasis on dynamic equivalences. The shift to target-oriented approaches has an effect on the type of equivalence, primarily dynamic and functional:

Formal equivalence Functional equivalence

Fig. 3.24: *Continuum of equivalence ranging from formal, lexical and source-oriented to dynamic, functional and target-oriented.*

Based on a descriptive approach, Toury (1980: 115) argued that equivalence is not universal but “case-” and “culture-specific” (Vermeer 1996: 48-9). A descriptive analysis “will inevitably contain culture-specific elements” (Vermeer 1996: 48). The hurdle of establishing equivalence comes from the extralinguistic factors that make the reception of a text resistant to a new habitat. In Rabadán’s words (1991):

> La raíz del problema está en que la equivalencia constituye la esencia misma de la traducción y de ahí el gran reto con que nos enfrentamos: cómo conseguir que el texto original y su traducción «sean» el mismo texto cuando todos los factores que intervienen en el proceso son, por definición, distintos (Rabadán 1991: 31).

The quote emphasizes the complexity of accomplishing the same text in another language when the major difficulty stems from configuring a text that emanates the same echoes, resonance, and even ambiguities of the original. It is far from easy to generate the same effects on the target reader as those created in the source reader. Thus, it is also a concept that very much depends on the type of *receptor*. The Norwegian sentence *Jeg lærer bokmål*, can be rendered into *I'm learning Norwegian* or I'm learning *bokmål* (as the most common language variety in Norway as opposed to *nynorsk*). The translator has to foresee if the majority of English readers will be aware of this difference. The safest option will be the first one. The English translation may not be structural / formal equivalent but equivalent in meaning. The more the globalized world is, the more translators and readers will be able to cope with the notion of equivalence.

What seems clear is that equivalence is the common denominator to every translational project (Rabadán 1991: 53). Nord (1997) prefers using the term *loyalty* to achieve equivalence, which consists of the balance between adequacy / fidelity to the ST while attaining acceptability to the TT (Rabadán 1991: 53). The question stems from how the transfer process works in order to achieve equivalence. It depends upon many factors: client, translator, time, social context and receptor, among others. As for the social context, equivalence is subject to socio-cultural circumstances of the polysystem the text belongs to, and that means that translation is a behaviorist activity which is regulated by norms, delimited by the adequacy parameter (to original text) and acceptability parameter (to target culture) (Rabadán 1991: 197, 281). Venutti discusses the futile and fruitless effort of setting up the concept of equivalence (adequacy):

> The "adequacy" of a translation to the source text becomes an unproductive line of enquiry, not only because shifts always occur, but because any determination of adequacy, even the identification of a source text and a translation, involves the application of a target form (Venutti 2000: 149).

For equivalence to be an effective concept it must be functional (Neubert 1994: 414, Rabadán 1991: 51) in the sense that equivalence must be pragmatic, culture-oriented, consistent, comprehensive, anti-universalist, practical (Nord 1997: 45-6). Reiss and Vermeer (1984/1996) postulate that the Skopos theory puts forward the adequacy of translation to the objective or objectives pursued in a particular text type (e.g. informative and persuasive functions in advertising).

Equivalence hinges on three aspects: functional, pragmatic and communicative elements (fig. 3.25). This three dimensional equivalence is called *functional* (Nord 1997) or *translemic* (Rabadán 1991). Translemic equivalence is a dynamic gradable equivalence subject to socio-historical norms (Rabadán 1991: 77, 291).

The examination of equivalence will give us the key to analyze the TT from different angles: (I) the functional dimension of equivalence will examine the extralinguistic features of popular science as LSP discourse, and also the function of denominative variation; (II) the pragmatic dimension of equivalence will enable to investigate the semantic prosody and possible semantic shifting, since equivalence is referred to as equivalence in meaning and according to the context, and (III) the communicative dimension of equivalence will make possible the study of translation strategies and shifts according to cultural and ideological values.

	Dimensions	**Central aspects of equivalence in this project**
EQUIVALENCE	Functional	*Extralinguistic features + denominative variation*
	Pragmatic	*Semantic prosody (evaluative language) + semantic shifting*
	Communicative	*Shifts and translation strategies + cultural features (ideology)*

Table 3.25: *Three-dimensional facet of equivalence: functional, pragmatic and communicative.*

All in all, equivalence started being a fundamentally normative concept and the concept has evolved into a communicative notion. The concept of equivalence is not identified with structural correspondence any longer nowadays but with a functional, dynamic, communicative and historical variant.

3.3.1.2.1. *Translation shifts*

When equivalence is at the centre of translation theories, it is inevitable not to deal with translation shifts. Shifts occur in the TT with respect to its original. The changes can occur naturally due to the systematic differences between the two languages (grammatically-based). Some other decisions or choices may be subject to the whims of the translators themselves at the very time of translating (style-based). In this regard, Venutti (2000: 222) observes that the identification of a shift is a subjective matter. How much it deviates from the ST is an individual opinion about a particular case. Through the study of shifts, the validity of functional, pragmatic and communicative equivalence can be examined.

Vinay and Darbelnet (1958/1995) developed the most comprehensible taxonomy of shifts. A shift is any departure from formal correspondence (Catford 1964: 73). Moreover, formal correspondence belongs to contrastive analysis (Rabadán 1991: 45), as it refers to the similarities and differences between language systems (obligatory shifts). It is true that in this study we are not concerned with the systematic differences and similarities between English and Spanish at the competence or *langue* level (formal correspondence), but with those of performance or *parole* (textual equivalence), especially those concerned with ideological issues (sometimes optional shifts).

According to Catford (1965: 73), shifts can be of two types: *level* and *category*. In other words, within different linguistic levels (e.g. grammatical to lexical) and within the same level respectively. The last type embraces structure shifts (e.g. SVO to OV), unit shifts (e.g. from a morpheme to a clause), class shifts (e.g. an adjective into a noun), intrasystem shifts (e.g. non-corresponding terms in the TL system). By expanding Catford's notion of shifts, changes can occur at the word level (lexicon), grammatical level (structures) and message level (pragmatics). Vinay and Darbelnet (1958/1995: 256) give the example of *take one!* That could be rendered as *prenez-en un* (lexical equivalence), *échantillon gratuit* (structural equivalence) or *prise un, prise deux* (pragmatic equivalence). The context will provide the level of translation equivalence.

We are mainly concerned with shifts with regard to ideology, since GE popular science texts tend to be politically-sensitive to ideological issues.

3.3.1.2.2. *Universals of translation and translation norms*

The concept of equivalence is also based on universals of translation (Mounin, quoted in Venutti 2000: 147), also called the third-code or *translationese*. Baker (1996: 176-7) enumerates four universals of translation:

Universals of translation		**Definition**
1)	Simplification	Translators subconsciously simplify the language, the message or both.
2)	Explicitation	Translators tend to spell things out and add background information.
3)	Normalization / conservatism	The tendency to conform to patterns and practices which are typical of the target language, even to the point of exaggerating them.
4)	Levelling out	TTs seem to be less idiosyncratic and more similar to each other than original texts.

Table 3.26: *Baker's definitions of 'universals of translation' (1996: 176-7).*

The concept of *universal* applies to the process of translating, can be checked in the product (TT) and refers to the regularities or universal characteristics found in the language of a TT. Let us comment about simplification and explicitation. According to Frankenberg-García (2009: 50), there is "abundant evidence of voluntary explicitation in the literature of translation studies". Regardless of the language pair, voluntary explicitation or the adding of extra words in the TT is a universal feature of TTs in terms of text length. Apart from text length, Baker (1996: 181) suggests the explicit *that* in reported speech as an example of explicitation. Lexical density is another aspect to be studied as a feature of simplification. It seems clear that the TTR will be low in popular science texts, but there is also evidence that the lexical density of TTs is usually lower than the one in the STs (Baker 1996: 183). If the TTs contain a lesser number of types than those in the STs, this phenomenon may be a sign of simplification in the TTs. Comparable corpora are especially useful to detect patterns specific to translated texts without relying on the source or target language (Baker 1995: 234).

When studying universals there are shifts as a result of subconscious behavior or norms adopted by translators. Norms are of paramount importance to the concept of equivalence and describe tendencies in the translator's behavior. It is a concept usually ascribed to the Manipulation School (see Toury 1995). Snell-Hornby (2006: 37) explains that the concept is based on Coseriu's language norm (1962). Norms obey dynamic and historic parameters (Rabadán 1991: 56) and are in between strict rules and idiosyncrasies. Norms provide the historical component to form a model (Rabadán 1991: 77). In addition, norms are a social concept from Toury's point of view (1995: 54), since the translator has a social role within the cultural scope of a translation.

Toury distinguishes two types of norms: *preliminary* and *operational*. The former norms concern the aspects to be taken into account before translating; for example, the publisher's translation policy (Snell-Hornby 2006: 74). The latter norms are the ones actually in operation at the time of the translating process and they are subdivided into *matricial* and *textual*. Matricial norms refer to the segmentation and structure of linguistic data whether there are omissions or additions. Textual norms are determined by the translator's choice in terms of equivalence in each ST-TT pair, that is, translational strategies. For Toury, equivalence is a historical concept; it is not understood as prescriptive (Snell-Hornby 2006: 74). To put it another way, norms are driven by their sociolinguistic specificity and instability, since they do not affect all cultures or sections of a society the same way and they change with time (Snell-Hornby 2006: 74). Rabadán (1991: 56) adds *reception norms* to Toury's taxonomy. They belong to either preliminary or operational stages. Yet, the consideration of a norm is a somewhat contentious:

> Corpus linguistics techniques can point up repeated linguistic patterns in texts, and instances that appear to be deviations from these patterns, but it is still up to the analyst to decide whether or not these patterns are norm induced, and if so, what norm, or group of norms applies (Kenny 2001: 52).

This quote makes a corpus-driven approach implicit (Kenny 2001: 52). In other words, norms and rules are extracted from descriptive translation studies and they are domestic rather than universal (Katan 2009: 83). We could make an analogy between universals and norms with the principles and parameters from Chomsky's theory. The principles are the universal factors that can be found in every TT (e.g. explicitation, simplification, disambiguation, conventionalization, standardization, leveling out, and avoidance of repetition, among others). And the parameters are specific for every TT (e.g. either over- or underrepresentation of source or target language elements).

3.3.1.3. Translation ideology: Interlinguistic ideology of translating

The distinction between *the translation of ideology* and *the ideology of translating*, drawn by Hatim and Mason (1997: 143), is essential. The former comprises some studies on ideology and power that "tend to focus on manipulation in politically sensitive texts" and their translation into other languages (Munday 2007: 200). This is the trend of research known as *Critical Discourse Analysis* (CDA). This area has been connected with a "negative connotation of distortion, manipulation or concealment" (Munday 2007: 196). It has also been associated with a political undertone whenever translation is considered a *cultural political practice* (Venutti 2000: 330). In English translations of Spanish political texts, Munday (2007: 197) argues that translations are not precisely the most recognizable form of rewriting (cf. Lefevere 1992: 9), but *misrecognized* and *unnoticed* when dealing with texts from political contexts. Only a meticulous analysis will uncover "whether the target is altering the message of the source text" (Munday 2007: 197).

Munday (2007: 205) evaluates two English versions about the release on bail in Miami of Luis Posada Carriles in 2007, an opponent of former Cuban President Fidel Castro. A prototypical example is the choice of *freedom fighter* vs *terrorist* depending on the observer's point of view (Munday 2007: 204).

The Cuban English version (*Granma International* Newspaper) is translated from the Cuban Spanish *Granma,* which is partially a translation of the AFT report by the US AFT news agency:

- Posada "is accused of masterminding the downing of a Cuban jet off Barbados in 1976" (*AFT report*).
- Posada "ordered the 1976 mid-flight destruction of a Cubana Airlines passenger plane" due to "an inexplicable mistake" (*Granma International*).

Munday (2007: 205) checks the collocability of *mastermind* and finds out that the most significant collocates are negative (*conspiracy, bombing, clandestine* and *plot*), although positive and neutral are also encountered (*victory, surprise, scheme* and *programme*). The second version keeps on a neutral plane, whereas the first tends to be affective by the translator's ideological intrusion, that as a result, motivates the appearance of the suggested negative semantic prosody.

As a matter of fact, CDA claims that all forms of translation contain an ideological component (Calzada-Pérez 2003: 2). This idea is also emphasized within the *ideology of translation* at an interlinguistic level (cross-linguistically). This idea indicates that the act of translating is influenced by the translator's "cultural beliefs, values and expectations" (Hatim and Mason 1997: 143) as expressed below:

> [T]he set of beliefs and values which inform an individual's or institution's view of the world and assist their interpretation of events, facts, etc. (Mason 1994: 25).

Along these lines, ideology is quite distinct from identity. The identity of a translation is characterized by several factors, and one of these is the ideological and ethical rendering of the translated content. With the exception of the translation of highly-specialized texts (PAL), Venutti (2000: 222) also supports this idea by emphasizing that translation is a cultural and ideological code:

> [I]t can be said that any translation is ideological since the choice of a source text and the use to which the subsequent target text is put is determined by interests, aims and objectives of social agents (Schäffner 2003: 23).

Apart from transmitting the ideas that were born in the expert community and that are later made simpler to a large lay public, the texts from the GE corpus in the present study are hypothesized to be ideologically motivated to a certain extent –by trying to warn the reader about possible dangers or showing the potential of this promising technology–, since the results and experiments of the GE technology have been hotly debated in the mass media.

To be able to offer an answer when ideologies are encountered, it should be borne in mind that they must be treated not as true or false, but with critical objectivity (Venutti 2000: 334). Conventionally, the act of translating has not been conceptualized as a creative activity, since translators are assumed not to insert their own approach or style that may be visible in the TT (Venuti 1995). However, if a number of translators were all given the same ST to translate into one language, not many sentences would be translated exactly in the same way. If there is so much variation in the way different people translate, there must be an effect on the part of the translator. The question is how, and indeed if, such an effect can be studied. This effect may be in direct relation to the translators' language exposure and culture and may be detected through their lexical priming:

> [The translator's] lexical priming (Hoey 2005) will be unique and therefore will have an important bearing on the phraseology and functional patterns of the translated text, including the broad area of stance and evaluation (Munday 2007: 199).

This quote draws attention to the fact that the translators' language exposure will influence, to some extent, their lexical priming, a difficult-to-measure cognitive activity that, in turn, may partially account for the individual translation choices when approaching the TT. Different authors not only talk about translation as a process of rewriting (Lefevere 1992: 9), but rather, as an act of manipulating linguistically the ST in order to adjust it to the paralanguage –culture and politics– of the TT, in such a way, that the new rendering can modify or alter the validity of the text, and its acceptance, in the target language. This process of linguistically manipulating the text is understood as *the ideology of translating*. The translator's preference for one choice or another has been conceived as ideological in terms of the translator's cultural beliefs (Venutti 1995: 34; Hatim and Mason 1997: 146). At the same time, the translator's word selection may possibly be due to the fact that the target language is culturally dominant (Hatim and Mason 1997: 145). Ideology interference can be encountered in intra-, interlinguistic and intersemiotic translation.

3.3.2. Translating popular science texts

After reviewing the big picture of translation theory, let us focus on the translation of popular science. Although the concept of translation is one in constant change, there are several ways to understand this concept. Jakobson's classification of translation (1959/2000: 139) –based on the rewriting of linguistic codes– is well established as it recurrently appears in the literature (Venuti 2000: 113-118, Munday 2001: 5, Hurtado Albir 2002: 26, Bravo 2006: 266) as follows: Intralinguistic, interlinguistic and intersemiotic translation. The present researcher has studied the three translation types during the PhD study years:

- *Intralinguistic translation*, reformulation or rewording (Bayón García 2004)
- *Interlinguistic translation* or translation proper (this PhD dissertation)
- *Intersemiotic translation* or transmutation (Bayón García 2009)

Although the final object of study in this dissertation is interlinguistic translation, we should bear in mind that popular science has also undergone a process of intralinguistic translation or reformulation of information from a source text (e.g. research article, press release) (see chapter 2). In addition, the cover of the popular science books in the GE corpus will be examined so as to study the connection between the non-verbal code of the books (image of the covers) and the verbal language (book contents). This connection may be understood as an example of intersemiotic translation, being the ST the image and TT the content. Let us examine every one of these translation types.

3.3.2.1. Intralinguistic translation: Intralinguistic ideology of GE terms

The observations in this section were already formalized into a M.A. thesis entitled: *La re-escritura del género en el discurso científico-técnico: del artículo de investigación a las revistas científicas. Análisis retórico-contrastivo inglés-español* [*Genre re-writing of scientific and technical discourse from a scientific research article to a scientific magazine. English-Spanish contrastive and rhetoric analysis*] (Bayón García 2004). This thesis looked into the intralinguistic translation or reformulation of several characteristic features of a scientific research article and how these traits change when they are rewritten in the form of semi-expert articles within the same language. In this work, we also examined what intralinguistic translation involves, at least, (1) a horizontal lexical transformation among varieties of the same language and, (2) a vertical process of genre re-writing within a given language.

An example of language variety within GL would imply a rewording within a horizontal process, for instance, among the varieties of Spanish when translating *zumo* (juice) in Peninsular Spanish into *jugo* in Latin-American Spanish. Rewording will not only be carried out at the lexical level but at the grammatical one, for example, the preterit tends to be more frequent than the imperfect tense in the Latin-American variant compared to Peninsular Spanish. Rabadán and Fernández Nistal (2002: 108) argue that everything which is not acceptable in our daily use must undergo a process of correction and, hence, of rewriting.

With regard to a genre-rewriting process, an example of a reformulation within scientific discourse tends to occur when transmitting scientific discoveries from an expert-to-expert discourse level to the laymen audience (see chapter 2). In the rewriting process from a research article to a popular one, several strategies must be adopted with the aim of facilitating knowledge to an uninitiated person by means of making explicit the meaning of terms (e.g. definitions, metaphors, paraphrases, examples, comparisons, analogies, similes). It is a reformulation adapted to a new audience, "with the intention of influencing the way in which that audience reads the work" (Fernández Polo 1999: 86). In chapter 2, it was argued that the rewriting process implies a change in the global textual structure –genre–, followed by changes at syntactic and lexical levels. It is a rewriting of narratives, of genre:

> The author of a popularized text must "translate" a highly-specialized problem for the prospective specialist by applying the didactic principles of induction/deduction, exemplification, intelligibility and memorability (Gläser 1995: 180).

We have reached the conclusion that the process of re-writing differs from translation proper in that the translator tends to be hidden in the translation

(Venuti, 1995: 5), whereas the popular writer acts as an explicit intermediary who quotes and refers back to the original text (Bayón García 2004: 63).

> The [intralingual] "translation for the layman" results in a lesser density of terms, in the description or explanation of technical terms, in more illustrating examples and background information which is self-evident to the expert, but essential to the lay person (Gläser 1995: 180).

The access to the new scientific innovations is not any more a restricted heritage owned by scientific experts exclusively (Martín Camacho 2004: 7), since the spread of scientific discoveries is crucial to promote the progress of mankind. The research article is the communicative setting most widely used by researchers to communicate new scientific advances (Swales 1990: 94; Pérez Ruiz 2001: 14). For these new discoveries to reach a non-expert audience, the rhetoric conventions of research articles need to be re-written in, for example, the form of popular science books or newspaper articles.

•VERTICALLY: Genre Re-writing Process of scientific discoveries (Martín Camacho 2004; Pearson 1998)

–Academic setting (Swales 1990)

–Semi-expert magazines (Fernandez Polo 1999; Colussi 2002)

–Reference Books and Textbooks

–Popular Science Books and Newspaper articles

Popularizations are not mere changes of linguistic codes (Fernández Polo 1999: 80), but a re-writing of the new discoveries to the conceptual framework of the new reader. The accessibility of concepts shown in a popular science article will include changes at the rhetoric and terminological level (i.e *radiograph* into *x-ray*), since the audience is different to the one of research articles.

The French journalist and film director, Marie-Monique Robin, author of the book *The World according to Monsanto* (2008), is aware of the terminological differences in genetically modified drugs. Robin argues that whereas Monsanto is keen to use *rBST*, Monsanto opponents are likely to employ the term *rBGH*, a more transparent term for the general public than rBST (Robin 2008: 145). Odgen states this idea in a previous publication:

> This transgenic drug is not longer referred to by company public relations men as recombinant bovine growth hormone (rBGH), but rather recombinant bovine somata-tropin (rBST), one assumes because the term *growth hormone* was deemed anxiety producing,

> whereas the term *somata-tropin* was nicely obscure and more scientific sounding (Ogden 2001: 339).

Another example that blends terminology with ideology is the concept of second generation seeds produced by GE techniques to be sterile. Odgen (2001: 339-40) names three different denominations for this concept: *technology protection system (TPS), terminator technology* and *genetic use restriction technology (GURT)*:

- The first term was issued in 1998 by the Delta & Pine Land company in order to "control unauthorized planting of seed of proprietary varieties" (D&PL press release, march 3, 1998; quoted in Odgen 2001: 340).
- After the protest of the Rural Advancement Foundation International (RAFI) by which families complained about the many years they had been saving their families' seeds, the RAFI coined the sterile seed technology as *terminator technology*.
- Finally, *genetic use restriction technology* was used by the promoters of GE as a less transparent term for the *Terminator technology*. But opponents reacted with other terms much closer to the consumers such as *suicide seeds* and *traitor technology* (Odgen 2001: 340).

The ideological interests in our popular science corpus may not be as evident as in the reports and pamphlets produced by biotechnology companies and ecologists. Therefore, we recur to the study of lexical profiles of key terms in order to detect potential ideological aspects in the selected GE corpus both intra- and interlinguistically (next section 3.3.2.2).

It is also worth commenting on a corpus-linguistic study (Brand 2008) on SARS (Severe Acute Respiratory Syndrome). The author compares keywords from a highly-specialized medical corpus with a popular science one –general news articles–, both on the topic of SARS. One of the major and expected findings was that negative semantic prosody was only encountered in the popular science subcorpus as a clearly genre-specific pattern by journalists (Brand 2008: 160, 164). It is also interesting to comment on the fact that about half of the frequent content words were used in both corpora (Brand 2008: 162). Some of the studied singular keywords (e.g. *patient*, *case*) are more likely to occur in medical texts, whereas those same terms are more recurrent in the popular science corpus when they are plural forms (e.g. *patients*, *cases*) (Brand 2008: 163). Another remarkable and possibly expected finding is the existence of a more fixed collocational profile in the specialized texts (Brand 2008: 160). Thus, Brand's study (2008) investigates lexical patterns in medical discourse and how they have been intralinguistically translated to popular science texts.

In summary, intralinguistic translation is a communicative process, which rewrites for another type of audience and another communicative situation. It is an effective manipulation of genre (Bassnett and Lefevere 1990: ix).

3.3.2.2. Interlinguistic translation

Interlinguistic translation is the object of study in this dissertation. It can be considered translation proper in which the TT is considered a form of rewriting that includes “certain ideology and poetics and as such manipulate literature to function in a given society” (Bassnett and Lefevere 1990: ix). It is done under certain restrictions and constraints. It is a horizontal process previously introduced:

•HORIZONTALLY:

English Popular science books (ST) → into Spanish popular science books (TT).

An example of a corpus-based translation study is Fernández Polo’s (1999). The linguist conducted a contrastive rhetoric study to examine connectors, repetitions and the role of the researchers in a corpus of Spanish translated popular science texts from *Scientific American* and Spanish originals from *Investigación y Ciencia* (Spanish version of *Scientific American*).

A significant number of connectors were eliminated or simplified. Based on Halliday (1973), internal connectors were referred to as the category to express social and personal relations, whereas external referred to external reality. This finding was opposed to the tendency to make the TT explicit (see *explicitation hypothesis* in Blum-Kulka 1986).

Repetitions help to reduce the gap between the creators of knowledge and the public who is the user of that knowledge. The outcome was that there was an elimination of repetitions (Fernández Polo 1999: 234), proper of popular science discourse. This result is in accordance with the first finding: it corroborates that the TT seems to be less explicit than the ST.

As for the importance of the researchers, the TTs showed the tendency to eliminate researcher’s and popularizer’s details, making the Spanish translations a bit more similar to the impersonal appearance in highly-specialized research articles (Fernández Polo 1999: 268).

As for universals of translation, Baker (1996) reports that the translator tends to correct grammatical mistakes and even improve the text. In spite of this, “the mediating language and culture of the translator tend to exert an influence on the way in which the target text takes shape” (Hatim 2001: 20).

3.3.2.2.1. *Lexical aspects of scientific and technical translation*

It is often agreed that the translator is a terminologist inasmuch as this professional must coin terminology either voluntarily or involuntarily in order to provide an appropriate translation choice (Cabré 1999: 187). The quality of a specialized translation stems from the fact that terminology is rendered into TUs and, not into any other device such as periphrasis, and it should be appropriate to their level of specialization (Cabré 1999: 192). Not always a specialized language is equipped with normalized and lexicalized TU. The stage of documentation is a phase of great help to supply functionally equivalent terms. A terminologist must be able to draw a conceptual map of the subject (Cabré 1999: 144) and, therefore, documentation is an essential step (see methodology). In the case of a new TU, the translator's choice must tend to be another terminological unit (neologism), rather than a paraphrastic translation (Cabré 1999: 197). This way, accuracy is preserved.

Different translational processes are listed below:

- NPs:
  Noun compounds –especially the complex ones– represent a difficulty for the translator, as they are a characteristic feature of Germanic languages (Trimble 1985: 131). For example, a *metal cutter* is not a cutter made of metal as a metal spring is made of, but it is "an instrument used to cut metal" (Trimble 1985: 133). In *automated nozzle brick grinder* it should be borne in mind that *nozzle* is not part of the automated mechanism but a type of brick (Trimble 1985: 134). Thus, it is necessary for the translator to be acquainted and disambiguate the meaning before the term is translated.
- Variants:
  - *Nuclear fission* has been translated into two terms *fisión nuclear* and *escisión nuclear* (Martín Camacho 2004: 24). *Escisión* is a transparent term much more than *fisión* that might be confused with *fusión*. We think that *escisión* is used in less specialized communicative settings.
  - *Screening* has been found as *detección selectiva, cribado, cribaje, tamizaje, pesquisaje*, *muestreo*, *detección inicial* and *escrutinio*, among others (Gutiérrez Rodilla 2004: 80).
- Impoverishment of already existing forms (Alarcón Álvarez 2004: 13):
  - *Requirement* often appears to be translated into **requerimiento (request; solicitud)* instead of *requisite (requirement).*
- A massive reception of English terms regarding acronyms, abbreviations, eponyms, borrowings, calques, neologisms, etc.
  - Borrowings such as *adrenaline, epidural* and *stress* (Martín Camacho 2004: 24).

- *Upstream and dowmstream* have been rendered as *corriente arriba* and *corriente abajo,* but the Spanish equivalents fail to accomplish the degree of preciseness that the English terms have. This is a reason scientists give when you ask about the terminologies they use.
- Some loanwords are adapted to Spanish: *géiser* (neologism of form).
- Computer terms are found in their original form (*software, input, pixel*). Others are translated (semantic calques, neologism of meaning): *disco duro* (hard drive), *marcapasos* (pacemaker).
- *To random* was added one of the three roots of the Spanish infinitive endings (-ar, -er, -ir). The *–ar* ending is the most productive one (around 90% of the Spanish infinitive forms end in *–ar*) and the neologism was created (Sp. *randomizar*). The same was done with *escanear* (insertion of an epenthetic *e-*, since Spanish does not allow *sc-* clusters as onsets in initial position) and *mapear* (addition of an infix *–e* to avoid cacophony).

▪ Insertion of ambiguity. Modals verbs (e.g. *can*) that are translated as such are not necessary in the Spanish translation in many cases. Since *can* means ability and probability, there is a tendency to translate it as *poder* (probability) and this way the translation is impregnated with ambiguity, which is absent in the original (e.g. esta ténica *puede* desarrollar + direct object). Spanish is more assertive than English and when the use of this modal implies ability it must be translated by the verb that is following *can* (*desarrollar = develop*) (e.g. *esta técnica desarrolla* + direct object).

▪ Irreversible binomials such as *lost and found* are translated into *objetos perdidos* (*lost objects* [back translation]), *null and void* (*null and invalid* [back translation])*; nulo y sin efecto legal*).

▪ When translating eponyms, the choice may or may not be an eponym. For example, *Ledderhose' disease* is rendered into *contractura plantar* and, *lumbar triangle* has turned into *triángulo de Petit* (Gutiérrez Rodilla 2005: 70).

▪ There is a tendency in Spanish to translate the premodifier of a NP into a noun leaving the original head of the English NP behind, as in *smoking jacket* (smoking), *parking lot* (parking), *abdominal muscles* (abdominales). For example, *smoking jacket* (English) has derived into *smoking* (Spanish), *abdominal muscles* is employed as *abdominales* in Spanish, etc.

3.3.2.3. Intersemiotic translation

The last type of translation takes place at the intersemiotic level. This question has been explored in papers in which linguists and semioticians have analyzed how linguistic codes have turned into semiotic devices and *vice versa*. Nida (1964: 4) gives the example of a verbal message that can be transmuted into a flag message or sign language. In our case, the semiotic analysis of the covers of the books (see 5.2.2.) will demonstrate how similar or different the cover of the Spanish translated book is from the English one.

Due to the complexity of making scientific discoveries comprehensible to the general public, popularization of science calls for images and visual signs, which serve as a tool to facilitate the understanding of informative messages about technological advances (Moreno Castro et al. 1996: 27).

For this reason, a recent paper (Bayón García 2009) examined six images depicting Genetically Modified Organisms (GMOs) designed and displayed by biotechnology companies, governments, NGOs and newspapers. Four out of the two pictures depicted human beings at the focus of the image; the other two featured a symbol-like image warning danger. The interpretation of these images brings into question that although science as a discipline is neutral, images which illustrate science may be not.

The above-mentioned study supplies a narrative description of the images following Peirce tradition, and moving on to a cognitive position,

> [I]mages or metaphors not only constitute means of expressing ideas, but also function as sociocognitive devices that help to organize the understanding of a phenomenon (Bauer and Gaskell 2002: 266).

Since the well-known Dr. Pustzai wrote the term *harmful* in a reply to the Royal Society in 1999, the public debate has spun around the harmful-beneficial nature of GM food. These two standpoints –harmful and beneficial– are pictured in the semiotic square or Greimassian square. The structure of the biotech paramount was paired into four positions in the square that interfere with each other, say: beneficial (S1), harmful (S2), non-beneficial (non-S1) and non-harmful (non-S2). The S1 and S2 are mapped onto the Greimassian or semiotic square as primary positions as illustrated below (fig. 3.27). Not only is this elementary structure of signification designated to map out the *vis-à-vis* rudimentary binary opposition S1-S2, but also alternative conceptual combinations, such as S1/non-S1 and S2/non-S2, which state contradiction. However, the semantic relation and logical conjunctions between these four notions – which are rooted in comparative mythology (Greimas 1987: 3-16) – denote different active actants involved in the biotech world through an opposite relation and a complementary one.

Governments (non-S1/non-S2) and newspapers (S1-S2) may fulfill the group of opposite relations. The USDA picture (US Department of Agriculture), depicted by means of a neutral and denotative image, does not illustrate to what extent this technology may be beneficial or harmful. In the same vein and a little more strengthening, newspapers tend to include both beneficial and harmful positions, from which sometimes one of them may be more prominent depending on the broadsheet.

As for a complementary relation, the information is conveyed by S1/non-S2 (biotechnology companies) and S2/non-S1 (NGOs) as was shown in images 1-4. The complementary relations of GMOs are structured into concepts loaded with positive (S1/non-S2) information, as in images 1 and 2 (by biotechnology companies), and negative information (S2/non-S1), as images 3 and 4 (from NGO's). When the information from a complementary relation reaches the highest expression of the sign (symbol in Peircean's terminology), the interpretation of the object is subjective, connotative and advertisement-like. In turn, an opposite relation (S1-S2 and non-S1/non-S2) is conformable to the objects themselves (index following Pierce); here the signified remains at the initial, developmental stage of the sign, and features objective, informative and referential images (e.g. images 5 and 6, the USDA and the picture of the newspaper, respectively).

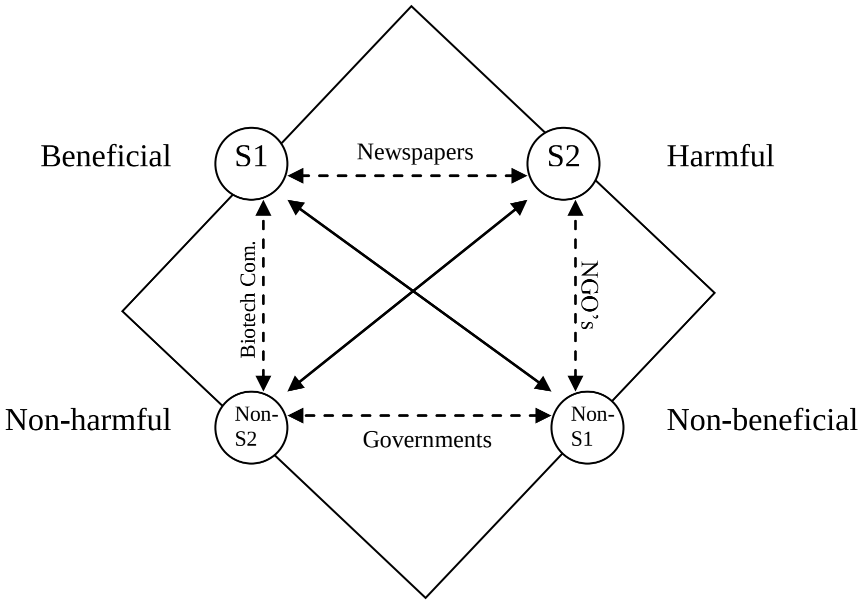


Fig. 3.27: *A Greimassian semiotic analysis on the GMO controversy (Bayón García 2009).*

The gestalt properties of the square may bring together the Peircean school with the Greimassian one when arguing that the more the image is accomplished (e.g. a more developed design) by the most developed meaning in the Pierce scale (i.e. images 1-4), the more it is to entail a complementary relation (S1/non-S2 and S2/non-S1). On the contrary, the more the image is closer to be an index (i.e. images 5 and 6), the more likely to trigger an opposite connection (S1-S2 and non-S1/non-S2).

The semiotic analysis presented in Bayón García (2009) may account for the fact that companies and NGOs picture the signified with a more focused lens, making images more salient than the ones employed by newspapers or governments.

3.4. Final remarks

Although terminology is a discipline born with a monofunctional purpose –to communicate between experts–, its development has been multifunctional so as to facilitate knowledge to the general audience (Cabré 1993: 29) through facilitating mechanisms such as denominative variation.

Semantic prosody is another linguistic phenomenon found in popular science. Denominative variants appearing as collocations (e.g. *genetically modified food*), which are seemingly neutral terms, may be perceived with positive or negative associations –semantic prosodies– through frequent collates in the immediate surroundings.

> Translators have also been contributing to the terminological evolution of science by constantly coining new terms in target languages or by redefining or slightly changing meanings of terms (Budin 2002: 159).

This chapter has also examined the translation of popular science –intralinguistic, interlinguistic and intersemiotic– and has prepared the ground for the interlinguistic comparison of denominative variants and semantic prosodies in order to unveil potential ideological insertions in the TT, since denominative variants, in a relation of synonymy, may have a quite different emotive profile (e.g. *cop* and *policeman*, Nida 1964: 119). The same may happen with terms such as *genetically modified* and *genetically engineered.*

4. Research Design and Methodology: Corpus Linguistics (CL) and Descriptive Translation Studies (DTS)

4.1. Scope of the study
- 4.1.1. Exploratory study
- 4.1.2. Pilot study

4.2. Corpus compilation: Design and alignment
- 4.2.1. An introduction to Corpus Linguistics (CL)
  - 4.2.1.1. A historical overview of corpus linguistics
    - 4.2.1.1.1. *Pre-electronic corpora*
    - 4.2.1.1.2. *Electronic corpora*
  - 4.2.1.2. Corpus defining traits
    - 4.2.1.2.1. *Representativeness*
    - 4.2.1.2.2. *Size*
  - 4.2.1.3. Optional annotation ('mark-up')
    - 4.2.1.3.1. *Structural mark-up (textual mark-up)*
    - 4.2.1.3.2. *Part of Speech mark-up (POS, wordclass tagging)*
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4.4. Final remarks

4. Research Design and Methodology: Corpus Linguistics (CL) and Descriptive Translation Studies (DTS)

Actions speak louder than words

Theodore Roosevelt (1858-1919), 26th US President

Quoted in Pine (2001: 38)

In order to prepare the ground for data analysis, this chapter deals with the work preparation (pilot study, corpus design and implementation), and DTS stages (qualitative, quantitative and norm-establishing process). This way, the chapter lays the methodological foundation for a closer analysis of terminological, phraseological and translational ST-TT segments, with special attention to terms and keywords, denominative variation, semantic prosody and translation strategies in texts about GE as specialized discourse.

4.1. Scope of the study

Since there is no corpus available on popular science books about GE, then we should build our own corpus. The stages in the methodology used to analyze the full-text parallel corpus of English-Spanish translations *vis-à-vis* original English texts comprise three main levels:

(i) An exploratory and pilot study (see 4.1.1, 4.1.2) that will lead to,

(ii) the corpus compilation (see 4.2), along with the alignment phase that will precede

(iii) the corpus exploitation (see 4.3) following the DTS model (Toury 1995).

4.1.1. Exploratory study

There is a difference between an exploratory and a pilot study. An exploratory study is undertaken with the broad aim to observe and describe a few characteristics of the popular science discourse, since not much is known about the topic. We had no specific hypotheses to test at this stage.

The exploratory study is basically an examination of a few texts with the objective of starting thinking about the selection criteria. In our case, one English book and a few Spanish translated popular science books on GE were selected for the exploratory study. We thought it would be more insightful to depart from investigating several Spanish books to later check the outstanding features observed in a number of English popular science books.

As for the pilot study, it is generally based on several texts that actually form the final corpus. For this dissertation, several English books were selected for conducting the pilot study. A pilot study basically aims at avoiding an inadequately designed project and it is usually based on some preliminary research questions that were formulated taken into account the findings encountered in the exploratory study. Hence, the initial research questions have their origin in the explanatory study carried out during an undergraduate scholarship that I received in my last year of the English Studies major at the University of Valladolid, Spain. During that academic year (2001-2002), my duties were to compile a small corpus of popular science books on GE. The title of the books are shown below:

Book	Author (s)	Publ. Yr	Title
1	Reiss, M. J. & Straughan R.	2001	*Improving Nature? The science and ethics of genetic engineering*
2	Ho, M-W.	2001	*Ingeniería genética: ¿Sueño o pesadilla?*
3	Anderson, L.	2001	*Transgénicos. Ingeniería genética, alimentos, y nuestro medio ambiente*
4	Boyens, I.	2001	*Cosecha mortífera. De los transgénicos a las vacas locas*
5	Houdebine, L-M.	2001	*Los transgénicos. Verdades y mentiras sobre los organismos genéticamente modificados*

Table 4.1: *Books used for the exploratory study.*

Basically, I scanned one English and four Spanish books using Optical Character Recognition software (OCR). The books for the undergraduate scholarship, which were used for the exploratory study, were provided by my PhD supervisor, Prof. Bravo Gozalo. At the time, he was also the director of the Research Institute for Bilingual Terminology and Specialized Translation (ITBYTE), institution where I carried out the scanning and the corpus revision.

In the scanning stage, only the preface and the body of each one of the five books were scanned and saved as a word document in order to be computer-analyzed for future projects within the ACTRES research group (http://actres.unileon.es). The caption of figures was also enclosed but footnotes, tables and figures were not included as part of the corpus.

In the cleaning stage, I proofread the books and I wrote down some aspects that called my attention during the exploratory study. For instance,

- The instability of terminology proper of a recent scientific discipline as GE. In the Spanish books, a relevant example is the case of *genéticamente modificados* and *modificados genéticamente.* Both options appeared within the same book (in books 3 and 4 from table 4.1 above), which shows disagreement in the translation choice.

- ► *Preliminary research questions:* What would be the English term for both *genéticamente modificados* and *modificados genéticamente*? Would there be any reason that motivated the use of one over the other? What is the terminology proper of GE both in English and Spanish (e.g. acronyms, technical and semi-technical vocabulary? Do the terminologies differ from one language to another?

- Although the main focus of the exploratory study was on the Spanish language, we also examined the English book. The use of neologisms by means of prefixes (e.g. *bio-*) was also noted (e.g. *bioproduct, biocompany, superweed, superbug*).

  - ► *Preliminary research questions*: Will Spanish prefixes be as productive as English ones? Will English prefixes be translated into the same prefix since, for example, *super-* is not usually associated with Spanish scientific discourse?

- Both the English and the Spanish books employ popular science strategies for the reader to approach the text easily, such as the fact that the explanation of concepts is mixed with colloquial language,

  - Una mala hierba que no pueda *ser mantenida a raya* (Book 4, ch.6)
    Lit. trans. "a weed that can't be maintained as a line"
    [Meaning: A weed that can't be controlled]

  - Hierba *diabólica* (Book 4, ch.9)
    Lit. trans. "evil weed"

- The use of synonyms from different registers (e.g. cortar *rodajas* o *genes* de dos bacterias relacionadas entre sí, Book 4, ch. 1) and paraphrases through DMs (e.g. *that is, in other words*) were also noticed.

  - ► *Preliminary research questions*: What are the characteristics of popular science discourse? What detailed textual changes are made in the translated version compared to the English original, allowing, of course, for the obvious fact that a different language is being used (systemic contrastive differences)?

As a conclusion, the outgrowth of the exploratory experiment highlighted the enormous possibilities of investigating texts empirically with the help of CL methods and, in this respect, motivated the expansion of it into this PhD dissertation.

4.1.2. Pilot study

The steps taken at the time of conducting the pilot study are based on Biber (1992) and are illustrated below:

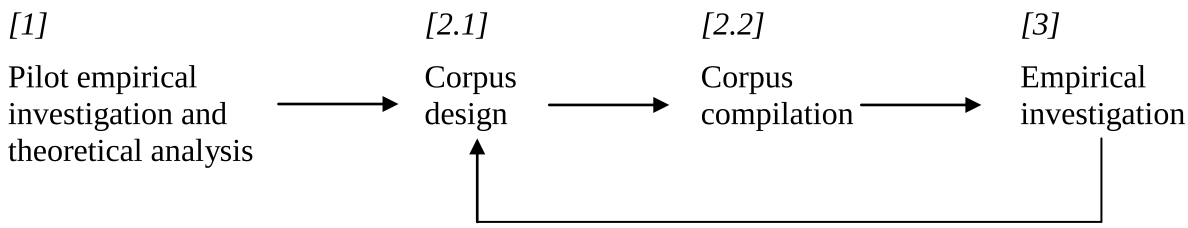


Fig. 4.2: *Corpus work procedure adapted from Biber (1992: 195).*

According to the numbers tagged in the previous figure, the exploratory study was followed by a pilot study *[1]*. For the corpus design of the pilot study *[2.1]*, we searched for every English popular science book on GE that had been translated into Spanish. Out of the 61 original English books on GE found in the market (see table 8.1.), only 16 books had been translated into Spanish (see table 8.2.), maybe because the reception of popular science books has usually been restricted on the part of the general reader:

> Science books have limited commercial success unless they are spin-offs from successful television series, or provide the basis for practical or social topics of great interest to the general reader (MacDonald-Ross 1987: 178).

Since the corpus design of a pilot study is still a bit unrestricted at this stage, only five English books out of the 16 pairs of original-translated books were selected for the pilot study. The issue of representativeness is not essentially relevant at this point, since a pilot study should be useful to check the feasibility of the experiment and to rehearse a small-scale version of the main research project.

In order to compile a portion of corpus *[2.2]*, we selected a chapter of each one of the five books. The books chosen for the pilot study are listed below (table 4.3).

After the small-scale compilation, we proceeded with the empirical investigation (3) in which examples of complex noun phrases, modality, informal and journalistic phraseology, and technical terms were noted down (see 5.1.). The empirical investigation was preliminary and makeshift but nevertheless revealing. It goes without saying that the results extracted from the pilot study cannot be extended to the whole corpus without drawing on a larger set of texts (the whole GE corpus). But what is necessarily relevant is that the findings of the pilot study suggested some research questions that were a good guidance to start writing the theoretical framework (chapters 1-3), and also helped to choose an appropriate research design and method.

Book	Author (s)	Publ. Yr	Title
1	Lambrecht, B.	2001	*Dinner at the New Gene Cafe: How Genetic Engineering Is Changing What We Eat, How We Live, and the Global Politics of Food*
2	Fukuyama, F.	2002	*Our Posthuman Future: Consequences of Biotechnology Revolution.*
3	Nottingham, S.	2003	*Eat Your Genes: How Genetically Modified Food Is Entering Our Diet*
4	Smith, J. M.	2003	*Seeds of Deception: Exposing Industry and Government Lies about the Safety of the Genetically Engineered Foods You're Eating*
5	Trefil, J.	2004	*Human Nature. A Blueprint for Managing the Earth-by People, for People*

Table 4.3: *Books used for the pilot study.*

For example, the pilot study revealed insights about the varying level of specialization from one book to another and the possible connection between translation and ideology. This last aspect we were oblivious of in the exploratory study. Another aspect that we were unaware of was the language variety found in the selected chapters (British and American English). The question of including the two language varieties as the ST or only one of them was raised at that time. But we decided to include both varieties because some authors who are non-native speakers of English have their books published by a British publishing house and some by an American one. Therefore, the criterion of language variety in the ST was not found significant to exclude one variety or the other but to consider both ST language varieties, since it is the translation to one single variety (Peninsular Spanish) the utmost objective of this study.

Based on these findings, the outcome of the pilot study made us redesign and readjust to new parameters valid for the whole data set (see 4.2.). Therefore, the pilot study results redirected us to repeat the cycle from *[2.1]* to *[3]* of Biber’s procedure. This way, results were useful for revising the corpus design *[2.1]*. Thus, books number 2 and 5 were left out but 1, 3 and 4 from table 4.3 above were gathered to be part of the final version of the GE parallel corpus that will be called, hereafter, *GE_P-ACTRES corpus*. Thus, the books employed for the pilot study were reduced to three. At the same time, results were also useful for finishing the main corpus compilation *[2.2]*, and finally for conducting the empirical investigation *[3]* of the main research project.

4.2. CORPUS COMPILATION: Design and alignment

A section on corpus linguistics will precede the parts devoted to the design and alignment. The extraction of keywords and terms benefits from CL methods, the analytical tool that helps the linguist analyze real examples of use generated from practice. The study of actual occurrences through corpora methods, the notion of corpus, its uses and limitations are some of the topics that are dealt with below.

4.2.1. An introduction to corpus linguistics (CL)

The emergence of CL has created new and exciting possibilities of linguistic research thanks to the development of computers. The technique to detect denominative variations and semantic prosodies in the GE corpus has been CL methods that aim at studying examples of authentic data, also known as *real life* language (McEnery and Wilson 1996: 2) or *attested language* (Sinclair 1991: 174). This entails working with collected data that comprise language in communication with a real communicative function. In other words, language in use can be understood as social –occurring in real context– and also as the study of relations of words and culture (Stubbs 2001: 5).

In terms of semantics, the study of real life language through corpora will show patterns that reveal lexicalized meanings (e.g. from dictionary definitions), but also new connotations and unrecorded signified emerging from diverse contexts of use that can escape careful and attentive textual perusal. According to Baker (1993: 177):

> [A]ll language is patterned, and that this patterning is influenced by the purpose for which language is used and the context in which it is used (Baker 1993: 177).

The study of language-in-use patterns makes CL represent a large, if not the major, empirical side of applied linguistics nowadays. When results are said to be empirical, that implies that they are determined by observation or documented experience. As Edo Marzá (2008: 50) put it, CL "uses an empiricist method consisting of the construction of knowledge through experience".

Although the concept is widely shared by the community of experts, the signifier *CL* does not satisfy the needs of all linguists. On his well-known website (see 7.2.), David Lee disagrees with the term mainly by two reasons. The first one is that the term is primarily used to mean *computational linguistics* and the second lies in the fact that it may imply a subdiscipline within linguistics rather than just a methodology/analytical tool that can be applied to any branch of linguistics. Instead, Lee suggests the expression *corpus-based linguistics*, so as to make emphasis on the linguistics side, not as much as on the technical part.

4.2.1.1. A historical overview of corpus linguistics

Compared with the traditional way of looking up a word in a dictionary, CL linguistics gave birth to a new approach in the linguistic arena that has helped to explore the question of meaning in a much broader sense. This new perspective has been developing over the years. Bravo Gozalo and Fernández Nistal (1998: 207-14) distinguish two distinct phases and describe them in detail: pre-electronic and electronic corpus stages.

4.2.1.1.1. *Pre-electronic corpora*

The pre-electronic corpus phase is a period dominated by American Structuralism in which relevant expressions were annotated in cards to make a grammar or dictionary according to a prescriptive point of view. It is interesting to note that the collection of flashcards was not primarily applied to the study of translation (Bravo Gozalo and Fernández Nistal 1998: 207) mainly because Translation Studies did not constitute a discipline as such until 1980's. In these authors' words:

> *Antes de la aparición del ordenador, un corpus era simplemente un conjunto de textos en fichas o papeletas que se iban elaborando de forma artesanal por los lectores, que anotaban las palabras, estructuras y expresiones gramaticales que consideraban interesantes en sus lecturas, juntamente con los correspondientes ejemplos que luego se utilizaban, principalmente para la elaboración de gramáticas o diccionarios, que naturalmente, lo que solían recoger era lo que se consideraba «el buen uso», tal como se reflejaba preferiblemente en los grandes escritores del pasado, los clásicos (Bravo Gozalo and Fernández Nistal 1998: 207).*

This quote indicates that the information contained in flashcards used to focus on the correct use of particular grammatical expressions. Within this framework, the term *machine-readable* was not implicit yet and data processing was not only time-consuming but also error prone (McEnery and Wilson 2001: 13).

Suffice it to say that at this stage it was not possible to check the exact frequency of all the grammatical structures that are more common or which utterances occur rarely in a given corpus just as we can do today in a matter of seconds with the help of software. The fact of dealing with printed text dominated this period predating 1950, which corresponds to what McEnery and Wilson (2001: 3) called *Early corpus linguistics* or the time before the advent of Chomsky.

A well-known reaction against empiricism of this period was Chomsky's rationalism, which mainly focused on the study of language competence, leaving the status of performance as a mere and poor reflection of language competence. The empiricist-rationalist clash originated a debate between language as a mental construct vs language in use, or to put it another way, artificial vs naturally occurring data, that is, premeditated examples vs *real* *life* examples that reflect current use whatever the period of time we are dealing with.

The major claims criticized by Chomsky concern the potential skewness and insufficiency of a corpus especially with regard to the study of performance and the issue of representativeness:

- *Performance:* According to Chomsky (1965: 3, quoted in Stubss 2001: 225), it is not worth studying performance inasmuch as it is affected by ungrammaticality of errors, chance, lapses or distractions. Instead Chomsky pleads for conscious, hypothetical, artificially-induced and introspective abstract examples to make a theoretical, cognitively plausible claim that is probably unobserved in real life language use (McEnery and Wilson 2001: 5). However, CL does study raw language output, and it empirically relies on evidence –language-in-use performance– in order to detect specific patterns of usage. At the same time, Chomsky also attacked the fact that it is not easy, even almost impossible, to detect ungrammatical or ambiguous sentences (McEnery and Wilson 2001: 12) unless the corpus is properly tagged (see 4.2.1.3.).
- *Representativeness:* Chomsky criticized corpus data by assuming that corpora are relatively small, in the sense of a small sample of a potentially infinite language (see 4.2.1.2.1.).

The major claim formulated against Chomsky on the part of corpus linguists is the use of intuition:

- *Intuition*: By using one's own intuition, an estimation can be made about the frequency of a word in a given corpus but we can never be sure of the estimation unless we observe the behavior of that word. Sinclair (1991: 112) argues that "the commonest meanings of the commonest words are not the meanings supplied by introspection". Examples based on introspection are usually grammatical but they have the peculiarity of not being plausible for a speaker to say on certain occasions. In Ferguson's words (2006):

  > Data of this kind then may be more suited, as generativists claim, to theorising about the nature of language and the human language faculty and less suited to describing language as used within a speech community (Ferguson 2006: 20).

This comes to say that *armchair linguists*, as Chomsky and others have been dubbed draw examples from intuition by taking words in the lexicon and creating sentences to illustrate their theories. The corpus linguist deals with words in use and analyzes their behavior in their own text (co-text) along with their context (e.g. speech community).

Intuition does not occur in social context but contains the adjective *introspective* implied in its meaning. An example of introspection was consulted by Costas Gabrielatos from Lancaster University (UK) through the CORPORA list (see CORPORA archives on Jul 18, 2008):

> *(1) If they want others to do it, I'll advise against their having children.*
>
> *(2) If they want others to do it, I'd advise against their having children.*

Participants were told to select one of the following:

> *A. Both sentences function as advice*
>
> *B. Only sentence (1) functions as advice*
>
> *C. Only sentence (2) functions as advice*
>
> *D. Neither sentence functions as advice*
>
> *E. I cannot tell out of context*

Both native and non-native speakers were welcome to participate although introspection (self-analysis), along with intuition (innate knowledge of one's own language), usually works more efficiently for languages in which the addressee is a native speaker. However, intuition should not be rejected (not even by non-native speakers) as invented sentences are not always disapproved of. Although lacking native intuition, corpus-based studies provide L2 learners with the possibility of checking and validating what they are learning. Intuition may be a good start that can be complemented by a corpus-linguistic study.

Yet Chomsky and Generativism conquered the linguistic ground, the fact that languages hold an infinite number of instances invalidated –just for a while– the notion of corpus as a representative entity of a given language variety. However, once a collection of texts can be called a corpus, McEnery and Wilson (2001: 32) argue that "there is a tacit understanding in which a corpus constitutes a standard reference for the language variety that it represents" (see 4.2.1.2.).

All in all, CL was never entirely abandoned at this stage as other researchers such as Quirk, Kučera, Svartvik continued to work with corpora. Although it was seriously damaged at the time, CL continued its way leaving criticism about intuition behind. It turned out, thus, that a corpus-based approach invigorated the discipline by offering a wealth of authentic examples that may otherwise be inaccessible to the conscious mind.

4.2.1.1.2. *Electronic corpora*

There are several periods in the electronic corpora stage: the precursors, the pioneers of the SEU and neo-Firthian schools.

Among the first precursors are Juillard and Busa. McEnery and Wilson (2001: 20-1) explain that Juillard coined the term *mechanolinguistics* to designate the study of corpora in the 50's, and that Busa's corpus on medieval philosophy was considered the first machine-readable corpus.

The next stage is represented by the *Survey of English Usage Corpus* (SEU), which is based at University College London (UCL). Quirk started working on the *SEU* back in 1959. Parallel to Quirk's work is the project of Brown University by Francis and Kučera, who compiled a million words of American English. Both the *SEU* and *Brown* projects contain printed-paper texts that were converted to electronic form comprising the first generation of current electronic corpora. Some other projects were pursued at this stage.

Firstly, Svartvik started the *London-Lund Corpus* of spontaneous spoken English (LLC) in 1975 and it constitutes the spoken part of the *SEU*. Secondly, Leech set off the way to the *Lancaster-Oslo-Bergen Corpus* (LOB) with the same design as the *Brown Corpus* holding a million words. Thirdly, Greenbaum gave rise to a number of projects, such as the 1-million word *International Corpus of English* (ICE-GB), which has been growing since 1989. These works set the foundations for the second generation of corpora: characterized by being megacorpora in terms of size. Within the SEU tradition, Leech started the project to build the megacorpus *British National Corpus* (BNC).

Apart from the *BNC*, the Neo-Firthian school gave birth to another important megacorpus, that is, Sinclair's *COBUILD* project. What should be noticed is that the neo-Firthian principles for corpus design were built upon the study of language from a social point of view by means of examining full texts and creating open-ended corpora. The SEU tradition relies upon "sampling and representativeness to construct a corpus of a set size, which, eschews the inclusion of complete texts within a corpus" (McEnery and Wilson 2001: 24). *LLC* contains 100 texts, each of 5,000 words, around 500.000 running words of spoken British English. The *Brown* and *ICE* corpora include 500 samples of about 2,000 words, and the *BNC* rarely contains complete texts (see 7.2.). Further information about all the aforementioned corpora is provided in McEnery and Gabrielatos (2006).

Nowadays, the use of corpora makes the adjective electronic or computerized implicit, due to the great development of Information and Communication Technologies (ICTs). Far from being an unmanipulable image, an 'electronic text' (see Hockey 2000: 1) is meant to be word-processed and exploited by computers. The computer boom made Chomsky's assumptions questioned and, by and large, the revival of corpus linguists brought about a multi-layered change especially regarding the following aspects:

- COMPILATION: Much larger corpora can be gathered than at the pre-electronic age, since the computational capacity of storage is much greater.

- PROCESSING: Data can be manipulated at high speeds. As data are electronic they can be updated regularly and are easier to consult and check than printed text.
- CORPUS EXPLOITATION: Corpus Linguistics has changed the way we compile and analyze data, since the terms *searchability, data retrieval, sorting, statistical calculation* and *taggability* are implicit by electronic means (see McEnery and Wilson 2001: 17).

These three stages –compilation, processing and corpus exploitation– are part of the main concerns that CL devotes its time to and, in that order, are integrated within the areas of corpus design, computational methods and tools to validate the accuracy of linguistic description. The combination of these aspects enables the researcher to obtain linguistic description so as to study the interaction between lexis, grammar and semantics (Stubbs 2004: 106). This interaction can be investigated inductively or deductively. This dichotomy brings about the distinction between *corpus-based* and *corpus-driven* respectively (Tognini-Bonelli 2001: 65, 84). Whereas the former fosters theory as a starting point, the latter departs from the notion of presupposing a minimum of theoretical assumptions by applying inductive reasoning based on observations. In both approaches, a corpus plays the role of a mediated element between the conceptual, theoretical or epistemological framework of the researcher and the object of study (Caravedo 1999: 93).

4.2.1.2. Corpus defining traits

A corpus is identified by a set of common characteristics. Bowker and Pearson (2002: 9) enumerate *authentic, electronic, large* and *specific criteria* as corpus defining traits. The first two characteristics have been mentioned above. The third one will be dealt with below (see 4.2.1.2.2.). And the fourth one will be examined here.

It should be borne in mind that any collection of more than one text randomly selected cannot be considered a corpus. For example, a group of texts eligible to form a corpus will not be considered as such unless there are some criteria or parameters that shape a set of research questions. This is the idea emphasized by EAGLES (European Advisory Group on Language Engineering Standard) (1996) and particularly by Sinclair:

> A corpus is a collection of pieces of language text in electronic form, selected according to external criteria to represent, as far as possible, a language or language variety as a source of data for linguistic research (Sinclair 2004a: 17).

This quote points at the fact that a corpus is built *ex profeso* to fulfill an aim, and that the researcher needs to take into account several pre-requisites when embarking upon building a corpus. The external criteria highlight a set of guidelines which specify encoding methods for machine-readable texts, chiefly in the humanities, social sciences and linguistics, and the usefulness of a corpus for linguistic purposes if it is built under two conditions. It must be *well-designed* and *carefully constructed*, characteristics that "may bring the language of the corpus closer to the language itself" (Sinclair 2004a: 1).

It helps not to have preconceptions when carrying out corpus analysis so as not to distort data results. Hence, John Sinclair put forward *the principle of minimal assumption* that postulates the avoidance of bias by taking into account only the ideas that lack influence in the research target (Teubert 1999: 8).

In order to build a corpus, you can compile one from scratch or collect data that already exist in electronic format. What is crucial is that it will not be possible to extract and analyze results unless the corpus has been compiled by means of a set of criteria that have also included the features of representativeness and size as central tenets of the corpus design stage.

4.2.1.2.1. *Representativeness*

The appropriateness of texts for inclusion is self-defined given that representativeness depends on the purpose of study (Sinclair 1991: 13-14). But there is one restrictive limitation to achieve representativeness: Language is an infinite entity. Suffice to say that a corpus will always be finite, even though considering it as an open-ended unit to which you can frequently add texts. Although corpora are cross-sections of a discourse universe (Teubert 1999: 4), representativeness is aimed at making sure that a corpus is a section of prototypical language that includes "the full range of variability in a population" (Biber 1992: 174) that is,

> sampled in order to be maximally representative of the language variety under consideration. However, the reader should be aware of the possibilities for deviation in certain instances from this 'prototypical' definition" (McEnery and Wilson 2001: 32).

Based on the quote, the main effort pursued should be to try to achieve the highest possible level of representativeness of the language variety under study in order to extract valid conclusions corresponding to the maximum full range of variability within a population (e.g. texts of the same genre, across genres, across language varieties).

Hunston (2002: 30) remarks that we will know how representative our corpus is only at the time of interpreting results. That is what leads Hunston (2002: 28) to suggest that compiling a representative corpus "inevitably involves knowing what the character of the 'whole' is".

4.2.1.2.2. *Size and balance*

Not only representativeness, but also size, is necessarily based on the aim of the linguistic study to be conducted. Although there are no fixed rules, Baker (2007: 31) asserts that “the more specific the use of language, the less need there is to collect millions of words”.

When the purpose is to build a corpus to study GL as a whole, then it should be as large as possible and subject to keep on growing (Sinclair 1987: 81). The biggest corpus is acknowledged to the *COBUILD project*, which stands for *Collins Birmingham University International Language Database*, but it is also known as *The Birmingham Collection of English Texts* or *The Bank of English* (BOE). It comprises c. 650 million running words as stated in 2012 so that it can be considered a *reference corpus*. The director of this project was John Sinclair (1996), who described it as a *monitor corpus*, since it includes different texts to monitor language over time. The 100-million-word *British National Corpus* (BNC) (1980-1993) and the 450-million-word *Corpus of Contemporary American English* (COCA) (statistical figure from summer 2013) also work as an encyclopedic corpus. The bigger the corpus is, the more difficult it is to handle and the more space there is for multiple research questions.

When it comes to LSP corpora, Bowker and Pearson (2002: 48) recommend that well-designed corpora can range from about ten thousand to several hundreds of thousands of words in size. Along with the issue of size it is balance. It may be not appropriate to take an excerpt from a text and compare it with a whole complete and larger text. Therefore, it seems useful to compile full texts so as not to eliminate relevant LSP concepts at random. Hunston (2002: 28-30) suggests very careful planning to ensure balance through the following ideas:

- Break down the corpus into parts and try to include equal amounts of data in each part.
- Include an equal amount of tokens in each part, or gather more tokens for one of the parts based on meaningful criteria, which is different in every study. Hunston (2002: 28) puts the example of studying tabloid and broadsheet newspapers. The larger the readership (e.g. tabloid readers outrank broadsheet newspaper readers), the larger the amount of tokens from tabloids should be included in the corpus. Or the more tokens a genre contains, the more tokens from broadsheets will be contained the corpus (e.g. broadsheets usually have more words as a whole than tabloids). A balanced criterion would be to include issues from both publications from a given week or month (ibid).

It may be argued that the issue of size could be sorted out a bit more easily when we are dealing with a specialized corpus, owing to the fact that the size of it is usually smaller taking into account that there are not as many tokens to include as in a general corpus.

4.2.1.3. Optional annotation ('mark-up')

Apart from the compulsory features of representativeness and size, there are a number of optional aspects, such as annotation, so as to be able to make more sophisticated searches. Corpora can be analyzed as raw text or can be annotated with a code that mediates between the speaker and the receiver linguist. Annotation is maximally useful particularly for major corpora. A tagged corpus is valuable in order to investigate homographs or word categories (e.g. all nouns) rather than individual words in a corpus (Bowker and Pearson 2002: 90). In other words, concrete annotation decodes the information implicit in a raw text (McEnery and Wilson 2001: 32). There are at least three types of annotation: Textual mark-up, tagging and parsing.

Annotation	*Tagging*	*Software*	*Software products*
Textual mark-up	Structural	Word processor	Microsoft word, Oxygen XML Editor
POS	Wordclass	Tagger	TreeTagger, CLAWS, TAGGIT
Grammatical mark-up	Syntactic	Parser	TOSCA
Others *e.g. Semantic analysis of texts*	Semantic	Tagger	USAS

Table 4.4: *Different types of annotation, their tagging and examples of required software.*

4.2.1.3.1. *Structural mark-up (textual mark-up)*

Since a great number of corpora (e.g. BNC) are annotated, their format is usually XML, instead of plain text format, due to the fact that the former allows for metadata encoding. This form of annotation is actually a type of code inserted into the text. The code consists of different tags that correspond to appearance (i.e. bold type, 12 font) and external text structure (i.e. header [author, year of publication], body [line, paragraph]). This information is added to the *American Standard Code for Information Interchange* or ascii format (.txt) documents so that they can be passed from one computer to another without losing the original textual appearance. The Text Encoding Initiative (TEI) is in charge of designing guidelines which specify a set of codes for texts in the humanities, social sciences and linguistics to be machine-readable (http://www.tei-c.org/index.xml). Mark-up languages use a set of codes in different ways giving birth to SGML, HTML or XML metalanguages.

The Extensible Markup Language (XML) is "increasingly the medium in which text is derived for translation and in which translation resources are shared" (Hartley 2009: 108). The structure and syntax of an XML or SGML document is expressed in the Document Type Definition (DTD) by means of different tags given in angle brackets (e.g. <html>, <head>, <title>, </title>, </head>, <body>, </body>, </html>). By *extensible*, we mean that an xml file allows new tags to be incorporated after the xml is created (Hockey 2000: 37).

In this study, it is useful to have marked up the beginning (<s>) and end of sentence (</s>), so that the popular science books are ready for the aligning software. The books need to be converted into word documents (e.g. word processor) and edited by mark-up language editors (e.g. Oxygen XML editor, WordPad) so that the aligning software distinguishes sentence breaks and starts matching pairs of sentences. An example from our corpus is <s TEIform="s" id="BL1E.s1" part="N">LAMBRECHT, Bill (2001).</s>.

4.2.1.3.2. *Part of Speech mark-up (POS, wordclass tagging)*

This type of annotation assigns a wordclass tag (e.g. noun, adjective, verb) to each word based on the part of speech (POS) that lexical entities play according to their context (e.g. 'swell' as a verb, noun or adjective). Taggers are the programs that insert the POS tags and, the tagset is the group of symbols representing the various parts of speech. Taggers usually work semiautomatically and editing is required. However, technology evolves fast and the most sophisticated taggers work automatically on a probabilistic basis to an accuracy of more than 90% (Bowker and Pearson 2002: 88). The CLAWS program is a well-known automatic tagger.

POS mark-up is useful when conducting grammatical as well as lexical analysis of corpora. The 100 million-word *Corpus del Español* (CdE) is the first large and tagged corpus of Spanish (see 7.2.). Through POS, it may be of relevance to study that in some registers a noun accompanied by a support verb turns out to be more frequently used than the full verb (e.g. *to take a risk* rather than *to risk*, see Sinclair 2004c: 43).

4.2.1.3.3. *Grammatical mark-up (syntactic parsing)*

Grammatical mark-up inserts labels or tags to grammatical structures above word level (e.g. clauses, phrases, constituents). In this case, a parser performs this undertaking. Automatic parsing programs generally have lower accuracy rates than POS taggers. It may be due to the fact that the structural analysis and assignment of a hierarchical structure to a sentence can be a complex task. A well-known parsing program is the TOSCA parser used to mark-up the ICE-GB corpus.

4.2.1.3.4. *Other forms of Annotation*

There is also semantic tagging, which is "a piece of software that attaches codes to words based upon their semantic function" (Baker et al. 2006: 145). As an example, UCREL Semantic Analysis System (USAS) assigns tags to disambiguate word senses.

Different from verbal annotation, the emergence of oral and multimodal corpora raises a number of questions regarding the transcription of paralanguage. Separate labels must be created to indicate [laughter], [pauses], [silence], [gestures], [intonation] or [overlapping].

There are some linguists in favor of keeping annotation to a minimum, especially regarding general purpose or generic corpora in corpus-driven studies (Sinclair 2004c), since there are grammatical categories subject to diverse expertise opinions. Another reason for opponents of annotation is the gain in generalization at the expense of a loss of distinctiveness. For example, nouns such as *boy* and *brat* are enriched by the [noun] tag, but aggravated by a loss in their individuality (Sinclair 2004c: 52-3). Not also does annotation fall in the province of the research study being conducted, but also every aspect of the corpus design including the different kinds of corpora.

4.2.1.4. Types of corpora

It should be agreed upon that the term *corpus* is gradually changing since it was first conceptualized as cards, then as electronic verbal texts and recently, paralanguage from sound and images can also conform a corpus.

The variety of corpora serves a variety of purposes. There are several parameters to classify corpora, at least, the textual mode, number of languages employed, level of specialization, language evolution, absence of representativeness and virtuality. Examples of corpora for every criterion are illustrated in the following table:

Criteria	**Types of corpora**		
Textual mode	Written	Oral	Sign language
	e.g. Brown corpus	*e.g. MICASE*	*e.g. BSL*
Languages employed	Monolingual	Bilingual/ Multilingual;	Parallel/Comparable
	e.g. BNC	*e.g. GE corpus*	*e.g. COMPARA*
Level of specialization	Reference corpora (GL)	Specialized corpora (LSP varieties)	
	e.g. COBUILD	*e.g. CLEC, learner corpus, lingua franca*	
Language evolution	Synchronic	Diachronic	
	e.g. CREA	*e.g. CORDE*	
Absence of representativeness	Opportunistic or cannibalistic corpus		
Virtual	The Internet		

Table 4.5: *Different criteria to classify corpora*.

Taking into account the textual mode, corpora can be written, oral and visual (e.g. sign languages). Written corpora can comprise texts from different modes although it may be labor-intensive to record, transcribe and digitize speech into written form. For instance, *The British National Corpus* (BNC) combines already 90 per cent written-mode texts and 10 per cent transcribed oral recordings of British English converted into written form (Leech et al. 2001: 1).

Oral corpora are proliferating rapidly, such as the *Michigan Corpus of Academic Spoken English* (MICASE), *Oral Reference Corpus of Contemporary Spanish Language* (CORLEC) and *Oral Corpus of Romance Languages* (CORAL) run by the University Autónoma de Madrid (UAM). MICASE transcribes verbal and non-verbal speech into written form including paralanguage and specific phonetically transcribed utterances. A number of transcribed oral corpora are built for the study of pathological patterns in spoken natural language. As an example, *Perception and Aphasic Language* (PerLA) is a corpus compiled with the aim of examining cohesion and variations in aphasic language behavior (see Gallardo Paúls 2004).

Sign language corpora are a relatively recent phenomenon. A representative example is *The British Sign Language Corpus* (BSL) that is being developed at UCL, Bangor, and other UK universities. They are working with video of sign language discourse and transcribing some parts into English. When a corpus combines more than one mode (e.g. written and visual), the mixture is called a multimodal corpus (see Baldry and Thibault 2009).

A mixture of textual modes is known as multimodal corpus. A study (Satar 2010) about the social presence in online multimodal communication has been the framework to analyze online interactions between language learners.

Moving on to another criterion –number of languages–, CL was initially focused on monolingual corpora (Anderman and Rogers 2008: 14). Monolingual megacorpora can monitor language diachronically (e.g. *CORDE*: historical Spanish) or synchronically (e.g. *CREA*: modern Spanish), both from the Real Academia Española (see 7.2.). Albeit the majority of corpora (e.g. those compiled for PhD theses) are static; that is, corpora are usually designed to study language synchronically giving a snapshot of language use at a given time.

As for more than one language, corpora can be *parallel* or *comparable*. Baker (1995: 230-5) distinguishes between *parallel*, *multilingual* and *comparable*. For translation purposes, the first one is the most common idea of what a corpus is used for. It refers to original STs in one language and their TTs into another (Baker 1995: 230). The second one consists of more than one collection of texts in several original languages, with the objective to investigate similar linguistic features across languages (Baker 1995: 232). The third one comprises two sets of texts in the same language: original STs in language A and TTs in language A, whose source is a language B or other languages except A (Baker 1995: 234-5).

In this dissertation we have adopted Baker's definition (1995: 230) of *parallel corpus*. In our case, English original texts about GE were selected along with their equivalent TTs into Spanish. Our corpus is unidirectional. An example of a bilingual and bi-directional (English-Portuguese, Portuguese-English) parallel corpus is *COMPARA*, which is searchable online and encompasses texts from different literary authors (Frankenberg-Garcia and Santos 2003).

We should not confuse *parallel corpus* with *translation corpus.* A *translation corpus* comprises only the translated versions of the very same text in several languages without including the source text. Laviosa (2003a: 106-7) distinguishes two types of translation corpus: *monolingual comparable* and *bilingual/multilingual* (either *parallel* or *comparable*).

The former consists of two sets of texts in one language: set A are originals and set B are translated texts (Laviosa 2003a: 107). This definition is equivalent to Baker's *comparable corpus* (1995: 234).

Within the latter, Laviosa (2003a: 106) differentiates between *parallel* and *comparable.* A parallel corpus can be bilingual mono- (e.g. our corpus) or bilingual bi-directional (e.g. *COMPARA*). A bilingual comparable corpus is understood as a two collections of original texts in two different languages gathered on identical criteria (Laviosa 2003a: 106). This is what Mona Baker (1995: 232) called *multilingual corpus*.

Since the concept of *comparable corpus* may appear to be blurry, the following table clarifies the different definitions that we have just seen in the previous paragraphs:

Linguist	*Type of corpus*	*Texts (no mutual translations)*
Baker (1995)	Comparable corpus (= Laviosa 2003a Monolingual comparable)	ST → L1 TT → L1
Laviosa (2003a)	Translation corpus: Monolingual comparable	ST → L1 TT → L1 (mono-SL, multi-SL)
	Translation corpus: Bi-/multilingual comparable (Baker 1995 Multilingual corpus)	ST → L1 ST → L2

Table 4.6: *Types of comparable corpora according to Baker (1995) and Laviosa (2003a).*

Another criterion is the level of specialization. There are two main types referred to as *heterogeneric* (GL) or *monogeneric* (LSP) (Partington 2006: 3). The former, representing GL, is mainly compiled in the form of reference corpora by means of collections of standard language (e.g. *BNC*, *The Bank of English* (COBUILD), *Brown Corpus*). Because of their size, they can provide insights into regular patterns of English usage not so apparent to native-speaker intuition.

The latter stands out for every text that deviates from the general-purpose language and is known as specialized corpora, which are usually smaller than reference corpora (see 4.2.1.2.2.). In chapter 2, we examined that there are diverse levels of expertise corresponding to different levels of LSP. They are more *ad hoc* corpora than GL megacorpora. According to Bowker and Pearson (2002: 12), LSP corpora can also include texts of a given subject field, specific genres, a particular language variety or the language used by members of a certain demographic group (e.g. *COLT* corpus: teenage language). As for our topic of GE, we can mention a homemade corpus on biotechnology in French to be used by native English-speaking students (see Rodgers et al. 2011).

When GL is used in a specific context (e.g. learner corpora), the corpus can be considered a special target. For example, *CLEC* is a 1-million word learner corpus of written compositions collected from Chinese students of English at different proficiency levels. Leedham (2011) compares a corpus of Chinese students' assignments (L2) with a corpus of texts from first language (L1) English students. A new release in 2009 is the *Vienna-Oxford International Corpus of English (VOICE) 1.0 Online*, a corpus of transcriptions of spoken English as a lingua franca (ELF). It was created by Barbarba Seidlhofer and her team, and is now available (https://www.univie.ac.at/voice/page/corpus_availability) and free-of-charge. It goes without saying that results obtained from LSP corpora cannot be extrapolated to make observations about language in general (Bowker and Pearson 2002: 12).

The last criterion to be discussed is the absence of representativeness and balance. The opportunistic or cannibalistic corpus is based on the notion that there is no need for this corpus to stand out for a variety of language but rather include as many texts one can do with still a clear purpose of study. The largest opportunistic corpus is being implemented in Mannheim at the Institut für Deutsche Sprache (Teubert and Čermáková 2004: 121).

The accumulation of unbalanced empirical data is also the defining characteristic of a virtual corpus but in this case without any criteria at all (e.g. neither purposefully collected nor structured). Kilgarriff is one of the main advocates for the Internet as a corpus, since it is a free resource and instantly available (Kilgarriff and Grefenstette 2003: 333). The Internet functions as an immeasurable warehouse of information fraught with very diverse genres whose quality differs greatly from one another (Fernández Nistal and Bravo Gozalo 2005: 102). It has the advantage of being multilingual, but the issue of representativeness and reliability may make researchers not consider it as such. When forging a corpus from the Internet, one of the first hurdles encountered is the difficulty to select quality texts that will guarantee valid and compelling results. In order to guarantee text quality, researchers should question how the sample was obtained and assess whether this is likely to have a bearing on the validity of the conclusions reached.

4.2.1.4.1. *Parallel corpora*

From all the corpora mentioned above, the two most relevant to translation studies are parallel and comparable. A parallel corpus can also be called a *bitext* (Harris 1988: 8), that is a text and its translation as being two sides of the same coin.

It was mentioned above that there is disagreement in the way researchers name this type of multilingual corpus. There are two other specific variants within the category of parallel corpus that were discussed above under a different name. These are a *star corpus* and a *reciprocal parallel corpus*.

A *star corpus* is made of one original and, not only one, but many translations (Bernardini et al. 2003: 8). For example, Malmkjær (2003) compares one original literature piece with several translations. A similar conception is the *reciprocal parallel corpora*, which coincides with Baker's notion of parallel corpus. Unlike some corpora that do not include the ST, the reciprocal parallel contains both ST and their TT for all the languages included (Teubert 1999: 6, Teubert and Čermáková 2004: 122).

In the practice, a parallel corpus is particularly useful in translation studies since,

> Choices in translation, as reflected in parallel corpora, may be studied to reveal translation strategies and their effects (Olohan 2004: 24).

In other words, it is a way for researchers to see how translators overcome difficulties (Baker 1995: 231) and how an idea is conveyed from one language to another (McEnery and Xiao 2008: 22).

To exploit a parallel corpus at its best (e.g. finding translation equivalents) it needs to be aligned. Without the benefit of alignment, in a more than a million word corpus, the researcher will be wandering aimlessly. A corpus can be sentence aligned or word aligned, being the latter even more time-consuming than the former. For the sentence alignment, it is necessary to identify sentence endings, and also to bear in mind that one sentence in one language can correspond to two in another one. The statistical algorithm of aligning software is primarily based on cognates, word-pairs (anchor list) and the relative length of sentences and words of both the ST and the TT.

It should be noticed that there is not any parallel corpus exclusively on highly-specialized scientific English publicly available yet. The first "carefully designed and substantial corpus of scientific English" (Swales 2004: 6-7) was undertaken by Huddleston, Hudson and Winter in 1971. It contained 135,000 words belonging to physics, chemistry and biology from high-level texts (e.g. specialist journals), mid-level texts (e.g. undergraduate textbooks) and science texts addressed to the educated layperson (e.g. *Scientific American*, *New Scientist* and *Discovery*).

There is a new parallel corpus CLUVI from *Corpus Lingüístico da Universidade de Vigo* (http://sli.uvigo.es/CLUVI/index.html). This archive contains several types of corpora: literary, legal, tourism and popular science. (http://sli.uvigo.es/CLUVI/index_en.html#correo). The popular science corpus is made up of 32 texts by UNESCO and was aligned in four languages: English, Galician, French and Spanish.

Other examples of LSP corpora are the *Canadian Hansards*, *LOGON* and *ENPC*. In particular, the *Canadian Hansards* are an example of naturally occurring parallel corpus. The Linguistics Data Consortium (LDC) indicates that the application of parliamentary sessions is employed to train French-English machine translation programs. The *LOGON* corpus is a bi-directional parallel tourist corpus of Norwegian-English texts, whereas the *ENPC* (English-Norwegian parallel corpus) contains two sections, one entitled as *fiction*, the other one as *non-fiction* (see Johansson and Hofland 1994). In the latter, there is a part about science where you can search by genre. However, none of them exceeds 5 million words.

It is also important to recognize the weaknesses of parallel corpora for translation studies, since TT may be influenced by ST features, own individual introspection, the translator's view about the topic and *translationese*, that is, translator's lack of communicative competence in the TL (Baker 1993: 249). These influences primarily concern lexical co-selection; hence, collocational errors may be the overall result of SL interference. In this sense, co-selection coming from intuition can be reinforced and checked through CL methods. The potential weakness of parallel corpora may satisfactorily be compensated by comparable corpora. Hence, Bernardini (2005: 6) claims that both parallel and comparable corpora are two paradigms that should be considered together in order to capture and explain the complex nature of translation, since both types of corpora provide "insights that are not likely to be gained via the study of monolingual corpora" (McEnery and Xiao 2008: 14).

4.2.1.4.2. *Comparable corpora*

Apart from parallel corpora, another way to enrich and widen our knowledge of the features of translation is by analyzing comparable corpora. They are referred to as paired texts aimed at conducting contrastive analysis, since they share a common subject matter, genre and register without being mutual translations. In contrastive studies, similarities and differences are mapped between languages, thus, the application of a contrastive analysis can be applied to the teaching of foreign languages and also to validate translators' lexical choices extracted from a parallel corpus. These ideas are summarized below:

> While the components of a comparable corpus overcome translationese by populating the sample frame with L1 texts from different languages, they are less useful for the study of how a message is conveyed from one language to another (McEnery and Xiao 2008: 21).

Unlike parallel corpora, which need to be aligned in order to be maximally useful, there is no technology capable of aligning comparable corpora for the moment. The quotes emphasizes that the only constraint that can be encountered is that the terminology, phraseology and other linguistic matters of a certain parallel text may not be found in a particular *ad hoc* comparable corpus, and that there may be no connection between difficult-to-find concepts in the two languages.

The examination of different types of corpora will lead in the next section to how the uses of corpora can enhance linguistic research.

4.2.1.5. Uses of corpora

The use of corpora can help overcome some of the shortcomings encountered at consulting traditional resources, since corpora can provide more contextual clues than conventional dictionaries (e.g. how phraseology works). A corpus is a tool for linguistic inquiry but also for conceptual and ontological knowledge (Bowker and Pearson 2002: 32).

Among the uses in different areas, Partington (1998: 2) enumerates some of the main fields of corpus-based linguistic analysis: Forensic linguistics, historical studies, lexis, syntax, text, spoken language, register studies and lexicography. From all of them, this section will focus on three large areas: (i) lexicography, (ii) grammar, discourse and genre, and finally, (iii) translation studies.

4.2.1.5.1. *In lexicographic research*

The lexicographic output of language description through CL is embodied in the classification of grammatical patterns (e.g. grammar handbooks) and the compilation of lexicon (e.g. dictionaries, thesauri, ontologies). GL lexicographic research centres on the study of the whole variety of a language rather than a single text, author or language variety.

In terms of size, GL corpora designed for this type of research are megacorpora, which imply that on some occasions, it is it not feasible to analyze every single utterance and, therefore, random sampling seems to be the best option. Some studies take the first 50 or 100 occurrences to be analyzed, but it would indeed be less biased to find software that can select these occurrences at random. The parameter of size is especially relevant for lexicographic studies, particularly in the case of examining infrequent occurrences.

Nowadays, when dictionary companies update the content of their dictionaries it is frequently due to the help of a *monitor corpus*. This kind of corpus documents language change owing to an open-ended policy of the corpus texts.

4.2.1.5.2. *In researching grammar, discourse and genre*

Apart from dictionaries, CL focuses on grammar, discourse and genre studies. Although dictionaries can account for the meaning of words, they usually lack idiomaticity information. Idiomaticity can be observed through the use of corpora, as shown in the following studies:

- *Grammar:* If we compare the use of *almost* against *nearly* in the *WordBanks Online - Collins*, *almost* is much more frequent (15,536 occurrences) than *nearly* (6,666 occurrences). Whether or not this difference in frequency is significant, this result suggests that *nearly* may be a more restricted and specialized word than *almost* (Kjellmer 2003: 20).

  In another insightful study about conditional sentences uttered in a medical context, it was proved that only 18% of them coincided with the three conditionals shown in the EFL pedagogical grammars (Ferguson 2001: 69). In this way, CL gives evidence of how productively we use language.

- *Discourse:* This refers to whether a word is more frequent in, for example, written than spoken discourse (e.g. *boring* vs *tedious*) or if a certain word is more likely to be encountered in female or male speeches (e.g. *lovely, darling, cool*). The variety of discourses that CL embraces is ranging from general language features to the study of hip-hop lexicon, interlanguage or the issue of authorship in forensic linguistics or in political discourse.

  CL linguistics can also teach us about the organization of discourse. Hoey (2007: 38) compares numerals such as *sixty* and *sixty percent* found in newspapers as a natural habitat. Results reported that the word *sixty* occurs both at the beginning of a sentence and of a text. However, *sixty per cent* is a more specific expression that is primed in our mental lexicons to avoid sentence-initial position. It seems that the more specific a word or phrase is, the more restrained it is to appear freely in text organization.

- *Genre or text type preference:* Kjellmer's study (2003: 21) shows that *almost* prefers literary styles of writing (US and UK books both fiction and non-fiction, UK *The Times* newspaper) and avoids more popular genres (UK *The Sun* newspaper, US and UK ephemera (leaflets, adverts, etc.), US ephemera, UK transcribed informal speech). *Nearly* is more strongly favored in the news media (NPR: US *National Public Radio broadcasts*, The BBC, US *USA Today* newspaper). Neither of them is used much in spoken British English (UK transcribed informal speech).
- *Collocability:* Not all bilingual dictionaries bring useful information about collocability. Back to Kjellmer's study (2003: 24), results conclude that adverbs, adjectives, pronouns and prepositions are typical post-occurring collocates of *almost* (e.g. almost always); whereas nouns and numerals are typical post-occurring collocates of *nearly* (e.g. nearly twice).

  In conclusion, these four points can be interpreted as interrelated. *Nearly* occurs more often in the news media, where precision and factual information are more focused than in literary styles. *Almost* is to some degree specialized in that it is preferably used to modify precise figures. However, speakers of English can consider these 'next-to-interchangeable synonyms' that may overlap due to different idiomatic uses.

4.2.1.5.3. *In translation studies*

The use of corpora in translation studies is a relatively new phenomenon whose first advocate was Mona Baker in 1993 (Olohan 2004: 13). Parallel corpora are used to:

- Study the translating process and to evaluate translation choices. Empirical results show that *translationese* is a common feature of TTs (Baker 1993: 175), that is, a translation is influenced by the SL.
- Discover that "the patterning of translated text must be different from that of original text production" (Baker 1993: 177).
- Not only parallel but also comparable corpora may offer a wider inventory of choices than a single translator or a dictionary is likely to come up with.

Given these reasons, corpora are used to teach language, since foreign/second language teachers can extract which vocabulary and grammatical structures are widely used in specific registers. Based on one's own experience, *ad hoc* corpora are less used by professional translators, and translation memories seem to be the preferred option, which are at the same time a type of parallel corpus. The texts produced by translators can be stored and aligned with their correspondent ST segments or translation units (usually sentence-length segments), and the result is a translation memory (TM). Yet, some genres seem to be more adaptable to TM than others (Austermühl 2001: 139). A TM works as a very useful parallel corpus to study lexical searches, such as the word *tela* in Spanish that can be rendered by *cloth, material* or *fabric* in English. However, a TM does not need to make use of any other concondancer as TM systems usually include a built-in concordancing function (e.g. *Trados Translator's Workbench*).

The descriptive nature of CL has contributed to complement Descriptive Translation Studies (DTS). Since DTS ultimately aims at finding norms of translation (Toury 1995), CL can test regularities –translation universals and other recurrent linguistic features– and also parameters, such as acceptability, translator strategies and translator style in the TT. The studies that aim at testing features of translation can be considered corpus-based rather than corpus-driven. The results of any translational corpus-based study are to the advantage of translator education and training, as the contextual information that corpora provide can be used to build glossaries and to develop terminology. The applied branch of TS corresponds to the eastern node of Holmes' map (1972/2005) (see fig. 3.21). The applied studies refer to translation training, translation aids and translation criticism. Albeit it has been agreed that the scope of TS has trespassed Holmes' three-branched scheme, in fact, that scheme serves as a guide to understand the basis of TS.

In order to build glossaries and to develop terminology, the use of computers has become a by-default device within the applied branch of TS and in today's translation world:

> For translators there is no longer any question of whether or not to use computers and networks. The use of information and communication technology (ICT) is a *fait accompli* in the lives of today's language professionals (Austermühl 2001: 7)

The use of numerous electronic tools is what makes the discipline of TS dynamic and, as a result, different applications have emerged based on the use of corpora. This part brings up the following question: What can be done with corpora in translation that could not be done before? Corpora in TS have served advantages such as:

- A fast searching and access to texts and a semiautomatic extraction of source terms matched with their translated equivalents in a matter of seconds. This means that corpora are queryable.
- Recent general-language dictionaries illustrate their entries with up-to-date examples based on corpora. They are not any longer implausible examples or sentences that are not applicable to real life, such as the so-called *My tailor is rich.*

- Dictionary entries can enhance their lexicographic information owing to the insertion of phraseological combinations. L2 learners become proficient when they are in command of collocations (see the *idiom principle* in 3.2.1.2.).
- Translation universals can be identified in a whole corpus, not just in a small set of texts selected by hand.

These advantages have been possible thanks to the many applications of the use of corpora in monolingual and bilingual studies, *inter alia*, corpus-based TS, mining terminology, creating authoring, Machine Translation systems and Machine-aided translation tools.

4.2.1.5.3.1. *Corpus-based TS*

Thanks to the advent of corpora, the merging of TS and CL methods is currently called *corpus-based translations studies* (Baker 1996: 175). It is an area that was inaugurated after the monolingual study conducted by Sinclair (1991: 2). Later, the interest for studying TTs with the help of corpora bloomed, first in literary texts (Ahmad and Rogers 2007: 15).

Regarding corpus-based studies with parallel corpora, the main disadvantage of working with parallel texts is that TTs may be imbued with translationese (Doherty 1998: 235, quoted in Olohan 2004: 29) and, in those studies it would be more useful to look for certain patterns, ideology, universals and norms among other aspects.

Although comparable and parallel corpora were already discussed above (see 4.2.1.4), it is worth commenting on some remarkable corpus-based studies, such as Kenny (2001). This author investigates lexical normalization as a possible feature of translation in a purpose-built *German-English Parallel Corpus of Literary texts* (*GEPCOLT*). The texts were scanned, digitalized and aligned.

Translators tend to rely on target language resources when unconventional and register-specific sentences appear on the STs (Kenny 2001: 111). In the data analysis, Kenny (2001: 142) explores the question of *hapax legomena* –lexical items that only appear once or just a few times in the corpus– and divides hapax forms into two categories: existing forms with a new orthography and new coinages (e.g. derived forms, compounds and complex verbal nouns). As an example of compounds, Kenny examines the adjective *–freundlich* (-friendly) that is combined with a variety of nouns such as *Familienfreudlich, Chirac-freudlich, bananenfreudlich* (family friendly, Chirac-friendly, banana friendly, respectively).

Semantic preference and prosody are also investigated. The results show that the compound *X-friendly* has a similar semantic preference both in German and English (Kenny 2001: 169), and a comparison with the *BNC* confirms that the semantic preference of the *X-friendly* compounds is attached to topics like environment, consumers goods and music journalism (e.g. television-friendly) (Kenny 2001: 170).

As for semantic prosody, *X-friendly* is associated with good, beneficial and not damaging situations, both in the *GEPCOLT* and the *BNC* (Kenny 2001: 167). It is worth commenting on three findings out of the study of semantic prosody of *stink* and *freundlich*:

- Semantic context: Different occurrences with *stink* –usually employed pejoratively in spoken discourse as an adjective intensifier– were consulted in the *Manheim Corpora* as to corroborate the negative context predicted to be embedded in. Some of the compounds from *The Manheim Corpora* were found to belong to political discourse (e.g. *Stinkbourgeois*, *Stinkkonservativ*, *Stinkreaktionär*), giving a negative view of politics (Kenny 2001: 172).
- Semantic transfer: Other lexical items, such as *richness*, are less obvious to spot as positive or negative. The negative load in which *stink* is imbued passes onto *richness*, offering a negative evaluation of *richness* (Kenny 2001: 172).
- Semantic clash: There is a number of *clashes of prosodies*, when nouns like *stink* co-occurs with positive *-freundlich* (e.g. *ein stinkfreundliches Lächeln*). Interestingly, the English translation *–a super-friendly smile–* is preceded by *–super*, a prefix that tends to qualify positive adjectives (Kenny 2001: 173).

4.2.1.5.3.2. *Mining terminology*

It is the process of extracting terminology from monolingual or parallel corpora (Hartley 2009: 113). Terminology is exploited descriptively for the use of the translator, since

> The domain expert does not generally need, for instance, information on the linguistic characteristics and behavior of the term, whereas this is essential for the translator, particularly in the target language (Ahmad et al. 1994: 269).

According to Hartley (2009: 112-3), the exploitation of corpora provides the extraction or mining terminology in at least three specific processes: identifying, organizing and presenting terms to users. The identification of terms can be extracted out by commercial software (e.g. *SDL Multiterm 2007*) that is generally used by language service providers (LSPs). Hartley (2009:

113) explains that the identification process usually combines a device that detects part-of-speech tagged data in order to identify patterns (e.g. N + N, N + V, V + Adverb), and also, statistical approaches detecting words that are likely to occur more often than predicted by chance.

Hartley (2009: 114) continues to explain that the bilingual term extraction is carried out by identifying candidates separately, first from the ST and, then, from the TT. After that, potential candidates are paired up based on statistical approaches without necessarily having the pairs previously aligned. Once a list of candidates is generated by *Multiterm*, a bilingual term record shows on the screen to be completed and saved as a new entry that will be successfully added to the database.

The organization of terms is usually stored in databases. It is possible to transfer the database into a word processor and then print them out. The storage of terms (e.g. term banks) is particularly useful for the translator for two reasons. One is descriptive, that is, the discovery of "true 'meaning potential' of terms (as realized in texts)" from attested data (Ahmad et al. 1994: 275). Terminological description should go beyond a mere list of terms and include their linguistic behavior (Ananiadou and McNaught 2005: 5). The other one is normative for being a useful source of conceptual understanding and structure of a specific domain (Ahmad et al. 1994: 275), since the documentation phase and comprehension of the text is a pre-requisite on the part of the translator.

Therefore, mining terminology encourages *creating authoring,* such as field diagrams, glossaries, term banks and dictionaries for a better understanding of the subject field. This way, information from mining either monolingual or bilingual parallel corpora is reused to create own documents that can be stored in *Content Management Systems* (CMS). An example of a CMS can be a website that can manage content such as glossaries, excel spreadsheets, but also, audio and video files.

4.2.1.5.3.3. *Computer-Aided Translation Tools (CAT)*

Computer-aided translation (CAT) tools usually include alignment functions along with concordancing and term extraction devices. The use of aligners is both for academic studies and commercial translation. The latter counts on aligners that produce Translation Memory (TM) files. A TM is a resource to improve productivity at the translating process (Hartley 2009: 112), that is, to avoid translation from scratch.

For example, *SDL Trados Studio 2011* creates a TM with the aid of an aligned parallel corpus of previous translations and their originals. Databases of TTs and their originals are stored as parallel texts from which TMs are generated. TMs include translation units (TU) comprising source and target elements that are mechanically displayed. They automatically complete the rest of the sentence when the author is typing and producing the translation.

A TU tends to be a segment smaller than the text itself (e.g. a term either monolexical or polylexical, a whole phraseological unit, a specific collocation, a whole sentence). The mechanism of TMs is described below:

> TMs are designed to increase productivity by detecting that the segment currently being translated matches wholly or partially the source side of one or more TUs and then presenting to the translator the corresponding target segment or segments (Hartley 2009: 117).

The translator can update the TM database by saving new and multiple TUs from a certain ST, and also by modifying, changing or deleting old translations. It is often the case that the same terminology and TM resources are used by different translators working on different or same projects and consulted on a shared server rather than by downloading a copy of a TM to their own machine (Hartley 2009: 119).

Some commercial packages consisting of TM tools are *TRADOS Workbench* (now part of *SDL Trados Studio 2011*), *IBM Translation Manager, STAR Transit* and *Atril Déjà Vu* among others. These applications have significantly improved CAT, since they include an algorithm that detects the currently identified segment with a possibly stored TU through a percentage showing the closeness or equivalence (Hartley 2009: 117-8). The equivalent choice can be an exact, full or fuzzy match depending on the degree of closeness shown in the statistical score. As technology is not equally developed in these commercial applications, no two TMs can shed the same results when using different TM tools from different companies (Hartley 2009: 118).

It is often the case that TM tools are not compatible and while the translator has one tool, the client has another, therefore resulting in file import/export problems. This has forced the formation of a generic compatible extension file –the Translation Memory eXchange (TMX)–, a standard XML format that aims at exchanging TMs between CAT programs.

It should be borne in mind that the concept of a TM shows certain similarities with that of a bitext (Harris 1988). Generally, the most salient difference between the two is that a TM is a database in which its segments, matched sentences or portions of sentences are stored in a way that the original sentence order is totally lost. A bitext retains the original sentence order. Notwithstanding, if a TM file is saved in .tmx, this format allows preserving the original order of sentences. However, compatibility is not the major disadvantage of TMs. The main weakness of a TM is the absence of contextual information both in the ST and TT. Therefore, it is still necessary to proofread the TT.

It is worth noting that TMs are not used for the translation of every genre. For example, literature and subtitles are not often provided with this help as for the low significance of “repetitions and context-bound nature of equivalence between subtitles in different languages” (Hartley 2009: 120).

4.2.1.5.3.4. *Machine Translation (MT) Systems*

Machine Translation (MT) belongs to the realm of computational linguistics. There are two basic types of systems (Hutchins 2004: 15) in which the first one focuses on translating texts without human intervention, whereas the second one makes use of translation aids (e.g. translation memories). According to Hartley (2009: 121), these two main approaches are known as the RBMT and the SMT. The rule-based MT (RBMT) consists of encoding the linguistic rules (e.g. morphological, syntactic, semantic) of both the ST and the TT along with their mappings between the two languages in question. The mappings can be done by a combined system of transferring word for word, and of an interlingual representation. For an interlingual strategy, a machine translation system uploads dictionaries of both the SL and TL and also with a set of instructions that govern the assemblage of meaningful utterances. Writing linguistic rules are the main drawback of MT as well as the rendering of divergent illocutionary speech acts, as in the case of sentences containing ambiguity and irony.

The second approach is the statistics based MT (SMT) and deals with the training of a system comprising aligned data to deduce statistically the most likely mappings to occur in a given utterance. This last approach is aimed at generating translations using statistical methods based on aligned bilingual corpora including TMs. Somers (2003: 31) defines TMs as a “database of previous translations, usually on a sentence-by-sentence basis”.

Most of MT systems use GL corpora as a source to extract relevant information. To give an example of a specialized-domain corpus, *The Canadian Hansards* of parliamentary sessions are employed to train French-English MT programs according to the Linguistics Data Consortium (LDC) (<http://www.ldc.upenn.edu/Catalog/CatalogEntry.jsp?catalogId=LDC95T20>). In the conclusions chapter, a project to develop an MT system based on the present GE corpus will be outlined in the section entitled “further research”.

To conclude, translation is a coin with two sides, one intertextual and the other, intercultural (Montalt i Resurrecció and García Izquierdo 2002: 299). These two sides perform an operation that results in both cross-cultural communication (translations, interpretations) and cross-cultural management (databases, glossaries, ontologies) (Budin 2002: 161). The third point of chapter 3 –translation theory– is needed in order to understand cross-cultural communication, whereas knowledge on translation research methodologies and practical applications –this chapter– is required to deal with cross-cultural management.

4.2.1.6. Key concepts in corpus studies: Frequency

Frequency reveals the number of occurrences in the form of a frequency wordlist, keyword list or lemmatized wordlist. In a frequency wordlist, grammatical words are usually listed at the top of the record. It was observed that there is a huge imbalance in the frequency of words (Sinclair 1987: 81). The commonest word in English –*the*– has approximately twice the frequency of the next two, *of* and *and* (Sinclair 1987: 82). It seems that just an elite of grammatical words appear frequently and the majority of lexical words appear rarely/less than expected. The genre (see chapter 2) is likely to influence the distribution of word classes. Nouns usually achieve a much higher rank in specialized-language than in general-purpose corpora (Ahmad et al. 1994: 271).

In a keyword list, the most and repeated outstanding words are mainly lexical or content words that reveal the topic of a text. A keyword list can be computed with the creation of a stop wordlist that contains grammatical words. The functional words of the stop wordlist will override their counterparts from a general frequency wordlist, from which content words will occupy the top positions. Potential terms are usually identified by relative frequency ratio calculation. Ahmad et al. (1994: 272) explain the statistical scores as follows: A ratio of 1.00 indicates identical relative frequencies, a score of <1.00 refers to a word that is less frequent in the specialized corpus than the GL one, and a ratio of >1.00 which values the higher occurrence of a word in a GL text over a specialized text. Open class words (e.g. terms) are in a higher proportion in domain-specific than in GL texts (Ahmad et al. 1994: 272).

Likewise, users can grab a quick idea of what the text is about through a lemmatized wordlist. Lemmatization is employed to deal especially with megacorpora and can be carried out by grammatical tagging, as in the case of the *BNC* (Leech et al. 2001: 7). A lemma (also word form) is a reduction of inflected word forms to their base form and they usually coincide with dictionary entries (Hartley 2009: 111). Different forms of a lemma (e.g. *do, does, doing, did, done*) may have quite different collocates, but also because they usually have very different frequencies of occurrence. Sinclair (1996: 31) offers the example of *eye/eyes*. Adjectives referring to color appear to collocate with *eye* both in the singular and in plural. Interestingly, *caught* and *mind* collocate exclusively with *eyes* in plural, inasmuch as the plural conveys multi-word expressions putting across the actions of monitoring, visualizing or evaluating.

Apart from lists, other measures are examined in this section. A measure for vocabulary density is the type/token ratio (TTR). This value is based on the overall ratio of different or lemmatized words (*types*) to the total number of words (*tokens*). Standardized type/token ratio (STTR) expresses the specificity of a text through a more precise lens. The help file option in *WordSmith Tools* (WS) (http://www.lexically.net/downloads/version5/HTML/index.html?type_token_ratio_proc.htm) explains that the standardized type/token ratio is computed on consecutive 1,000-word chunks of text taking into account that texts with less than 1,000 words will get a standardized type/token ratio of 0. Although the n-word parameter can be changed when the text is less 1,000 words.

A visual way of examining where an item occurs within a text is what the dispersion tool plots show. It will be useful to see whether certain keywords will appear in every popular science book or where do they concentrate in the text.

Far from being an artificial observational technique, CL is not only useful at looking for patterns based on frequency but to detect what does not appear in discourse, being the non-present ideas sometimes more important than the present ones (Baker 2007: 19).

4.2.1.7. Software tools for searching corpora

This section provides computational methods of extracting linguistic knowledge from corpora. A variety of software programs allow researchers to carry out the aforementioned corpus-based studies. Three commercial software packages, say, *MonoConc Pro*, *WordSmith Tools* (WST5) and *Concordance* along with freeware *AntConc* are worth mentioning.

Reppen (2001) compares the first two. The first two can generate wordlists (arranged in alphabetical and frequency order), concordance output and collocation information. Both programs easily handle large corpora and work with either tagged or untagged texts. In displaying the context in which utterances are embedded, the two programs have a different arrangement of concordance lines. *MonoConc Pro* displays concordances in a split screen whereas *WST5* does the same function under two different tabs.

MonoConc Pro has a friendlier interface than *WST5*. Under *frequency and collocation options*, there is an option that either *All words* or *Content words* can be selected, or you can type the words to be part of the stop list. The total number of words is displayed on the right at the bottom part of the screen.

When generating wordlists in *WST5* from texts written in a different language from English, the language should be changed into the language of the corpus by displaying the pull-down menu in the settings option >> adjust settings as illustrated below fig. 4.7).

WST5 can provide information about the distribution of a feature in a single text or across texts. Distributions are shown with a graph that plots the occurrences of the target item in the text or corpus. Another useful distinctive tool is the *Word Cluster* function. It serves to identify the most frequent collocation from all the occurrences previously found in the concordance line. The user can specify from two to eight word clusters on a concordance list and then see which words tend to co-occur. Also, the *WebGetter Function* enables the compilation of corpora by simply inserting the URLs in question. While *WST5* allows the researcher to insert more than one URL, *MonoConc* only lets one URL possible. Unlike *MonoConc Pro*, *WST5* brings several statistical scores to measure collocations (e.g. special MI, log likelihood, z-score, MI3).

The new feature in *WST5* is the *ConcGram* function. It differentiates from the *Clusters* function in which the latter is calculated by employing the existing concordance lines just for the current search hit. Cluster is also called *n-gram* (Scott and Tribble 2006: 32).

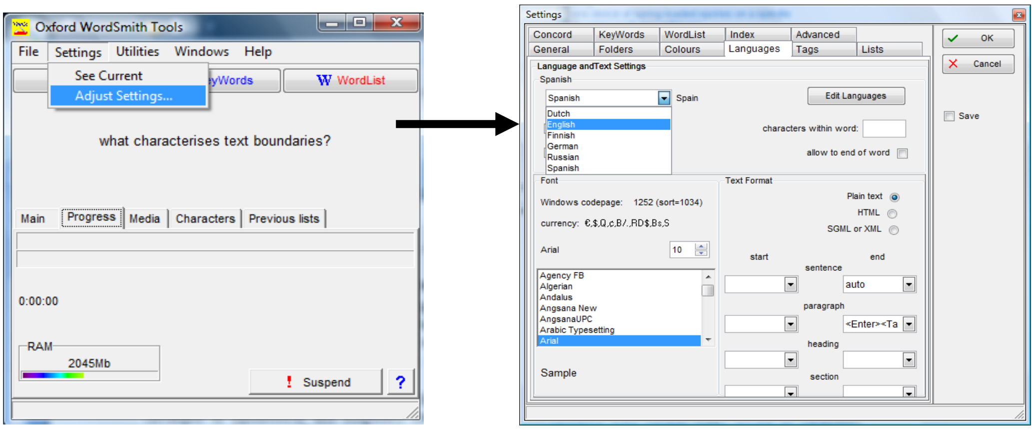


Fig. 4.7: *WS Tools 5 screenshot of the language option.*

Laurence Anthony's *AntConc 3.2.4.* is a freeware concordance program that integrates a group of tabs for studying *concordance*, *concordance plot*, *file view*, *clusters*, *collocates*, *word list* and *keyword* list. It is user friendly software that combines a mixture of resources from other commercial software packages.

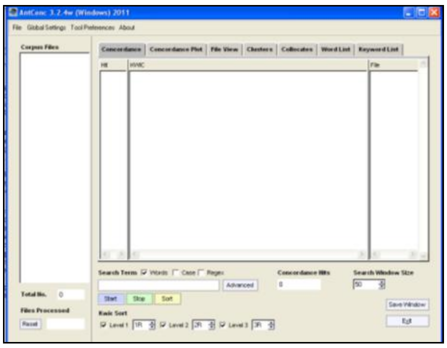


Fig. 4.8: *Basic screenshot of freeware AntConc 3.2.4.*

Apart from software, there are on-line query programs that are tools arranging KWIC searches through query interfaces such as *BNCweb* for collocations, *WebCorp Tools* (University of Liverpool) and *WebCONC* (Freie Universität Berlin). In the same way, *Collins Wordbank Online* English corpus contains 550 million words of contemporary written and spoken text (figures from 2013) and includes a concordancer sampler. Also, *COCA* (*Corpus of Contemporary American English*; 450 million words, 1990-present) and *TIME Corpus* (100m words, US, 1920s-2000s) hold an online concordancer.

Another powerful corpus query tool is *Sketch Engine*. It holds not only the concondance function but allows linguists to create a corpus from the web, to output wordlists, to access different corpora including the *BNC*. A study carried out with the help of the *Sketch Engine* to uncovered patterns of language in collocations is one study that examines persistent gender differences in the representation of men and women in the domains of power and deviance, social categorization, personality and mental capacity, appearance and sexuality (Pearce 2008: 14). Adjectives of personality (+extraversion) are conceptualized as *imminent*, *garrulous* for men and *bossy*, *chattering*, *gossiping* for women so as to investigate how sexism in language can be demonstrated through collocational evidence.

4.2.1.8. Advantages and Limitations

CL has triggered an empirical revival that has allowed us to look at and think about language in new and different ways. With regard to the advantages, here are some strengthens we can mention:

- EMPIRICAL REVIVAL: Corpora analysis has inaugurated an era in which we can qualify the notion of meaning in several ways. Corpora results can detect important usages that have been overlooked (e.g. *seems to think* is not simply a hedged variant of *thinks* Hunston 2007: 266).
- OBSERVATIONAL and REPLICABILITY: Naturally occurring data is characterized by being observable and open to verification of results (McEnery and Wilson 2001: 14-5). The findings are replicable, “a key requirement of science”, as Louw states (2007: 346), by the aid of computer tools.
- NEW POSSIBLE STUDIES: Corpora permit all kinds of linguistic investigations “undreamed of in the past” (Louw 2007: 343) and therefore, to create new types of language research questions to be posed. For example, they allow researchers to obtain frequency counts for words and grammatical features, which, in turn, permit the study of register differences, features of individual writer’s styles. Corpora have also contributed significantly to a better understanding of the nature and features of semantic prosody. Other studies interesting to look into are

the collocational and prosodic behavior of synonyms as they are not collocationally interchangeable (Tognini-Bonelli 2001: 34).

- GRAMMAR AND LEXIS: Corpora have changed the way we look at language – in particular at the relationship between grammar and lexis, suggesting new insights and introducing new concepts (e.g. *semantic prosody* and the *idiom principle*). They have inaugurated a new *empirical turn* in linguistics. Concordancing provides descriptions or observation of word behavior according to specific context. Collocations can be useful for language teaching (see Sinclair 2004d) but also for detecting connotation and bias (Baker et al. 2006: 38). The study of collocation and, specifically, semantic prosody is also acknowledged for language learning (Xiao and McEnery 2006: 103).
- LEXICAL DENSITY: It aids searching for the level of specificity or linguistic complexity, but is not able to provide a critical perspective of neither language nor the way we understand society and, in our case, how genetic engineering is perceived. It is human ability the one in charge of interpreting results.
- A COMPLEMENT TO INTUITION: Corpora allow the researcher (1) the investigation of distribution and frequency patterns that are inaccessible to intuition, (2) to correct, check and validate the sometimes inaccurate descriptions based on intuition. From Ferguson's point of view (2006):

  > Corpora tell us what is typically done but cannot say what is possible. Intuition, or introspection, can tell us what it is possible to say in a language but cannot show what is typically done in and with that language (Ferguson 2006: 20).

- LANGUAGE PEDAGOGY: Corpora have made significant contributions to language pedagogy in a variety of ways so that learners can use corpora to learn, *inter alia*, word meanings, collocations, differences between near synonyms, lexico-grammatical patterns, authentic examples of natural language usage, frequency of words and structures. They are an important tool for discovery-based learning.

Although corpora and software have made possible the positive developments mentioned above, a number of limitations attaching to corpus-based studies are necessary to be mentioned. Stubbs (2001: 222-6) enumerates six major limitations:

1. DECONTEXTUALIZATION: It is often objected that concordance lines are highly decontextualized data (Partington 1998: 145). Although collocations are also known as *Key-Word-In-Context* collocations (KWIC), a 4-word span to the left and right of the node may not be large enough to reveal the speaker attitude or the context in which the

utterance is embedded. These instances of language use do not reveal the context of communication neither appear summarized up in glosses. Studying the context of particular utterance requires having a deeper knowledge of the text, an activity that cannot be carried out by software or computer-assisted means. The corpus only reveals the product of communication not the process or the context, and to bring the language alive it is essential to reconstruct the context in which the concordance is embodied.

2. OVEREMPHASIS ON SINGLE WORDS AND COLLOCATIONS. Corpus software is good at providing frequency information on features, words and their distribution. However, corpora can present dangers of facile over-generalization, as it would be inappropriate to decide what to teach, or what to prioritize solely on the basis of frequency. In this vein, one of the common misconceptions about CL is that the notion of frequency leads to a reducing and generalizing quantitative methodology that oversimplifies results (Baker 2007: 47). Tymoczko (1998: 658) concerns about the quantitative character and overemphasis on the 'scientific' nature of corpus studies, with particular attention to demonstrate obvious features (Olohan 2004: 22).
3. A CORPUS IS NOT REPRESENTATIVE OF A WHOLE LANGUAGE. Language is potentially infinite. A corpus may end up being an artificial construction that offers a mutilated and partial complex reality (Caravedo 1999: 65). It seems frequently to be the case that the results extracted from a corpus hold true only for what is contained in that corpus (Ferguson 2006: 20).
4. CORPUS RESULTS AVERAGE AWAY VARIATION. Language is a variable and evolving entity. This limitation has to do with objection number 2, that is, frequency outranks saliency and prototypicality. As for saliency, some items or features may be relevant yet not frequent. For example, *thou, thee, thy* and *thine* are not frequent in everyday texts but they are relevant when studying religious texts. With regard to prototypicality, learners often need to know prototypes in language use, but they are missing the most frequent meaning. An example could be the word *bet* (Ferguson 2006: 21). The prototypical meaning is, for example, to make a wager on a horse race, but this is not the most frequent use (e.g. *I bet you did!*). The learner may profit more from first being taught the prototypical meaning at an initial level and the most frequent sense at an advance one.
5. A CORPUS CAN ONLY REVEAL WHAT OCCURS BUT NOT WHAT DOES NOT OCCUR. An essential aim of corpus linguistics is "to identify what is central and typical of language" (Sinclair 1987: 81). Our communicative competence guides us in what is typical and probable (Stubbs 2001: 20). Close reading can no longer be carried out

satisfactorily unless it is assisted by data. Stubbs offers the example of chemists who know about the distinctive properties of iron and gold, but they were unaware of the fact that iron is commoner than gold (Stubbs 2001: 221).

6. CL STUDIES PERFORMANCE. As for the results, a corpus is language-in-use performance data as mentioned above. Therefore, the analysis of a corpus does not unveil universal linguistic properties (Teubert 1999: 5), but describe data from a computer-stored and electronically analyzed compilation representative of a language variety. Thus, CL bridges the gap between data and theory through language description and analysis of authentic samples of usage. To this end, it is necessary to

    > [U]ncover linguistic patterns which can enable us to make sense of the ways that language is used in the construction of discourses (or ways of constructing reality) (Baker 2007: 1).

There are other limitations that can be added to Stubbs' list:

- LINGUISTIC QUALITITES: The most difficult-to-avoid weakness is the intricacy to look for linguistic qualities like *grammaticality*, *feasibility* or *Grice's maxims* (e.g. truth, quality of information, relevancy, clarity). For example, how could software detect ungrammaticality in a corpus containing Chomsky's famous instance *Colorless green ideas sleep furiously*? Would it be possible to measure *realism* in the novels of different authors? Would it be feasible to detect varying degrees of realism? Probably it would, but unless these language qualities are properly tagged, they will be exceedingly complex to be assessed electronically. And even though they are reliably tagged, the tagging process will be extremely time-consuming.
- NATIVE SPEAKER USAGE: Most corpora stand for patterns characteristic of native speaker usage, but gradually L2 learner corpora for second language users are proliferating. The international corpora of English can study norms of international communication.
- HUMAN KNOWLEDGE: CL helps to improve language descriptions, but it is not a process of automatic language description (Kennedy 1999: 2), it does require human knowledge to be analyzed. Corpora provide evidence of frequency and distribution. But it is necessary that quantitative data be interpreted qualitatively with the skill and intuition of the analyst. Quantitative data form the basis of decisions to interpret results in the qualitative analysis. The key point, then, is that corpora are complements to, and not substitutes for, intuition and qualitative interpretation (Ferguson 2006: 20-1). Corpus data do provide a norm of typical language use, a baseline, against which particular

communicative events can be interpreted. The work that will be done in the GE corpus will rely largely upon close reading of the whole dataset.

The general conclusion, then, is that while corpora have very powerful uses and advantages, they also have limitations. However, the findings related to CL have changed the practice of translators, teachers and other language professionals. Translation studies has undoubtedly benefited from CL methods. With the advent of technology, CL does not only help to identify suitable collocations but how they work in their pragmatic environment. Therefore, CL has shed light on the question of fixedness and intuition. With regard to the former, the same unit of meaning (called 'translation equivalent' in translation studies) may have the same or similar semantic prosodies depending on the sociolect or idiolect.

> In multilingual corpus semantics, it makes sense to say that the meaning of a translation unit is its translation equivalent in another language. Such a circumscription repeats the basic tenet of corpus linguistics that semantic coagulations are not fixed units (Teubert 1999: 16).

With regard to the latter, the use of intuition may be crucial to produce a translation that follows the original text more closely or more loosely when rendering semantic prosodies. But what happens in the case of Spanish translators that are non-native speakers of English? Their language intuition in the L2 will work based on their L1. Hence, it may be hypothesized that in some cases, semantic prosodies will be neutralized and then lost, or rather maintained in the TT with the same or similar semantic prosody as the topic of the actual use of genetic engineering technology is a socially debated issue.

Depending on how the translator has perceived the functioning of a segment in the source context, the understanding of its meaning will involve a particular co-selection of lexical entities that may be covered with a layer of loaded or unloaded meaning in the TT. The data analysis will pay attention to what extent the co-selection of items is shaped by the translator's SL and how the link between a field of meaning and a word has been created. To this aim and echoing Biber's outline (1992) (fig. 4.2), two major stages should be followed after a pilot study according to Sinclair (2004b: 1): corpus compilation (design and alignment) and corpus exploitation.

4.2.2. Corpus design of this study

The relevance of corpus design is to ensure that corpus data are as useful as possible inasmuch as the design is expected to favor an optimal exploitation of the corpus.

The concept of representativeness was extended to every word document. For such a reason, we decided to select the whole text –the preface and body as indicated in the exploratory study– and avoid taking samples of each document in case relevant terms and keywords might be included in the deleted parts.

The overall corpus size is estimated at more than one and a half million words, which is considered appropriate for a specialized corpus, a less larger undertaking than GL corpora. The 16 English-to-Spanish books (see table 8.2.) were restricted to 10 for a variety of reasons that will be explained in the building criteria section. Although for lexicographic purposes the *GE_P-ACTRES corpus* would be small, the 10 books are all the data we could find available on the market that meet with the level of specialization (popular science), the genre (books) and the language pair (English to Spanish) selected for this dissertation.

4.2.2.1. Building criteria for text selection

When the researcher embarks upon building a corpus, several pre-requisites must be taken into account. A particular criterion for text selection is taken into consideration in order to build a maximally representative variety under examination. Below are the criteria selected for our corpus design alongside the characteristics of the corpus so as to build a representative corpus of scientific popularization about GE:

Criteria	***Corpus characteristics***
Level of specialization	GE discourse at specialized scientific popularization
Language(s)	Bilingual parallel unidirectional from English to Spanish
ST language variety	American and British English
TT language variety	Peninsular Spanish
Mode	Complete written close (preface and body of books)
Genre	Popular science books
Language development	Synchronic (first ST in 1995 - last TT in 2006)
Optional annotation	Aligned and automatically annotated with TreeTagger

Table 4.9: *Building criteria for the GE_P-ACTRES corpus.*

According to table 4.9, the *GE_P-ACTRES corpus* is designed as a bilingual, parallel and unidirectional corpus. Both American and British English varieties were included as STs. However, only Spanish from Spain (Peninsular Spanish) was eligible for a suitable TT, since the Peninsular variety is the one pursued to be studied.

The tentative list of 16 English-to-Spanish books contained two TTs in Spanish from Latin America (by Teitel et al. and Kornberg). Owing to the fact that the corpus sought to be representative of the Peninsular Spanish variant, the books from Latin America publishers were excluded from the list as significant differences are notably found in both varieties (see table 8.3.).

Another type of TTs that was excluded contained one book (by Hubbard, Wald and Trefil) that partially discussed GMOs in one or two chapters, along with environmentally issues and topics of the sort. It may be surprising that the original title in Trefil's book does not make any reference to the GE technology, but the connection was spotted by looking at the title in the translated version (see table 8.4.).

The last type of books to be excluded was due to the fact that they did comply with GL much more than trespassing the threshold of being considered as representative of the popular science genre. Instead, these two books (by Fukuyama and Shiva) focused only on the consequences of the GE technology without explaining, describing or transmitting scientific knowledge about the subject (see table 8.5.).

Out of the tentative list of 16 books, the total number of exclusions is 6: two Latin American TTs, two that partially discussed the topic of GE and two that were considered to be representative of GL. Two of the exclusions (Fukuyama and Trefil) were detected when conducting the pilot study. Hence, the relevance of the pilot study is patent in the compilation of suitable material.

4.2.2.2. Materials

After the careful design in the light of representativeness and size in particular, the corpus was completed with 10 English books and their Spanish translations, totaling 20 books. What follows is the list of popular science books comprising the *GE_P-ACTRES corpus*, along with the publication year of both the STs and the TTs (table 4.10).

Every book is identified with a chronologically ordered number and the author initials. A more detailed list including the full author name, the publishing house, the translator's name and the number of tokens can be found in appendix 4 (table 8.6). The six books used for the exploratory and three books of the pilot study were inserted as part of the *GE_P-ACTRES corpus*. In most cases, the TTs contain the information related to the source English edition and the publication year, so that the ST is the corresponding original version of the TT.

Both the English and Spanish versions have the same chapters, except for Anderson's book (6LA) that has a prologue in the TT but does not in the ST. The Spanish book has a larger appendix with extra information compared to the ST. The English book includes an appendix with material about organizations, magazines, journals, websites and books for raising awareness on issues related to genetic engineering. The Spanish book brings two sections about agricultural biotechnology and transgenics in Spain and Latin America written by two different specialists. There is another section containing the

Cartagena protocol. And it also encloses material about organizations, magazines, journals, websites and books upgraded for Spanish speakers.

It is also relevant to notice that that there are several types of authors, as was mentioned in the introductory chapter.

Code	Author(s)	Yr	Title
1 ER	Russo, E. & Cove, D.	1995	*Genetic Engineering. Dreams and Nightmares.*
		1999	*Ingeniería genética: Sueños y pesadillas.*
2 SA	Aldridge, S.	1996	*The Thread of Life: The Story of Genes and Genetic Engineering.*
		1999	*El hilo de la vida: De los genes a la ingeniería genética.*
3 EG	Grace, E.S.	1997	*Biotechnology Unzipped: Promises and Realities.*
		1999	*La biotecnología al desnudo: Promesas y realidades.*
4 JR	Rifkin, J.	1998	*The Biotech Century: How Genetic Commerce will change the World.*
		1999	*El siglo de la biotecnología: El comercio frenético y el mantenimiento de un mundo feliz.*
5 MH	Ho, M-W.	1998	*Genetic Engineering. Dream or Nightmare?*
		2001	*Ingeniería genética: ¿Sueño o pesadilla?*
6 LA	Anderson, L.	1999	*Genetic engineering, food, and our environment.*
		2001	*Transgénicos: Ingeniería genética, alimentos y nuestro medio ambiente.*
7 IB	Boyens, I.	1999	*Unnatural Harvest: How Genetic Engineering is altering our Food.*
		2001	*Cosecha mortífera: De los transgénicos a las vacas locas.*
8 BL	Lambrecht, B.	2001	*Dinner at the New Gene Café: How Genetic Engineering Is Changing What We Eat, How We Live, and the Global Politics of Food.*
		2003	*La guerra de los alimentos transgénicos.*
9 SN	Nottingham, S.	2003	*Eat Your Genes: How Genetically Modified Food Is Entering Our Diet.*
		2004	*Come tus genes: Cómo los alimentos transgénicos están en nuestra dieta.*
10 JS	Smith, J. M.	2003	*Seeds of Deception: Exposing Industry and Government Lies about the Safety of the Genetically Engineered Foods You're Eating.*
		2006	*Semillas peligrosas: las mentiras de la industria y los gobiernos sobre lo que comemos.*

Table 4.10: *List of popular science books in the GE_P-ACTRES corpus.*

The number of scientist writers is five out of ten. The rest are two journalists and three activists (appendix 5 contains a list of ST authors and their background):

- Scientists (5 books): 1ER, 2SA, 3EG, 5MH and 9SN)
- 'Social' group (5 books). It is a mixed group of:
    - Journalists: 7IB and 8BL
    - Activists: 4JR, 6LA and 10JS

As for the genre, it may be surprising why relevant newspaper articles were not preferred for this specialized corpus. Other text types such as research articles, semi-expert magazines (i.e. *Scientific American*), textbooks and newspaper articles were not found translated or partially translated into Spanish.

As a result, the number of words or tokens was not found either representative or balanced to be considered a sufficiently representative corpus. Scientists tend to publish their research in English in international journals so as to reach a wider audience, since the English language is the current international lingua franca.

The spirit of didactic endeavors to popularize science in the rest of vernacular languages is suffering from a jetlag in the creation of terminology at other specialized communicative settings apart from the expert-to-expert context.

It will be interesting, therefore, to discover how Spanish is equipped for the task of creating terminology or what other devices are being used in translated popular science books in the field of GE. To this end, the corpus needs to be implemented, that is to say, to be ready for the alignment stage.

4.2.3. Implementation

The following figure illustrates the whole process of compilation and implementation:

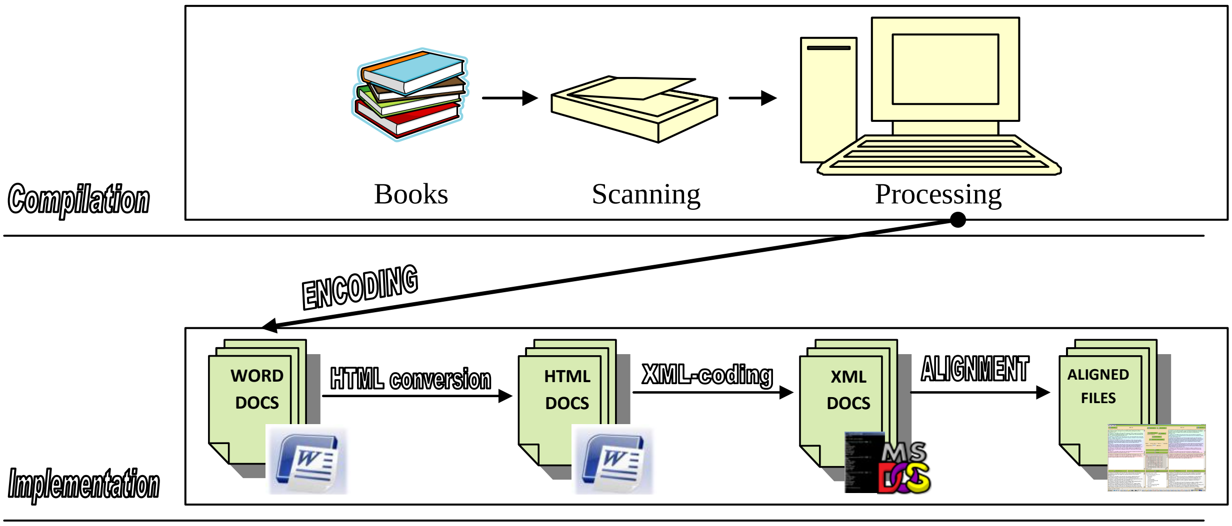


Fig. 4.11: *The GE_P-ACTRES corpus encoding and alignment stages.*

The implementation was achieved by two main phases: the encoding and the alignment. Before the encoding, the ten books were scanned and OCRed at different stages, and thus, were converted into ascii character files in order to be queryable with a concordancer. The process of compiling and selecting the corpus was rather slow. As agreed by all linguists, the biggest disadvantage is that scanning is time-consuming and labor-intensive. As OCR software is not foolproof, the scanned material was proofread carefully in several rounds to polish up the word document files. For example, scanner errors such as "nuc**1**eotid" (number 1) were corrected into "nuc**l**eotide" (letter l). Thus, once the word documents were proofread, another step before the alignment was taken, which is the encoding of texts.

4.2.3.1. Encoding

Having received a Marie Curie Fellowship, I spent several months (Aug-Dec 2007) in Bergen (Norway) performing the tasks of encoding and parallelizing the corpus (see the alignment project at http://multilingua.uib.no/cristina.page).

Both the encoding and the alignment pursue the directions followed in a previous study from the University of León (Spain): The English-Spanish parallel corpus, P-ACTRES (Izquierdo 2008: 69-82, Izquierdo et al. 2009: 34-39). The technical part of that study –the implementation– as well as the one in the present study was supervised by Knut Hofland, the software consultant from *AKSIS* (Avdeling for kultur, språk og informasjonsteknologi, Department of Culture, Language and Information Technology). *AKSIS* department belongs to Uni Research Institute at the University of Bergen (currently *UniComputing).*

For the first part of the implementation –the encoding stage –, each book is intended to contain "an accurate and unambiguous representation of the text" (Hockey 2000: 4). To maintain text structure and characteristics like bold face or italics, three stages were implemented: splitting up the text into sentences, html conversion and XML-coding. The books were divided into their own chapters and saved in separate word documents, which resulted into a faster alignment.

For the splitting up, we broke down the text into sentences because the alignment software performs sentence alignment. The difficulty here lies in the fact that not all the already-formed sentences are computed as such when executing the XML-coding. In other words, not every capital letter and every stop indicate the beginning and the end of a sentence, respectively, as in the case of abbreviations (e.g. Mr. President). In the conversion to xml files, we indicated that the space after an abbreviation must not be computed as a sentence break so that the next word was not considered the beginning of the next sentence. To put it another way, the XML-coding process identifies sentences after every sentence break by default.

An obvious example of a sentence break is when we hit enter at the end of a sentence. But in order to break the paragraphs into sentences, we did not need to press the enter key at the end of every sentence, unless it was necessary to indicate the end of a paragraph. Hence, the difficulty of the splitting-up process was the identification of sentence breaks within the running text. Thus, a sentence unit was recognized as such when the following situations were encountered:

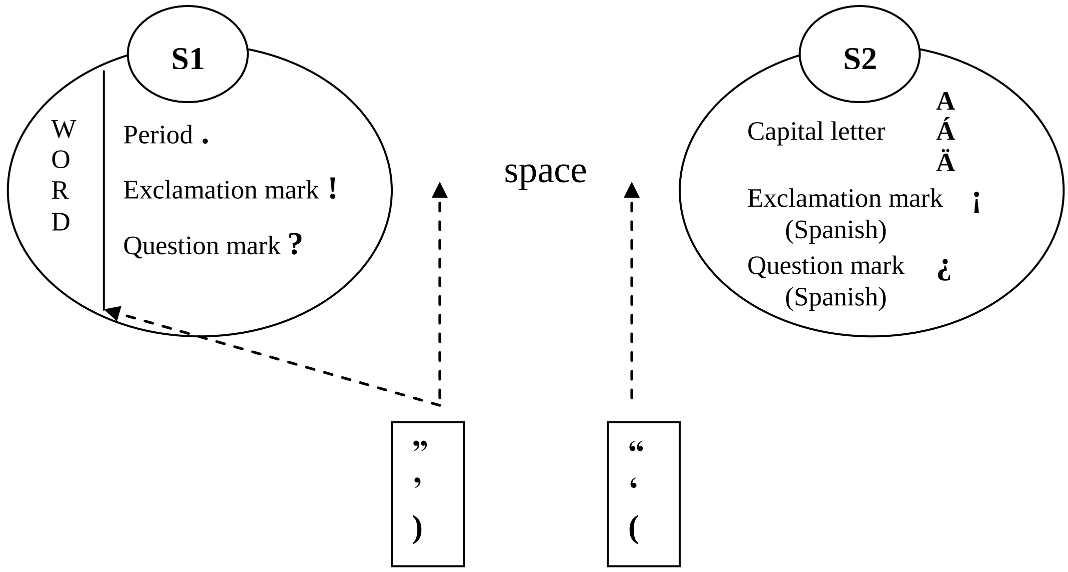


Fig. 4.12: *Sentence break diagram consisting of two sentences (S1 and S2) in the running text.*

This figure illustrates that a sentence break was computed when a word was followed by a period, an exclamation mark or a question mark plus a space and a capital letter. In the case of Spanish, it was possible to find an exclamation mark or question mark instead of a capital letter after the space (for the sentence break to remain). A sentence break is still valid when coming across a parenthesis and a quotation mark (either double or single) before or after the space or even after the last word of a sentence.

It is also essential to indicate the opposite case, that is, when the sentence break is not necessary. This can be done by creating a list of exceptions, usually abbreviations, such as Mr., U.S., U.N., B.C., Ph.D., etc. for English, and Sra., U.S.A., etc. for Spanish. In the case of infrequent abbreviations not contained in the abbreviations list, the symbol ¤¤ was used to indicate that no sentence break was needed as in the following case. All the examples in this section were taken from the English STs and were labeled as “EN” for English after the author initials.

> In their book *Reshaping Life: Key Issues in Genetic Engineering*, Australian authors and scientists G.J.V.¤¤ Nossal and Ross L. Coppel write: “In the deepest sense, DNA’s structure and function have become as much part of our cultural heritage as Shakespeare, the sweep of history, or any of the things we expect an educated person to know” (3EG_EN: Ch. 7).

When an abbreviation from the list of exceptions was encountered at the end of a sentence, it was expected that it was not computed as the indicator of a sentence break. But in the next case, the abbreviation was located at the end of the sentence, and therefore, the symbol ## was used as a sign of a sentence break:

> Not a single variety of native broccoli still exists in the U.S.## Between four and six thousand plant and animal species disappear from the earth each year, many under the farmer’s plow and the force of his resolve to reshape nature (7IB_EN: Ch. 8).

Another example included in list of exceptions is any single capital letter plus a stop. This instance was not recognized as a sentence break within the sequence <single capital letter / one-digit number + a stop (end of sentence) + a space + capital letter>. Notwithstanding, it needs to be identified as a sentence break since it occurs at the end of a sentence. For that reason, the symbol ## was added to the running text as follows:

> “Golden rice,” so named for its pale yellow tint, is a genetically modified variety that produces extra levels of beta-carotene and related compounds that are converted in the human body to vitamin A.## The engineering feat accomplished by Ingo Potrykus and his colleagues at the Swiss Federal Institute of Technology in Zurich has profound implications: One million children die every year because they are weakened by vitamin A deficiency (8BL_EN: Ch. 4).

To put it differently, in the case that one-digit numbers come at the end of a sentence followed by a stop, they will not be computed as a sentence break (a) unless they are followed by a parenthesis or another digit (b) as is indicated below:

> (a) The process of gene insertion is random, and many secondary genetic effects can result, as mentioned in chapter 4.## The extra DNA integrated into the transgenic organism’s genome disrupts the structure of its chromosome and can itself cause chromosomal rearrangement, further affecting gene function (5MH_EN: Ch. 8).
>
> (b) Genetic engineering originated in the nineteen-seventies from the discovery of several important techniques (see chapter 3). Soon afterwards the molecular geneticists who discovered the

> techniques, or were in the forefront of developing and using genetic engineering, became aware of the dangers of opening a Pandora’s box (5MH_EN: Ch.2).

In the remaining cases, abbreviations that begin with a small letter (e.g. tPA, rBST, mRNA) instead of a capital letter are not considered a start of sentence, and they need a ## sign after the preceding stop:

> DNA is a very long molecule, usually confined to a cell’s nucleus.## mRNA is a smaller and more mobile molecule that is able to carry the genetic code for one gene, transcribed from the DNA, out of the nucleus and through the jelly-like fluid of the cell (*cytoplasm*) to structures called *ribosomes*, where protein synthesis occurs (9BL_EN: Ch. 2).

These symbols (##, ¤¤) are inserted along the word document. When this process is over, the .doc file is then saved as .html (filter) format. This is the html conversion, the second stage in the encoding process. HTML maintains the italics and bold characters and allows the text to be structured into paragraphs as shown below:

```
<html>
<head>
<title>Chapter 4</title>
<style>
</style>
</head>
<body lang=ES>
<p class=MsoNormal style='text-align:justify;text-justify:inter-ideograph'><i><span
lang=EN-GB style='font-size:12.0pt'>In 1994, Calgene (now a subsidiary of Monsanto)
introduced the ‘FlavrSavr’ tomato, the first genetically engineered whole food approved
for commercial sale. It engineered to ripen longer on the vine and still be enough to
withstand the processes of picking, picking and transport. By 1997 it had been
withdrawn front market. Contrary to Calgene’s expectations, the tomatoes were often so
soft and bruised that they could not be sold as fresh produce, and most of the FlavrSavr
varieties did not have acceptable yields or disease resistance in tomato-growing regions.
</span></i></p>
</body>
</html>
```

Fig. 4.13: *Internal structure of an html example from 6LA_EN: Ch. 4.*

It is at this time, when the html documents will be converted into xml. As a reminder from section 4.2.1.3.1, the extensive Markup Language (XML) is the metalanguage preferred to share translation resources (Hartley 2009: 108).

4.2.3.2. XML-coding

The XML-coding is the process of converting a word document into an xml file. It is not a straightforward procedure, since more than one program is needed to obtain an xml file. The programs are seven and are called *tidy*, *fixhtm10*, *fixhtml*, *xalan*, *cleanxml*, *setning* and *gen-id*. The whole process is illustrated below:

.doc file → Saved as .html → prejob.bat (batch file) → .xml
fil2.bat (batch file)
↑ *Input* ↓ *Output*

Fig. 4.14: *XML-coding.*

Each one of the programs is executed one after the other with the help of a batch file. To start with, a batch file is a plaintext file saved in .bat format that contains a set of commands to be executed from a MS-DOS command prompt. To execute a batch file, it is necessary to type its name at a command prompt. For example,

```
X:\cristina>job-pre-24.bat
```

Fig. 4.15: *Batch file execution.*

A batch file named *job-pre-24.bat* was run so as to convert the whole subset of 246 English and Spanish html documents into xml files, corresponding to every one of the chapters. The *job-pre-24.bat* file contains 246 instructions as follows:

```
call fil2.bat BL1 E
call fil2.bat BL1 S
call fil2.bat BL2 E
call fil2.bat BL2 S
call fil2.bat BL3 E
etc…
```

Fig. 4.16: *Batch file list of commands.*

This command indicates that the English chapter BL1 should read another batch file called *fil2.bat*. The *fil2.bat* comprises, among other specifications, the order in which the seven programs should be run. In order words, the same seven programs will be run following the same sequence for every one of the chapters, and this way, to make the conversion from an html to an xml format.

To check that the xml conversion was done successfully, a log file can be created by typing,

```
X:\cristina>job-pre-24.bat>job-pre-24.log
```

Fig. 4.17*: Log file execution.*

That is, a log file command was indicated in order to obtain a list of the actions occurred as follows:

```
N:\cristina>call fil2.bat BL1 E
BL1
tidy
fixhtml0
fixhtml
xalan
cleanxml
setning
gen-id
BL2
tidy
fixhtml0
fixhtml
xalan
cleanxml
setning
gen-id
BL3

etc…
```

Fig. 4.18*: Log file of the xml conversion.*

The log file includes the name of the first alphabetically ordered (BL1) to the last chapter (SN9) to specify that the seven programs were performed.

The task of the first program, *tidy*, is to check that end tags are not missing or misplaced, that is, to validate the previously created html document. To know more about how ill-formed htmls are detected, the *tidy* website was found useful: <http://tidy.sourceforge.net/>.

In order to preserve some features such as bold and italics, a *stylesheet* was executed through the program called *fixhtml*. It is a useful cue to maintain the bold and italics since the aligner finds this enhanced text as a matching. Up to this action, the html file will look like as follows (fig. 4.19).

The next program, *xalan* (see http://www.apache.org/), makes the proper conversion from an html file into an xml file. In this conversion ancillary information is added as part of the XML-coding not only by means of paragraphs but also sentence markers (e.g. <s> and <p>), along with other metadata such as a DTD and TEI headers.

The xml files contain a “description of the tags being used” (Hockey 2000: 35) also known as DTD (Document Type Definition). In the previous figure, the DTD indicates that the xml files were marked up according to the TEI guidelines (*Text Encoding Initiative*) (P4 TEI Lite version) (see <http://www.tei-c.org/P4X/SG.html>). It is also the DTD, the location to specify that every xml document allows the insertion of a header (e.g. <author>, <title>, etc.) and body tags (e.g. <chapter>, <p>, <s>, etc.). For this study, we left the header blank and inserted the author and title as part of the body of text, which is the focus of this dissertation, in order to analyze book titles as well.

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<!DOCTYPE TEI.2 PUBLIC "-//TEI//DTD TEI Lite XML ver. 1//EN" "http://www.tei-c.org/Lite/DTD/teixlite.dtd"
[<!ENTITY % HTMLsymbol PUBLIC "-//W3C//ENTITIES Symbols//EN//HTML""http://www.w4.org/TR/xhtml1/DTD/xhtml-symbol.ent">
%HTMLsymbol;
]>
<TEI.2>
<teiHeader><fileDesc><titleStmt><title/><author/><respStmt><resp/><name/></respStmt></titleStmt><publicationStmt><p/></publicationStmt><sourceDesc><p/></sourceDesc></fileDesc><encodingDesc><projectDesc><p/></projectDesc></encodingDesc><profileDesc><langUsage><language id="eng"/></langUsage></profileDesc><revisionDesc><change><date/><respStmt><name/><resp/></respStmt><item/></change></revisionDesc></teiHeader>
<text><body><div>
<p><hi rend="italic">Chapter Three. Genetic Engineering and Farming.</hi></p>
<p>
In 1994, Calgene (now a subsidiary of Monsanto) introduced the 'FlavrSavr' tomato, the first genetically engineered whole food approved for commercial sale. It engineered to ripen longer on the vine and still be enough to withstand the processes of picking, picking and transport. By 1997 it had been withdrawn front market. Contrary to Calgene's expectations, the tomatoes were often so soft and bruised that they could not be sold as fresh produce, and most of the FlavrSavr varieties did not have acceptable yields or disease resistance in tomato-growing regions.
</p>
</div></body></text>
</TEI.2>
```

Fig. 4.19*:* *In-the-process xtml document (6LA_EN: Ch.3) broken down into paragraphs.*

In the last stage, unnecessary information was removed from the xml files (*cleanxml*), sentences were verified (*setning*) and an id number (*gen-id*) was applied to every sentence in the corpus, as shown below:

<p id="LA3E.p8"><s id="LA3E.s21"> In 1994, Calgene (now a subsidiary of Monsanto) introduced the 'FlavrSavr' tomato, the first genetically engineered whole food approved for commercial sale.</s> <s id="LA3E.s22">It engineered to ripen longer on the vine and still be enough to withstand the processes of picking, picking and transport.</s> <s id="LA3E.s23">By 1997 it had been withdrawn front market.</s> <s id="LA3E.s24">Contrary to Calgene's expectations, the tomatoes were often so soft and bruised that they could not be sold as fresh produce, and most of the FlavrSavr varieties did not have acceptable yields or disease resistance in tomato-growing regions. </s></p>

Fig. 4.20*:* *Xml document (6LA_EN: Ch.3) broken down into sentences.*

At this stage, the xml files are ready to be aligned. Any error from the xml conversion will pop up on a command prompt error screen:

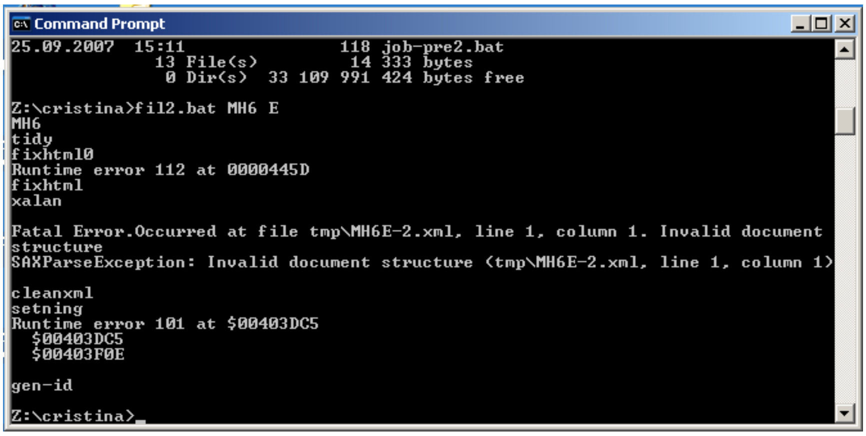


Fig. 4.21*:* *Command prompt errors.*

In the previous screenshot, one of the sentence breaks was not applied correctly in a given paragraph. The error was corrected in the .doc file and we started over the whole xml-coding. When an error is found in a single chapter, it is not necessary to run the *job-pre-24.bat* batch file for the 246 chapters. Instead, chapters can be loaded individually in the command prompt, as illustrated below:

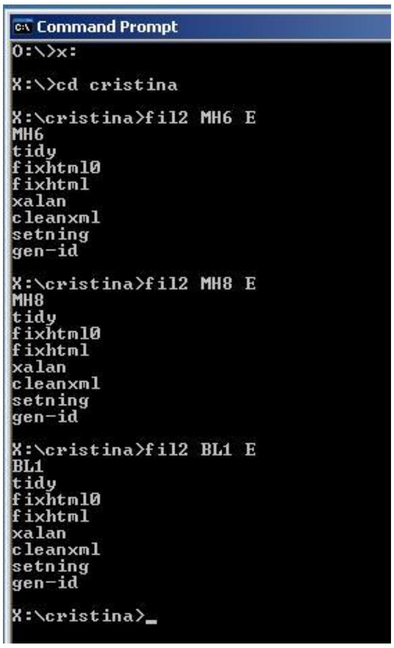


Fig. 4.22*: The set of programs that prepare the corpus from html to xml.*

Some other errors could be spotted during the alignment and then, the entire process of xml-coding should be repeated.

4.2.3.3. Alignment

This is the second stage in the implementation process. Parallel corpora become more useful when texts are aligned, and in this way, facilitate the identification of equivalents (Hartley 2009: 110). The main result of the research stay in Bergen was the alignment of the *GE_P-ACTRES corpus* using TCA2 software (Translation Corpus Aligner) developed by Knut Hofland and Øystein Reigem from *Unilingua*.

TCA2 is based on a previous version of the software, TCA, which was first used for the ENPC (Norwegian-Parallel corpus) (Hofland 1996, Hofland and Johansson 1998). The second version was implemented with other pairs of languages (see <http://gandalf.aksis.uib.no/tca2/>) and with the combination of three different aligning methods.

The three methods are the anchor word list, the detection of proper names and Dice Score. By clicking on *settings* in the main panel, the weight of every method for detecting a match is popped up on the screen as follows:

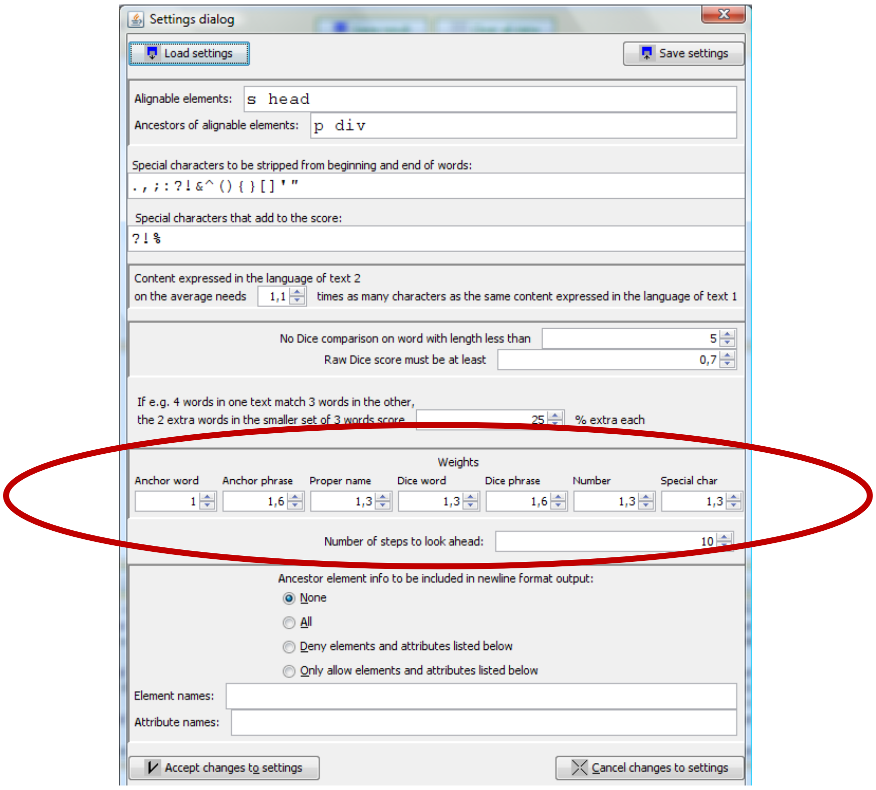


Fig. 4.23: *TCA2 aligning methods under settings.*

In the new version, when one method does not detect a match, the other two are run consecutively. The anchor wordlist is a bilingual list that consists of statistically frequent words for the program to create matches more easily (see 8.6.). Some anchor words contain an asterisk to indicate that the word ending should be ignored and only the root should be computed. Pronouns and prepositions are not abundant on the list since they are multi-frequent and, as a result, not helpful to provide hits. However, proper names are a reliable indicator to have a clear match. In reference to the third method, Dice Score consists of the identification of similar words or cognates. Apart from these three, the length of characters in a sentence and the occurrence of special characters such as chemical symbols, question and exclamation marks are also cues for the software to make a matching. Based on these methods, TCA2 suggests the correspondence between sentences with a statistical degree of equivalence or score expressed in percentage.

To start running TCA2, we need to upload the same chapter in xml format in both languages plus the anchor wordlist. TCA2 screen consists of three columns. The ST is uploaded in the left column whereas the TT is uploaded in the right one. The column in the middle works as a control panel with different aligning options, such as uploading the anchor wordlist.

Every column is subdivided into three rows. The bottom row shows sentences in xml format. The middle row illustrates the potential aligning candidates. The upper row accepts and stores the aligned sentences. Every new aligned sentence is highlighted with a different color for easy identification in case of a misaligned case is detected.

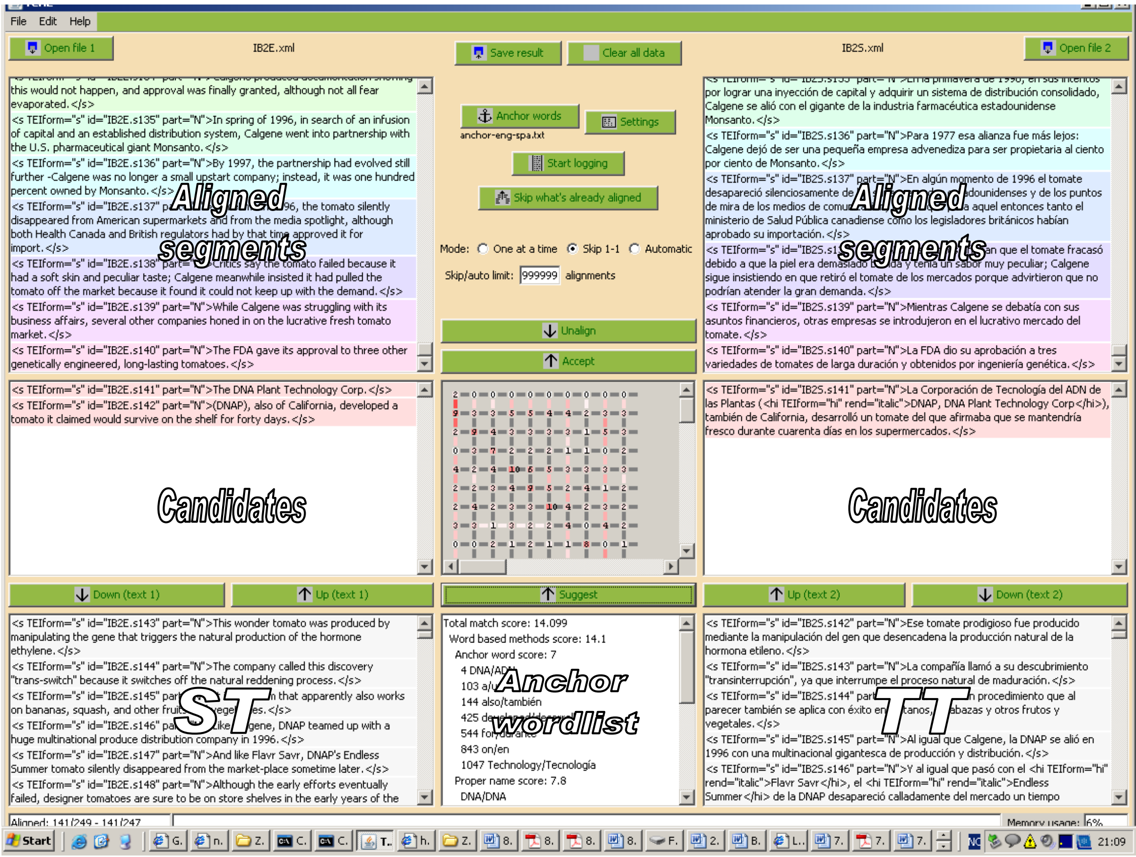


Fig. 4.24: *TCA2 Aligning software.*

The potential aligned units can be suggested one at a time (manually), semi-automatically and automatically. For a manual alignment, the sentences at the bottom row are suggested by pressing the *suggest* button over the anchor wordlist. In the middle row, the candidates are shown and are accepted by pressing the *align* button just on top of the logarithm square in the middle of the screen. The candidates do not appear as interlinear translations (see Harris 1988: 9) but as two columns gaining user-friendliness being the ST on a side and the TT on the other. Although interlinear is a convenient display mode, one column facing the other avoids the question of having the ST in one line and the TT underneath taking into account that translations are precisely not the same length as originals.

As for the semi-automatic alignment, it implies skipping 1-1 correspondences. When the program encounters a 2-1 correspondence it stops until the candidate is validated. 1-1 correspondence is often frequent. Although the program stops at 2-1 correspondence, this does not mean that there is a mismatch, but it only shows the reliability level assessed in more than 96%

(Hofland and Johansson 1998: 98). Therefore, the completely automatic alignment is not advisable.

When the last sentence is accepted, the *save result* button will output five different files that will be saved in the aligned directory:

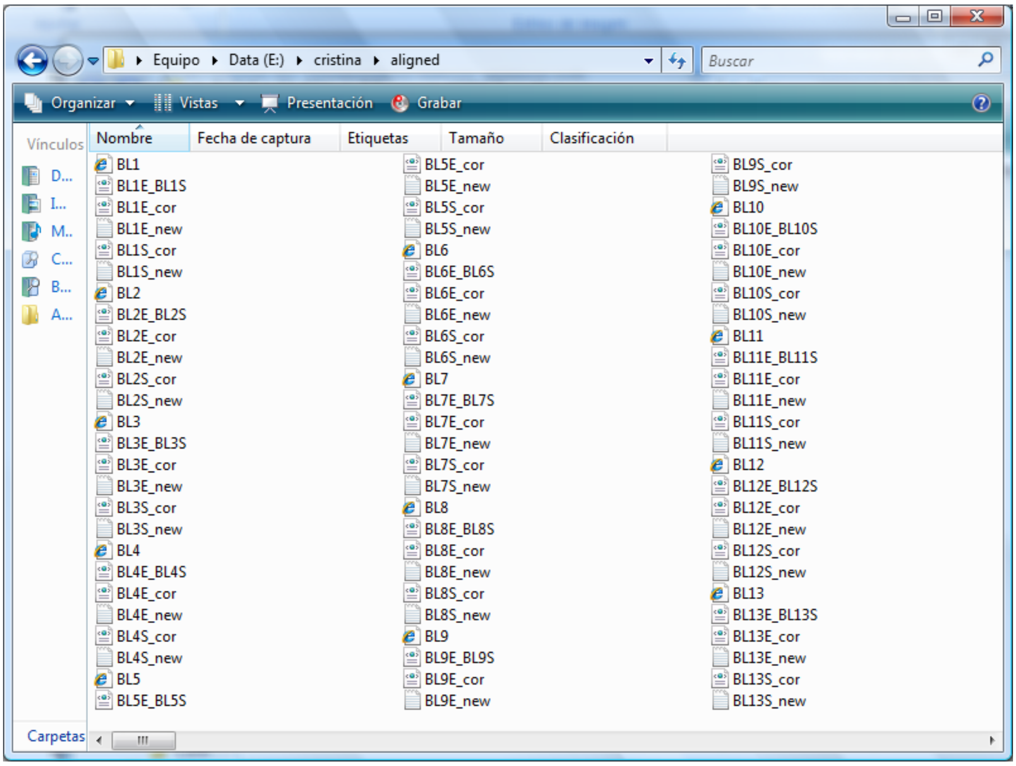


Fig. 4.25: *Screenshot of the output files.*

The screenshot shows the output files in xml and txt formats. For example, the output files for chapter 3 in LA book will be displayed as follows:

- LA3E_LA3S.xml
- LA3E_cor.xml
- LA3E_new.txt
- LA3S_cor.xml
- LA3S_new.txt

The LA3E_LA3S.xml shows the type of matching (e.g. 1-1, 2-1, etc.) and specifies the sentence number of a ST-TT segment:

<link type='1-2' xtargets='LA3E.s24;LA3S.s28 LA3S.s29'>

The LA3E_cor.xml comprises the ST sentences along with an id code to identify ST-TT segments or translation units:

<p TEIform="p" id="LA3E.p8"><s TEIform="s" corresp="LA3S.s25" id="LA3E.s21" part="N"> In 1994, Calgene (now a subsidiary of Monsanto) introduced the 'FlavrSavr' tomato, the first genetically engineered whole food approved for commercial sale.</s> <s TEIform="s" corresp="LA3S.s26"

> id="LA3E.s22" part="N">It engineered to ripen longer on the vine and still be enough to withstand the processes of picking, picking and transport.</s> <s TEIform="s" corresp="LA3S.s27" id="LA3E.s23" part="N">By 1997 it had been withdrawn front market.</s> <s TEIform="s" corresp="LA3S.s28 LA3S.s29" id="LA3E.s24" part="N">Contrary to Calgene's expectations, the tomatoes were often so soft and bruised that they could not be sold as fresh produce, and most of the FlavrSavr varieties did not have acceptable yields or disease resistance in tomato-growing regions. </s></p>

The third type of file, LA3E_new.txt, displays the ST and its id codes:

> <s TEIform="s" id="LA3E.s21" part="N"> In 1994, Calgene (now a subsidiary of Monsanto) introduced the 'FlavrSavr' tomato, the first genetically engineered whole food approved for commercial sale.</s>
>
> <s TEIform="s" id="LA3E.s22" part="N">It engineered to ripen longer on the vine and still be enough to withstand the processes of picking, picking and transport.</s>
>
> <s TEIform="s" id="LA3E.s23" part="N">By 1997 it had been withdrawn front market.</s>
>
> <s TEIform="s" id="LA3E.s24" part="N">Contrary to Calgene's expectations, the tomatoes were often so soft and bruised that they could not be sold as fresh produce, and most of the FlavrSavr varieties did not have acceptable yields or disease resistance in tomato-growing regions. </s>

LA3S_cor.xml and LA3S_new.txt Spanish files follow the same procedure as LA3E_cor.xml and LA3E_new.txt English files, respectively. The output files are uploaded into a Query Program that we will call *AKSIS search form for GE_P-ACTRES*, which is a program for querying text corpora (see 4.2.3.). Knut Hofland adapted the search form from IMS Corpus Workbench (CWB, http://www.ims.uni-stuttgart.de/projekte/CorpusWork bench/). The website mentions that the CWB applications are data-driven linguistics, lexicography and terminology. Therefore, a query program is essential for conducting lexical analysis of corpora. To maximally exploit the possibilities of a query program, the *GE_P-ACTRES corpus* was POS tagged, as explained in the next section.

4.2.3.4. POS tagging

POS tagging makes easier the task of searching for linguistic patterns. *GE_P-ACTRES corpus* was wordclass annotated with the help of *TreeTagger*, a part-of-speech tagger developed by Helmut Schmid at the University of Stuttgart (http://www.ims.uni-stuttgart.de/projekte/corplex/TreeTagger/).The *Tree tagger* is run from MS-DOS commands and the help of a *Perl* interpreter (http://www.perl.org/get.html).

Treetagger has been used for language pairs other than English and Spanish. Its accuracy improves thanks to the train-tree-tagger program that comes with it. After running the train-tree-tagger, we obtain an output file with the *.pre* extension for every chapter. The .pre files are used for the proper tagging process. The result is a set of verified files with the *.tag* extension that will be converted into *.cwb* format to be loaded into the search form.

4.2.3.5. Software tools

The corpus preparation is in vane if it is not analyzed by software tools, notably *WordSmith Tools*, *Multiterm* and *AKSIS* search form. The search form and the complete corpus (password needed) can be accessed from the ACTRES website at the University of Valladolid (http://www.cittac.uva.es/corpus.php or http://actres.unileon.es/demo.html):

Fig. 4.26: *ACTRES website at the University of Valladolid.*

There are four links on the home page: The list of books that are part of the corpus, a demo of the search form, the search form for the whole corpus and a link to download the corpus texts.

When we select *search the whole corpus* (search form), the retrieval software has the following appearance in fig. 4.27. This screenshot is the CWB search interface to extract concordances, and in this sense, the AKSIS search form facilitates the access and analysis of data. From the *Book/chapter* pull-down menu, we can select individual chapters or the whole book.

Another pull-down menu on the left hand side shows the possibility of selecting the *whole word, start, end* and *part of* the search word. Since there are three pull-down menus of this type, it is possible to search for three words in a row as part of a concordance. Therefore, the search of collocations works as an *n-gram* facility being the *n*, either 1-, 2- or 3-word clusters.

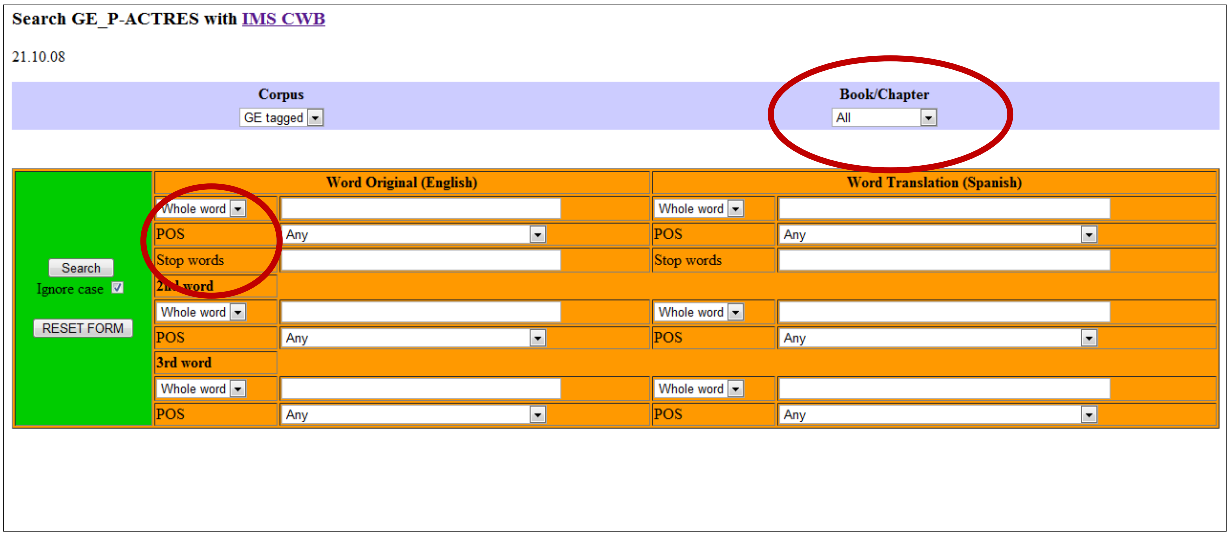


Fig. 4.27: *CWB search interface for GE_P-ACTRES*

Concordances will be the object of study in the quantitative part of the corpus exploitation along with wordlists, keyword lists and term lists, but there is also a qualitative part and a summarizing norm-establishing stage that will be dealt with below.

4.3. CORPUS EXPLOITATION: DTS model (Toury 1995)

This section presents translation as a research methodology that takes into account the previous key concepts and theories as the necessary knowledge to describe and clarify an understanding of the translation practice as a product.

New technologies have facilitated a closer approach between theory and practice of translation (Rabadán and Fernández Nistal 2002: 11). Hence, CL methods will be employed within a descriptive translation framework as explained in the previous section.

4.3.1. An introduction to Translation as research methodology (analytical model): Descriptive Translation Studies (DTS)

The character of TS has shifted from a hermetic prescriptive to a "distinctly descriptive focus" (Olohan 2004: 5). The scholar that vigorously highlighted the development of the descriptive branch of TS was Toury:

> The central role played by DTS within Translation Studies is put forward by Toury very strongly when he states that the development of the descriptive branch of the discipline is the primary condition for the evolution of Translation Studies into a complete and autonomous empirical science, as it was envisaged by Holmes two decades ago (Laviosa 2003b: 47).

Descriptive Translation Studies (DTS) is the sister node of the theoretical branch within the ‘pure’ section of Holmes’ map (1972/2005) (see fig. 3.21). DTS well matches with the discipline of CL since CL is empirically descriptive.

> Thus corpus methodology clearly has some applicability within the broad theoretical framework of DTS, since it provides a method for the description of language use in translation, whether this concerns the target text only, or both source and target texts in parallel (Olohan 2004: 17).

The empirical nature of both disciplines was also noted when we discussed the work of the Neo-Firthian corpus linguistics although Firth’s ideas are more pertinent to translation and corpus-based studies than Chomskyan’s (Kenny 2001: 3):

> [N]eo-Firthian corpus linguists share much common ground with scholars working in the area of descriptive translation studies in particular (Kenny 2001: 48).

And the relevance of DTS in current TS has been particularly emphasized by Rabadán and Merino (2007: 17-33) in the “Introduction to the Spanish translation” of *Descriptive Translation Studies and Beyond* (Toury 1995). Rabadán and Merino (2007: 27) have stressed the importance of DTS as being the most powerful methodological framework of translation studies research available so far. Hence, it is worth commenting on the fact that DTS pioneered the world of TS in several ways:

- Firstly, DTS is not a mere description, but it comes with a three-phase inductive methodology that gives the target language top priority.
- Secondly, it is in essence a dynamic methodology whose existence assumes the presence of a corpus or any other type of empirical data, with the goal of bridging the gap between the theory and practice (Rabadán and Merino 2007: 19). Regarding the theory, Toury (1995: 259) claims that TS, like any other science, is searching for a theoretical framework and that the purpose of a theory should be to provide a thorough description of every aspect integrated in a specific domain. The point in which Toury leaves Holmes behind is in the fact that the results of a descriptive study will influence or should affect the theoretical branch (Toury 1995: 15). With regard to the practice, translation phenomena would not be understood if empirical data were not taken into account. In other words, a translator would be like a doctor without x-rays, MRs, CTs or any other kind of informative data (Rabadán and Fernández Nistal 2002: 17).

- Thirdly, DTS is the most appropriate way of assessing, rejecting, adjusting, and validating a concrete theory for a particular object of study (Toury 1995: 1).
- Fourthly, DTS offers a framework for all kinds of TS regardless of the level or type (Toury 1995: 11). Although according to Snell-Hornby (2006: 42), DTS is nowadays used as synonymous with literary translation studies.
- Finally, the DTS method facilitates a secure "work path" (Rabadán and Fernández Nistal 2002: 16), also known as "research protocol" (Rabadán and Merino 2004: 29) for both the translator and the academic. Rabadán and Fernández Nistal (2002) specify that DTS needs to fulfill several requirements to be a research protocol.

  To start off building the research protocol, DTS will call for, at least, three requirements. Rabadán and Fernández Nistal (2002: 18) argue that (a) DTS methodology shall include the relevant pragmatic and contextual information in the analysis; (b) that DTS shall provide the steps to study and identify target texts; and (c) that it shall provide any means to analyze the different textual and linguistic levels. This three required features (a-c) emphasize a functional approach based on descriptive data that will illuminate and constitute the foundations of DTS. Rabadán and Merino 2007: 17) rely on a descriptive method in TS since the description of empirical data will ensure that the conceptualization focuses on the real object of study.

Regarding the requirement a), the previous chapters in the theoretical framework and also the step 1 in Toury's DTS (fig. 4.28) research model will meet this point. In terms of the requirement b), the steps taken to scrutinize empirical data are summarized in three stages (fig. 4.28) beginning with the location of the TT within a given culture in the TL, followed by a comparison of certain ST-TT translation units to, finally, reach decision-making conclusions and, put forward norms that may help in similar texts in future translating. Below is the three-branched DTS methodology proposed by Toury (1995):

DTS (Toury 1995: 38; Munday 2001: 112)	
1	***Placement of the TT and assessment of its acceptability within its culture system.***
2	***Identification of translation shifts for recognized ST-TT segments; and establishment of the norm of translation equivalence and the underlying concept of translation.***
3	***Formulation of implications for decision-making in future translating.***

Table 4.28: *Outline of Toury's DTS research model (1995) based on Munday (2007).*

This three-layered procedure will serve as an ideal research methodology to the study of interlingual translation and therefore entails the compilation of parallel corpora (again, one SL and its correspondent TT in, at least, one TL). However, Toury does not explicitly specify how to carry out these three stages. Against this background, we will study each one of the mentioned stages in the DTS research method below (see 4.3.1.1).

The research questions from the introduction chapter (cf. 1.2) will guide the internal organization of the corpus exploitation. DTS research methodology will guide the external structure into three parts (Toury's research model). Since DTS is a methodology without clearly defined actions within each one of the three parts, we also looked into Williams and Chesterman's directions (2007) for data analysis in TS. The big picture of data analysis for Williams and Chesterman (2002: 61-2) is conceptualized through four stages: (1) describing the particular and general, (2) explaining in more detail, (3) predicting and anticipating when the discovered phenomenon will happen again, and finally (4) hypothesizing and making generalizations about the studied phenomena. Below is a matching chart of Williams and Chesterman's instructions and DTS stages:

<table>
<tr><th colspan="2">Williams and Chesterman (2002)</th><th colspan="2">DTS (Toury 1995)</th></tr>
<tr><td>1</td><td>Describing the general</td><td>1</td><td>Placement of the TT and assessment of its acceptability within its culture system.</td></tr>
<tr><td>2</td><td>Explaining in more detail</td><td rowspan="2">2</td><td rowspan="2">Identification of translation shifts for ST-TT segments; and establishment of the norm of translation equivalence</td></tr>
<tr><td>3</td><td>Predicting and anticipating</td></tr>
<tr><td>4</td><td>Hypothesising and making generalizations</td><td>3</td><td>Decision-making in future translating.</td></tr>
</table>

Table 4.29: *Matching of Toury's DTS research model (1995) with Williams and Chesterman's guidelines (2002) for data analysis on TS.*

Williams and Chesterman's four steps will be carried out in three stages following Toury's DTS research methodology. The first step of describing the general will correspond to the pilot study and the placement of the ST and TT in their culture systems adapted from Toury (1995: 38). The second and third steps of describing in detail, predicting and anticipating will be the core characteristics for Toury's second step: the identification of translation shifts for ST-TT pairs. Finally, the generalizing through probabilistic norms and laws of TTs will take place at the last stage of decision-making implications for future translations.

4.3.1.1. Placement of the TT within its culture system

Much attention has been drawn to literary texts within DTS. The non-literary texts of our corpus were selected with the aim of studying the type of discourse in a specialized domain of knowledge, somewhat controversial as is the case of GE, to further test if scientific controversies have a linguistic correlate.

The new world of genetically modified organisms (GMOs) is fraught with controversies both for the general public and scientific researchers. This topic is further complicated when the political discourse enters its domain. On this battleground, language becomes an essential tool in order to shape the different stances on GMOs. Is language therefore a vehicle of truth or a weapon for vested interests? Then, what is the viewpoint transmitted to the public at a popularizing discourse level? And more broadly, is it the same perspective cross-linguistically?

According to Olohan (2004: 21), the "contextualization of translation plays a crucial role within DTS" as to what values are imbued in the source culture that have passed onto the target cultural system. SL and TT sociocultural contexts are necessarily divergent. It seems that popular science books have a more restricted audience in Spain than in the countries of SL, say, the USA and the UK. Concerning the ST, some of the selected books have caused a great impact on the reader like the well-known *The Biotech Century* by Jeremy Rifkin, the President of the Foundation on Economic Trends (FOET) in Washington, DC., and the best-seller *Seeds of Deception* by Jeffrey M. Smith, founder of the Institute for Responsible Technology.

The significance and acceptability of the popular science books on GE is somewhat contentious, since there are only ten popular science books suitable for the present study, that is, translated from English to Spanish (Peninsular variety) on the topic of GE. Why were these ten books selected to be translated and not others? Who took the decision of translated these 10 books? Was the decision based on the sales? Is there any way to track the sales? It seems that it will be difficult to try to offer an answer to these questions. In overall terms, there are more original popular science books on GE published in English than in Spanish (see 8.1.). None of the Spanish originals books identified in the market about the very same topic has been translated into English. The volume of English original books outranks the number of the Spanish originals plus the TTs. Therefore, it seems that the genre of popular science on the topic of GE in English has wider popularity than the Spanish books.

4.3.1.2. Identification of translation shifts for ST-TT segments

At this stage, Rabadán suggests (1991: 198) examining whether the same semantic and textual relations of the ST have been established in the TT and what type of deviation in case there is any. The comparison of the TT to the ST will reconstruct and identify the degree of equivalence between the two texts (Rabadán 1991: 198).

The identification of ST-TT segments will mainly deal with denominative variants and semantic prosody. Interlingual translation of connotation presents a problem for being an unstable element within the linguistic system that exhibits features not equally recognizable by the speakers of the same community as stated below:

> [E]l gran problema es la connotación, que aporta un elemento de inestabilidad al sistema al presentar rasgos que los hablantes de una comunidad no reconocen de igual forma, y por ello plantea dificultades en la comunicación interpersonal (Rabadán 1991: 36).

Only through an exhaustive description of translation behavior will help the professional understand and assess translation equivalence for every type of text. As the name indicates, the overall aim of DTS is the description of translation behavior, not the evaluation of translation choices, through the use of corpora. Ahmad and Rogers (2007: 14) also designate the application of CL as a crucial tool to DTS. Through CL methods, the recognition of ST-TT segments will be carried out at terminological, phraseological/semantics and translational levels (chapter 5).

4.3.1.3. Implication of the decision-making problems

Every descriptive study cannot terminate as a mere description but should construe its own interpretation of results. Tymoczko (1998: 653-6) believes that "it is not possible to formulate universal, or general, laws of translation" due to changing views, cultures, time and the concept of translation (quoted in Olohan 2004: 19). The contrary can also be stated provided that DTS is supported by CL methods for detecting a norm of typical language use, as mentioned in chapter 3:

> And, since the very notion of corpus work places emphasis not only on what is observable but also on what is regular, typical and frequent, it relates directly to norms as discussed by descriptive translation scholars (Olohan 2004: 20).

By means of the examination of the ST and TT that reveal shifts in the relations between the two languages it may be possible to establish a norm for this type of specialized texts, whether the translator decided to adopt a strategy in favor of foreignization or domestication.

We are looking into intercultural issues and to what extent the translator cultural schemata can influence or distort translation. If we think that these texts are ideologically slanted, it may be due to the symbiosis of the relationship between the ST and the translator that makes the latter no longer an interpreter but the source writer of the TT (Basnett 1996: 11) according to the notion of translation equivalence selected by the translator.

The results from this study aim at fostering translation competence both textual competence (i.e. ideological aspects) and domain-specific competence (i.e. terminology, semantic prosodies).

4.3.2. QUALITATIVE ANALYSIS: Placement of the ST and TT into their culture systems

This section is the qualitative part of the analysis and will prepare us for the quantitative analysis of linguistically relevant ST-TT segments. There are several steps within this first stage:

- Documentation stage
- Field diagram
- ST: Description of the English popular science books
- TT: Description of the Spanish popular science books
- Comparison of ST-TT covers

4.3.2.1. Documentation stage

Apart from acquiring *grammatical*, *sociocultural* and *pragmatic* competence of popular science texts in English and Spanish, the translator must be in command of the specialized subject field. In this respect, the translator can acquire *cognitive* competence through documentation. The acquisition of these competences facilitates the translator the identification of the translation purpose (e.g. retain the informative function of a text, adapt the ST to a different audience or sociolect) in order to assess the appropriateness of the type of equivalence (e.g. formal or dynamic) used in the TT.

The documentation stage is two-fold: the specialization on the topic of GE and the elaboration of a field tree. As for the former, the outgrowth of the documentation stage will result into a section about the social understanding of GE. From a social point of view, we have been stressing that biotechnology companies' and NGO's positions are focalized into divergent mirrors. However, this clash is not necessarily perceived with the same strength in every country; that is the reason why it will be worth examining the social understanding of GE in the STs compared to the TTs. On the one hand, the public opinion will be summarized from the point of view of the English speaking countries, particularly US and UK. On the other hand, the Spanish perspective and attitude towards GE will also be reviewed.

As for the latter, the role of documentation is of primary importance, since it allows the researcher to get acquainted with specific terminology and concepts:

> [I]t is essential to use original-language documentation to obtain true-to-life terminology (Bowman 1997: 163).

Not only is original-language information essential but also the fact that it is up-to-date. Cabré (1999: 203) recommends the access to lexicographic, terminological and specialized resources (e.g. dictionaries, glossaries and books/articles on the subject field). Both online and offline resources were useful to fulfill the aforementioned double aim. Among the online, a number of documentation resources of the subject field have been consulted including official organism websites of governments, biotechnology companies, ecologists and newspapers among others.

General information about biotechnology is displayed in The European Commission website (http://ec.europa.eu/biotechnology/index_en.htm), along with a number of reports and regulations:

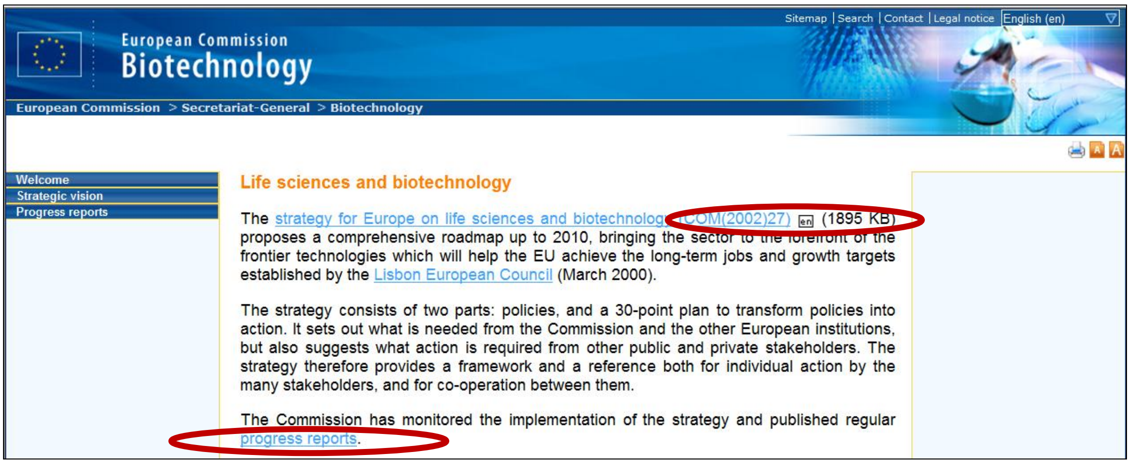


Fig. 4.30: *Biotechnology at the European Commission website.*

The United States Department of Agriculture (USDA) (http://www.usda.gov/) also offers information by clicking on "agriculture" on the left menu, and then, selecting "biotechnology" on the right:

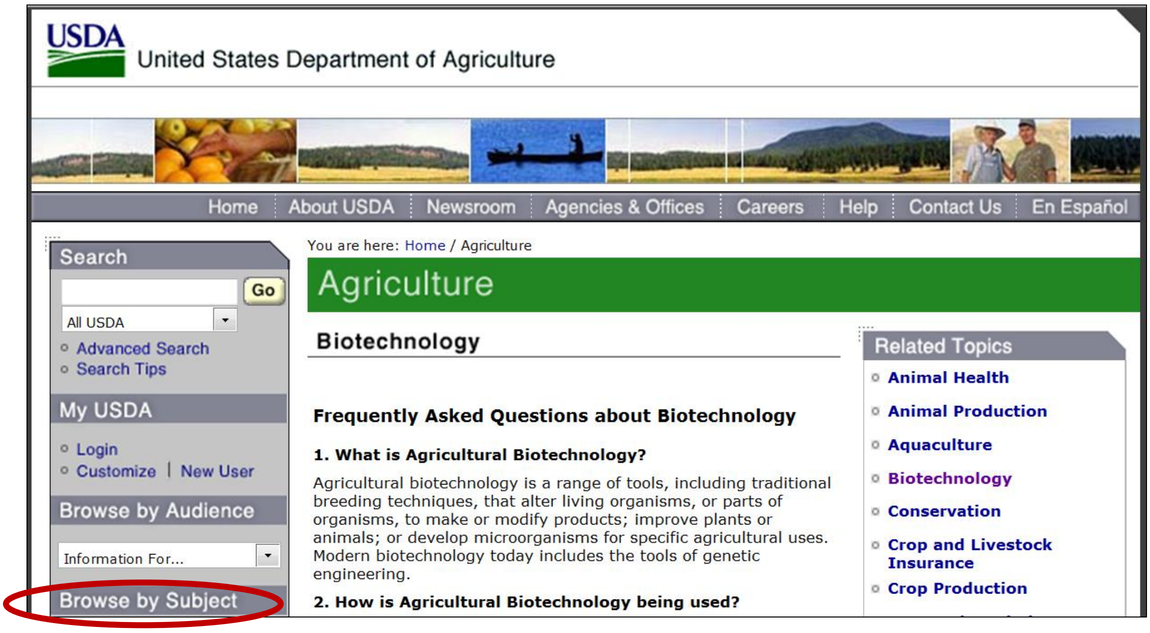


Fig. 4.31: *Biotechnology at the USDA website.*

The Australian government has gathered information about the topic as well, mainly by means of a beginner's guide to biotechnology, a glossary of terms and internet sites relating to biotechnology. Albeit the site *Biotechnology Australia* has no longer been updated since 2008 (http://www.biotechnology.gov.au/), it shows a comprehensive approach to the issue:

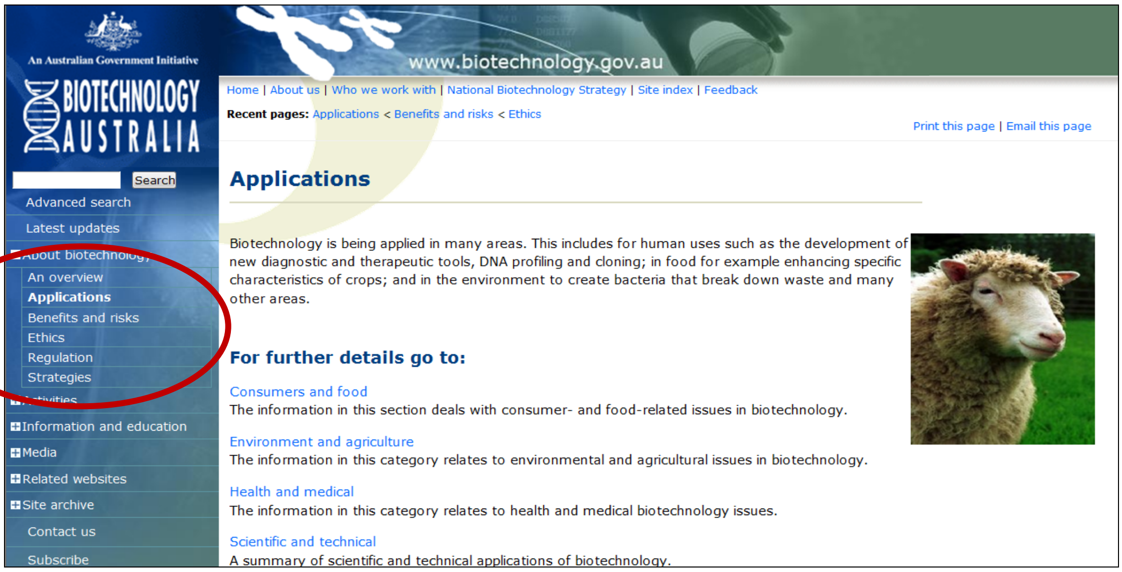


Fig. 4.32: *Biotechnology at the Australian government website.*

A website that is frequently updated is that of the Institute for Responsible Technology (http://www.responsibletechnology.org/), in which non-GMO material can be found, *inter alia*, in the form of international newspaper articles, brochures, lectures, online videos and Jeffrey Smith's blog (the author of book 10JS of our corpus).

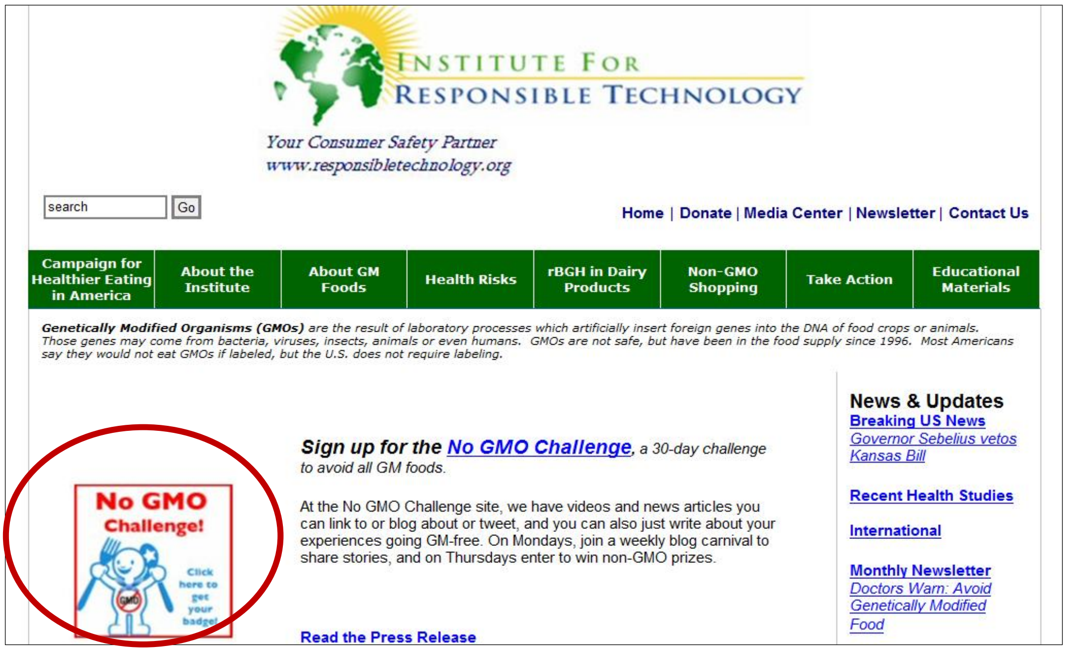


Fig. 4.33: *Institute for Responsible Technology website (Fairfield, Iowa).*

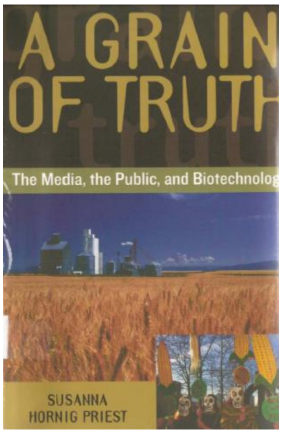
Another resourceful site is the United States Council for Biotechnology Information (http://www.whybiotech.com/). The website has also incorporated related news about Canada both in English and French, and, at the same time, about Mexico in Spanish. The material is clearly in favor of the new technology when reading the content from the following screenshot about the myths and facts of biotechnology:

Fig. 4.34: *US Council for Biotechnology Information website.*

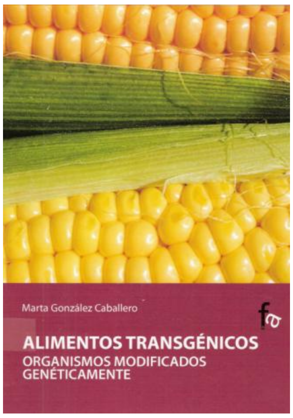
Once online resources have been examined, the offline material consisted of popular science books (other than the ones included in the GE corpus) and handbooks. The following material was found useful from a sociocultural point of view to go deeper into the public context of the subject:

a) ENGLISH POPULAR SCIENCE BOOKS:

- Dawkins, K. (2003). *Gene wars. The politics of biotechnology*. New York: Open Media, second edition.
- Hart, K. (2002). *Eating in the Dark: America's Experiment with Genetically Engineered Food*. New York: Pantheon.
- Hornig Priest, S. (2001). *A grain of truth. The media the public and biotechnology*. Lanham, MD: Rowman & Littlefield
- Lappé, M. & Bailey, B. (1998). *Against the grain. Biotechnology and the corporate takeover of your food*. Common Courage Press: Monroe, ME.
- Miller, H. I. & Conko, G. (2004). *The Frankenfood myth. How protest and politics threatens the biotech revolution*. Praeger: Westport, CT.

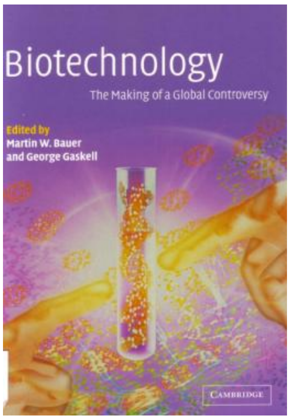


There are two other English books relevant for this part. As explained in the *Building criteria* (4.2.2.1), Fukuyama's and Shiva's books could have been part of the *GE_P-ACTRES corpus*, since they are translated into Peninsular Spanish. However, their popularizing level was considered minimum, that is, much lower than the rest of the corpus books, so that their exclusion will not unbalance the selected data, which was recognized as normal distribution. Notwithstanding, these two books are taken into account in this part provided that this section is socially-oriented.



b) SPANISH POPULAR SCIENCE BOOKS:

- González Caballero, M. (2008). *Alimentos transgénicos. Organismos modificados genéticamente.* Jaén: Formación Alcalá.
- López Guerrero, J. A. (2001). *¿Qué es un transgénico? (y las madres que lo parieron).* Madrid: Sirius.
- Mendiola, I. (2006). El jardín biotecnológico: Tecnociencia, transgénicos y biopolítica. Madrid: Catarata.
- Pedauyé Ruiz, J., Ferro Rodríguez, A. & Pedauyé Ruiz, V. (2000). *Alimentos transgénicos. La nueva revolución verde.* Madrid: McGraw Hill.
- Ramón Vidal, D. (1996). *Los genes que comemos: La manipulación genética de los alimentos*. Valencia: Algar.
- Riechmann, J. (2004). Transgénicos: *El haz y el envés. Una perspectiva crítica*. Madrid: Catarata.
- Robin, M-M, (2008). *El Mundo según Monsanto.* Barcelona: Península.



The Spanish popular science books from the list above could well form a corpus of original Spanish STs except for Robin's book, which is a translation from French. Thus, a monolingual Spanish corpus will be suggested for further research in chapter 6.

c) SOCIOLOGICAL HANDBOOKS:

- Bauer, M. & Gaskell, G. (2002) (eds). *Biotechnology: The Making of a Global Controversy*. Cambridge: CUP.
- Muñoz, E. (2001). *Biotechnology and society*. Cambridge: CUP.
- Torr, J. (2006) (ed). *Genetic Engineering.* Michigan: Greenhaven Press.

Handbooks are not considered part of the popular science list, since their perspective falls into the category of sociology and are written by sociologists. Apart from printed resources, videos and documentaries were consulted as well. Basically, all the videos examined belong to a popularizing level and can be classified as pro-GM or anti-GM, except for the video entitled *La ingeniería genetic*, aimed at high school students. This documentary focalizes the subject without taking any stance in favor or against. The visual material was classified as follows:

- Pro-GM:
  - *History's Harvest: Where Food Comes From* (2002). Monsanto documentary.

- Anti-GM:
  - *The World according to Monsanto* [Original title: *Le Monde selon Monsanto*] (2008) (by Robin, M.-M). Co-produced by Image and Compagnie et al.
  - *Genetically Modified Food: Panacea or Poison* (2005) (Shore, J.). UFO TV. http://www.ufotv.com
  - *La nueva bioesclavitud. Transgénicos y pesticidas* [Original title: *Killing Seeds: Gene Giants Mandate New Serf Age*] (2001) (by Krüger, K. & Verhaag, B.). Münich: DENKmal-Film GmbH and WESTDEUTSCHERRUNDFUNK.
  - *Futuro* [Original title: *The Future of Food*] (2004) (by Koons Garcia, D.). Mill Valley, CA: Lily Films. http://thefutureoffood.com/DVDstore.html
  - *¿Qué comemos hoy?* (2006) (by García Granda, C. & Larunbe Dorregarai, J.)
  - *Alimentos transgénicos* [Original title: *Harvest of Fear*] (2001) (by Palfreman, J.). Boston: Frontline/Nova in association with the BBC and WGBH Boston.

- Neutral stance:
  - *La ingeniería genética* (1998) (vol 85). Bilbao: Didavisión, NEAR S.A.

Apart from helping us to place both the ST and the TT into their culture systems from a social point of view, the above-mentioned resources were consulted to extract relevant information so as to elaborate the field diagram.

4.3.2.2. Field diagram

Concepts from a specialized domain are connected through a link or relationship among terms. The set of these connections between concepts constitute the conceptual structure of a discipline (Cabré 2001: 24). Based on the documentation stage, the subject field diagram is likely to be divided into general biological principles and specific principles of GE. Ethical concerns will also be added to the diagram, since all the popularizing books from the corpus and from the documentation stage bring a section that deals with ethics.

The diagram will show several branches of the GE technology. Food and agricultural applications of this technology were noticed since the first approach to the texts, but also medical and pharmacological purposes were spotted as part for the multiple purposes of GE.

Since the material used in the documentation stage is both in English and Spanish, the field tree was made bilingual. Apart from using the popular science books mentioned in the documentation stage, a group of reports and leaflets was looked up.

d) REPORTS:

- Moreno Castro, C., Luján López, J. L. & Moreno Fernández, L. (1996). *La ingeniería genética humana en la prensa: Análisis del contenido de ABC, El País y La Vanguardia (1988-1993)* [Human Genetic Engineering in the Press: Content Analysis of the newspapers *ABC, El País* and *La Vanguardia* (1988-1993)]. Madrid: Instituto de Estudios Sociales Avanzados, CSIC.
- Quintanilla, M., Escribano, M., Escobar, M. & Sabbatini, M. (2005). *Cultural biotecnológica en España. Análisis e interpretación de datos*. Madrid: Fundación Genoma España. Available online: http://www.novatores.org/html/es/eprint/show.html?ePrintId=108

These reports are issued by scientists as well as in the case of the following leaflets published by the Spanish Association of Biotechnology (SEBIOT, Sociedad Española de Biotecnología, http://www.sebiot.org) and are addressed to the general public.

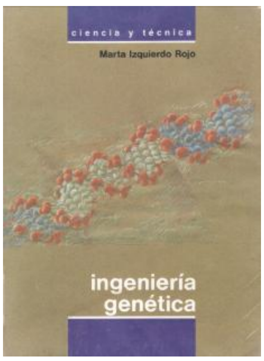
e) LEAFLETS:

Fig. 4.35: *Spanish Association of Biotechnolog, (SEBIOT) website.*

Material at the university level was also selected, mainly, course handouts and university coursebooks, that are addressed to semi-expert tenors.

f) UNIVERSITY COURSEBOOKS:

- Baxter, J. & Thomas, J. (2006). "Genetic manipulation*"*. Coursebook of the subject *S250 Science in Context* offered at the Open University, Milton Keynes Campus, UK.
- Izquierdo Rojo, M. (1992). *Ingeniería genética*. Madrid: Pirámide.
- Oksman-Caldentey, K-M. & Barz, W. H. (2002) (eds). *Plant biotechnology and transgenic plants.* New York: Marcel Dekker.



- Sierra de Grado, R. (2007). *Genetic engineering*. Course handouts. Palencia campus, Universidad de Valladolid: Producción Vegetal y Recursos Forestales, Escuela Técnica Superior de Ingenierías Agrarias.
- Tourte, Y. (2005). *Genetic engineering and biotechnology. Concepts, methods and agronomic applications*. Enfield, NH: Science Publishers.

Once the documentation stage is over, we can move to describe the books from the inside (next section) and the outside (see 4.3.2.5.).

4.3.2.3. ST: Description of the English popular science books

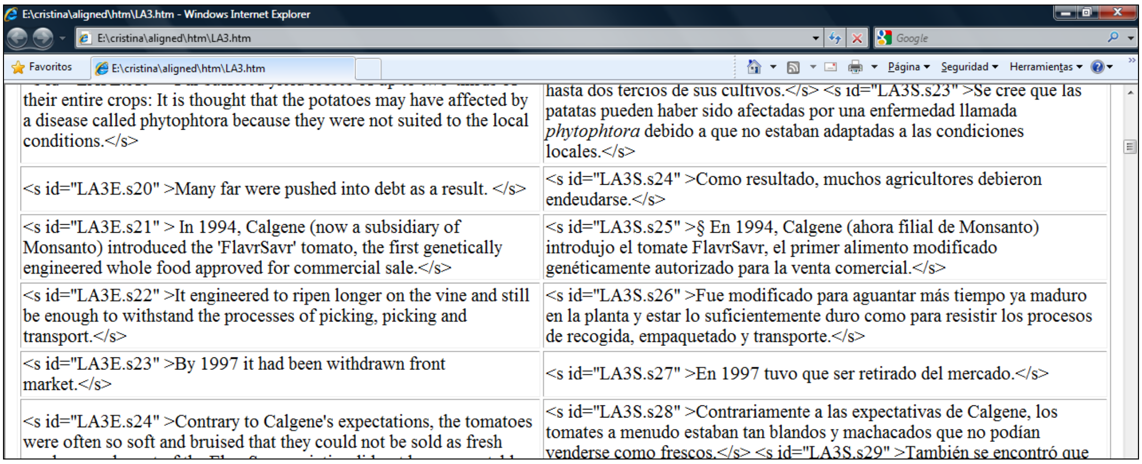
Although CL methods can assure the validity of a study from a quantitative point of view, it may be advisable to be familiar with the material in order to have a good command of the text from a qualitative perspective.

This section will help to bridge the gap between the context of text production (one of the study objectives in the documentation stage) and corpus data so that corpus analysis is not seen as entirely abstracted from its linguistic and social context. The focus will be the observation of features such as the tone, the extent of colloquialism and the standpoint of the books that may be useful to study terminologies and phraseologies.

Since GE has multiple applications, the qualitative description of the books helped us to have an idea of how much the book devotes to dealing with the different applications to plants, animals and human beings. The balance between the explanation of speciality concepts and the concerns will also be assessed.

4.3.2.4. TT: Description of the Spanish popular science books

The qualitative description of both the STs and TTs is based on bitexts created in html out of the output files exported after the alignment process. The English and Spanish text files (e.g. LA3E_new.txt and LA3S_new.txt) are converted into an html friendly version, as illustrated below:



their entire crops: It is thought that the potatoes may have affected by a disease called phytophtora because they were not suited to the local conditions.</s>	hasta dos tercios de sus cultivos.</s> <s id="LA3S.s23" >Se cree que las patatas pueden haber sido afectadas por una enfermedad llamada *phytophtora* debido a que no estaban adaptadas a las condiciones locales.</s>
<s id="LA3E.s20" >Many far were pushed into debt as a result. </s>	<s id="LA3S.s24" >Como resultado, muchos agricultores debieron endeudarse.</s>
<s id="LA3E.s21" > In 1994, Calgene (now a subsidiary of Monsanto) introduced the 'FlavrSavr' tomato, the first genetically engineered whole food approved for commercial sale.</s>	<s id="LA3S.s25" >§ En 1994, Calgene (ahora filial de Monsanto) introdujo el tomate FlavrSavr, el primer alimento modificado genéticamente autorizado para la venta comercial.</s>
<s id="LA3E.s22" >It engineered to ripen longer on the vine and still be enough to withstand the processes of picking, picking and transport.</s>	<s id="LA3S.s26" >Fue modificado para aguantar más tiempo ya maduro en la planta y estar lo suficientemente duro como para resistir los procesos de recogida, empaquetado y transporte.</s>
<s id="LA3E.s23" >By 1997 it had been withdrawn front market.</s>	<s id="LA3S.s27" >En 1997 tuvo que ser retirado del mercado.</s>
<s id="LA3E.s24" >Contrary to Calgene's expectations, the tomatoes were often so soft and bruised that they could not be sold as fresh	<s id="LA3S.s28" >Contrariamente a las expectativas de Calgene, los tomates a menudo estaban tan blandos y machacados que no podían venderse como frescos.</s> <s id="LA3S.s29" >También se encontró que

Fig. 4.36: *Screenshot of LA4.html bitext.*

To obtain an html bitext, a bat file (*htm-table.bat*) was run by opening the command window so as to convert the English and Spanish output text files into parallel columns in the form of a table. However, this html bitext is not uploaded in the Corpus Workbench (CWB) AKSIS search form since it is a static text from which searches cannot be made, but the five output aligned files for every chapter.

4.3.2.5. Comparison of ST-TT covers

Not only the book content places the ST and TT into their culture systems but also the understanding of the book covers, which is the first aspect to be approached by a reader. The ST and the corresponding TT covers were compared by means of a brief semiotic analysis of the images shown on the book covers. From the TS chapter, section 4.4.4. Intersemiotic translation was particularly useful to carry out the comparison and interpretation of how the visual signifier is encoded and how the signified can be construed and connected to the context of text production.

A screenshot of every book cover with be provided. Semiotics points out that images contain multiple signs that have meaning. That meaning may reveal the book's point of view without even having to open it.

To wrap up this section, the findings from the qualitative description will be corroborated through CL methods in the next section devoted to the quantitative aspects of the analysis.

4.3.3. QUANTITATIVE ANALYSIS: Recognition of ST-TT segments at terminological, phraseological and translational levels

One method is to begin by considering what one expects to find in the data, and then look at the data to see how far the expectation is met (Renouf 1997: 262). Once the corpus is built and well documented (see from 4.2.2 to 4.3.2.), CL research will explain data in more detail, predict and anticipate conclusions following Williams and Chesterman (2002) or Teubert (1999: 4).

<table>
<tr><th colspan="2">Teubert (1999)</th><th colspan="2">Williams and Ch. (2007)</th><th colspan="2">DTS (Toury 1995)</th></tr>
<tr><td></td><td></td><td>1</td><td>Describing the general</td><td>1</td><td>Placement of the ST and TT within their culture systems</td></tr>
<tr><td>1</td><td>Automatic extraction of data</td><td>2</td><td>Explaining in more detail</td><td rowspan="2">2</td><td rowspan="2">Identification of ST-TT segments; and establishment of the norm of translation equivalence</td></tr>
<tr><td>2</td><td>Interpretation of data by statistical means</td><td>3</td><td>Predicting and anticipating</td></tr>
<tr><td>3</td><td>Validation on the part of the researcher</td><td>4</td><td>Hypothesising and making generalizations</td><td>3</td><td>Decision-making in future translating.</td></tr>
</table>

Table 4.37: *Matching of Toury's DTS research model (1995) and Williams and Chesterman's guidelines (2002) with Teubert's (1999) for data analysis on TS.*

Since the directions proposed by these authors are still broad enough, they can be concretized by matching Teubert's steps with Williams and Chesterman's and Toury's, so that we can obtain the chart in table 4.37.

The first two steps in Teubert will be taken in Toury's second part for ST-TT segment identification. The extraction and interpretation are carried out in every one of the terminological, phraseological and translational levels. And finally, the validation will come with the last section in Toury's methodology about norms and decision-making implication for future translating. Table 4.38 illustrates the matching of Teubert's procedure with the actions that will be taken for the analysis of this PhD dissertation:

<table>
<tr><td colspan="2">Teubert (1999)</td><td colspan="2">This PhD dissertation</td></tr>
<tr><td colspan="2"></td><td>1</td><td>Qualitative analysis (placement within the ST and TT culture systems)</td></tr>
<tr><td>1</td><td>Automatic extraction of data</td><td rowspan="2">2</td><td rowspan="2">Quantitative analysis of ST-TT segments at the:
- Terminological level
- Phraseological level
- Translational level</td></tr>
<tr><td>2</td><td>Interpretation of data by statistical means</td></tr>
<tr><td>3</td><td>Validation on the part of the researcher</td><td>3</td><td>Norm-establishing process</td></tr>
</table>

Table 4.38: *Matching of Teubert's procedure (1999) with the method of this PhD dissertation.*

Our focus is now on the terminological, phraseological and translational levels that will be studied in the next block as part of the quantitative analysis.

4.3.3.1. Terminology: Wordlists, keyword lists and term lists

The first group of research questions deals with popular science features, especially keywords in GE discourse and GE terminology. The automatic extraction of data is mainly carried out with the help of WST5 and stop wordlists. In order to obtain a keyword list and a term list, several wordlists and stopword lists must be created first. The main aim is to obtain a list of keywords and terms for an analysis of their collocational profile.

4.3.3.1.1. *Preselection: Wordlists*

A wordlist is a recurrent starting point and a frequent mechanism to approaching texts. In Scott and Tribble's words, it is a raw "list of word-types" (Scott and Tribble 2006: 12).

> A word list program goes through a text or a set of texts and reduces all repeated tokens to types; that is, each instance (*token*) of the word THE is counted but the completed list displays THE

only once as a *type*, usually together with its frequency (the number of tokens found) (Scott and Tribble 2006: 13).

Types should not be confused with lemmas. A type is a word-form, that is, every different word (e.g. *girl* and *girls* will be two types). The tokens of *girl* would be the number of occurrences *girl* is repeated in a text. Both *girl* and *girls* along with *girlish* and *girlhood* make up four types that can be merged under the same lemma (*girl*). The bottom tabs on a wordlist screen allow the researcher to access statistics regarding the number of tokens and types. Some graphs were created to illustrate the type/token ratio (TTR) and the possible connection with the level of specialization of the text.

The TTRs were taken from two main wordlists for each one of the source and target languages. The ten English books were selected in WST5 so that an alphabetically ordered and frequency ordered wordlist was generated when clicking on the *wordlist* function. The same was done for the Spanish texts. It is essential not to forget the language change option since characters, especially accents, are not computed in the same way in different languages.

These two raw wordlists, the English and the Spanish ones, are *monolexical*, since one-word hits are shown. Having a close look at single words, we observe that a wordlist is mathematically driven (Scott and Tribble 2006: 31). That is to say, that there will be a major number of words in a text whenever the same words are not frequently used. This account is known as Zipf's Law. Therefore, high-, medium- and low-frequency items will be examined to observe what type of words fall in each category. Since the majority of words on top of a wordlist are grammatical, it is necessary to leave the lexical words by means of a stopword list. In practice, to obtain a depurated wordlist, we need to open the program or *controller window* and then select *settings* and *adjust settings* to finally click on *lists*.

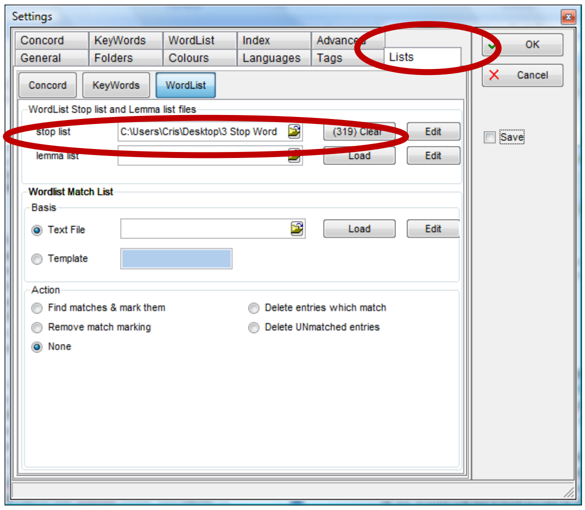


Fig. 4.39: *WST5 option for the selection of a stopword list*.

Under *lists*, a stopword list is loaded so that the next wordlist to be generated will automatically remove grammatical words from the wordlist. The same procedure was followed for Spanish. Apart from already created lists, the Corpora-list archive contains a wealth of information to build your own. For example, a Spanish wordlist can be created following the indications provided by Mark Davies (April 2008's thread) (http://mailman.uib.no/public/corpora/2008-April/006494.html) based on the *Corpus del Español* (http://www.corpusdelespanol.org/).

As may be observed, a stopword list was helpful to obtain the first candidates, both monolexical and polylexical, to be terms and also keywords. Candidates to be keywords were verified in the next stage.

4.3.3.1.2. *Keyword lists*

A keyword list is generated out of two previously created wordlists. The first one is based on our specialized corpus, the other one is a *reference corpus wordlist* (Scott and Tribble 2006: 58). Since the corpus is parallel, two wordlists for every language are needed. The recently created English wordlist from our GE corpus will be compared to an English wordlist derived from the already mentioned English-to-Spanish parallel corpus, P-ACTRES (Izquierdo 2008). The P-ACTRES wordlist works as a reference corpus wordlist and, therefore, the corpus comprises texts from newspapers and novels as representative of general language. Since the P-ACTRES has also a Spanish section, a Spanish reference corpus wordlist was generated and compared to the Spanish GE corpus wordlist. It may be affirmed that these two new P-ACTRES wordlists work as a much bigger stopword list (than the previously used) that will depurate the *GE_P-ACTRES* wordlists until attaining the most frequent content words of the speciality field in the first positions on the list.

Thus, the top frequent lexical words are good indicators of keyness. The two keyword lists, one in English and one in Spanish, reveal the keywords of the corpus, but they do not specify what keywords are more frequent in what books. To delve into this issue, a keyword list corresponding to every single book in the two languages was generated in order to observe what keywords are more salient in the different books. We should not forget to change the language to Spanish for each word list whenever we are finished with the English wordlists. These units may be candidates to be considered terminological units or keyword entities.

Keywords are expected to be used in order to gain insight into the ways in which GE is reported in popular science books. Keywords are computed according to their *p* value. This value comprises from 0 to 1.

> A value of .01 suggests a 1% danger of being wrong in claiming a relationship, .05 would give a 5% danger of error. In the social sciences a 5% risk is usually considered acceptable (Scott 2004: 125).

It is established that the *p* value is lower than 0.05 for an item to be significant, that is, the researcher is more than 95% positive that the results are not a product of mere chance (McEnery et al. 2006: 55). By interpreting the above figures, a small *p* value will imply a more restrictive number of keyword hits. The pull-down menu in WST5 gives us the option of selecting between the largest *p* value (0.1) and the smallest (0.0000001). If we pursue obtaining fewer keywords, that is, to reduce the error of obtaining non-keywords, the settings should be adjusted, for example, to 0.000001. Not only can we select the *p* value but the minimum frequency of occurrence to call a hit keyword. It is usually based on a threshold of 2 or 3 occurrences in the text. In WST5, keywords will show on the lists if they appear in at least 3 text files, although this default figure can be changed.

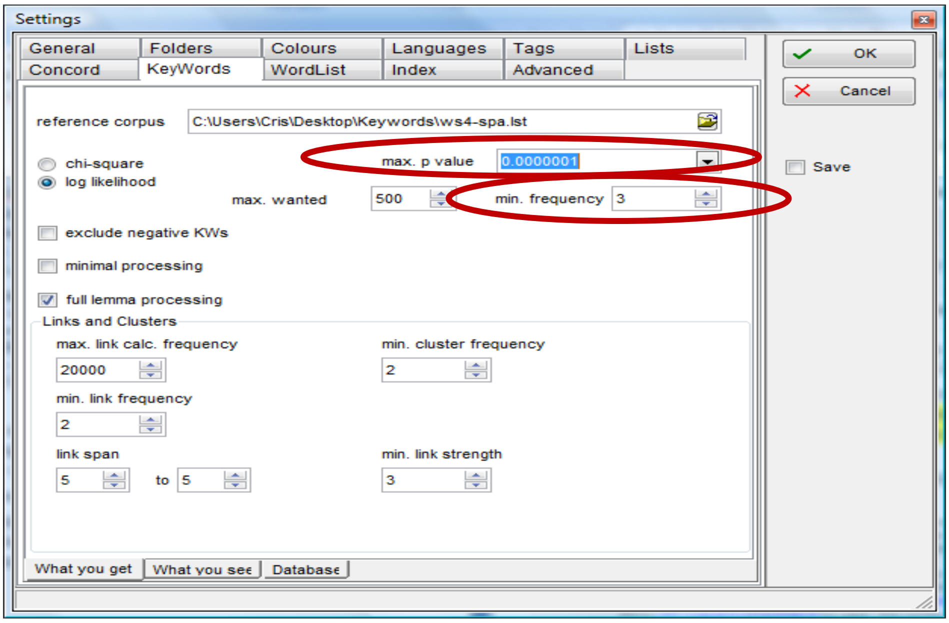


Fig. 4.40: *Setting a low* p *value in WST5.*

The screenshot shows that log likelihood measure is the default option for detecting keywords instead of the chi-square statistic:

> Log Likelihood test, gives a better estimate of keyness, especially when contrasting long texts or a whole genre against your reference corpus (Scott 2004: 124).

Although the chi-square distribution is used to make a comparison of frequency data in two different independent variables, it also observes whether data are normally distributed (Oakes 1998: 27). Log likelihood is preferred over the chi-square distribution, since the former is a measure that "does not assume a normal distribution" taking into account that most vocabulary items are rare, and thus "words in the text are not normally distributed" (Oakes 1998: 189).

As a simple statistics explanation, log likelihood measures keyness by taking the frequency of a word in a first corpus (P-ACTRES) in relation to the total number of tokens from this corpus and then compares this figure to the frequency of the same word in relation to the total number of tokens from the reference corpus.

Not only is frequency necessary to identify keywords but also, aboutness, which is the condition that a word needs to comply with in order to be key. Keyness is defined as a "mostly Textual quality" (Scott and Tribble 2006: 56). For example, the words *desert* and *heat* are keywords when describing Death Valley in California, but it will not make sense to claim that these nouns are keywords in the English language. Thus, a keyword is "an ordinary word which happens to be key in a particular text" (Scott and Tribble 2006: 78). If an item is clearly outstanding but does not reflect the aboutness of the texts is because it is usually a high-frequency close-set item including prepositions and articles.

According to the keyword type, Scott and Tribble (2006: 66) distinguish between *global* and *localized*. A global keyword is scattered evenly throughout the text, whereas a localized one is concentrated in bursts in a certain point along the text.

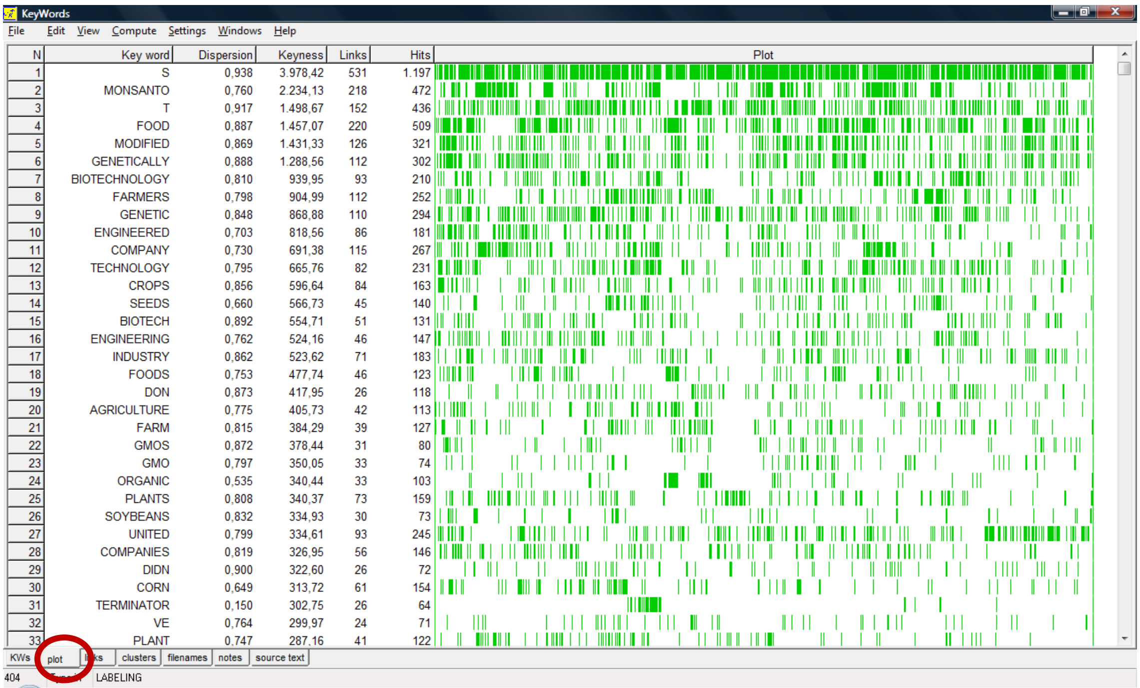
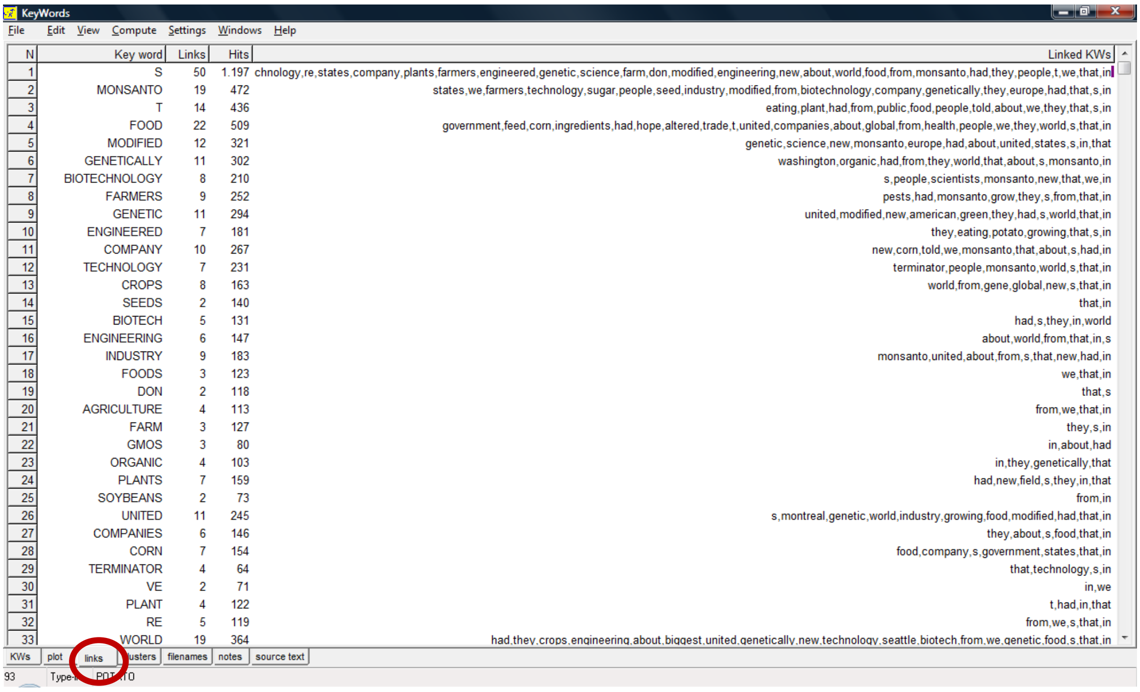


Fig. 4.41: *WST5 dispersion plot for keywords in 8BL book.*

As indicated in the help file, the program is not equipped to create multiple keyword dispersion plots for more than one book. But there is another option under *Concord* (dispersion plot) so as to obtain a plot of a particular searchword over several files.

Going back to the keyword lists, there may be the case of discovering that a certain keyword is the collocational neighbor of a keyword node. It is then said that the likehood of a given keyword instance has co-keyness (Scott and Tribble 2006: 73). Keyword linkages require both the node and the collocate to be key, and in this respect, they are different from collocations (Scott and Tribble 2006: 68).

The co-keyness is seen under a tab called "links". Narrow-span linkages are considered within a range of 4 words to the left and right of the node. The most frequently linked keyword-collocates are known as *key keywords* (Scott and Tribble 2006: 74, 77). A wide-span linkage occurs when the span between the keyword-node and keyword-collocate is greater than the four-window span of most collocational studies, for example, 11-24. The range from the eleventh word to the twenty-fifth from the node word is called a set of *associates*, which are the wide-span "collocates" of a keyword-node. Below is a screenshot of narrow-span linkages of the top keywords:



N	Key word	Links	Hits	Linked KWs
1	S	50	1.197	chnology,re,states,company,plants,farmers,engineered,genetic,science,farm,don,modified,engineering,new,about,world,food,from,monsanto,had,they,people,t,we,that,in
2	MONSANTO	19	472	states,we,farmers,technology,sugar,people,seed,industry,modified,from,biotechnology,company,genetically,they,europe,had,that,s,in
3	T	14	436	eating,plant,had,from,public,food,people,told,about,we,they,that,s,in
4	FOOD	22	509	government,feed,corn,ingredients,had,hope,altered,trade,t,united,companies,about,global,from,health,people,we,they,world,s,that,in
5	MODIFIED	12	321	genetic,science,new,monsanto,europe,had,about,united,states,s,in,that
6	GENETICALLY	11	302	washington,organic,had,from,they,world,that,about,s,monsanto,in
7	BIOTECHNOLOGY	8	210	s,people,scientists,monsanto,new,that,we,in
8	FARMERS	9	252	pests,had,monsanto,grow,they,s,from,that,in
9	GENETIC	11	294	united,modified,new,american,green,they,had,s,world,that,in
10	ENGINEERED	7	181	they,eating,potato,growing,that,s,in
11	COMPANY	10	267	new,corn,told,we,monsanto,that,about,s,had,in
12	TECHNOLOGY	7	231	terminator,people,monsanto,world,s,that,in
13	CROPS	8	163	world,from,gene,global,new,s,that,in
14	SEEDS	2	140	that,in
15	BIOTECH	5	131	had,s,they,in,world
16	ENGINEERING	6	147	about,world,from,that,in,s
17	INDUSTRY	9	183	monsanto,united,about,from,s,that,new,had,in
18	FOODS	3	123	we,that,in
19	DON	2	118	that,s
20	AGRICULTURE	4	113	from,we,that,in
21	FARM	3	127	they,s,in
22	GMOS	3	80	in,about,had
23	ORGANIC	4	103	in,they,genetically,that
24	PLANTS	7	159	had,new,field,s,they,in,that
25	SOYBEANS	2	73	from,in
26	UNITED	11	245	s,montreal,genetic,world,industry,growing,food,modified,had,that,in
27	COMPANIES	6	146	they,about,s,food,that,in
28	CORN	7	154	food,company,s,government,states,that,in
29	TERMINATOR	4	64	that,technology,s,in
30	VE	2	71	in,we
31	PLANT	4	122	t,had,in,that
32	RE	5	119	from,we,s,that,in
33	WORLD	19	364	had,they,crops,engineering,about,biggest,united,genetically,new,technology,seattle,biotech,from,we,genetic,food,s,that,in

Fig. 4.42: *Narrow-span linkages of top keywords.*

Some linkages are useful to discover phraseologies that reveal a multi-word unit. Proper nouns are also likely to be key. As a rule of thumb, the top keywords have positive keyness. A positive keyness occurs when a word is more often used in the research corpus than in the reference corpus. When the opposite occurs, that is, when a word is negatively key, it is due to the lower frequency of occurrence in the research corpus in comparison with the reference corpus. The negative keywords are located at the bottom of the list. We can mark the option of excluding negative keywords.

The fact that we pay attention to the top of the list does not imply that all the words in that list should be selected for the analysis. The selection of some lexical items, such as terms, will be validated in the term extraction stage.

4.3.3.1.3. *Term extraction*

The incorrect use of specific terminology in a specialized translation may cause pragmatic errors and, therefore, prevent from complying with its communicative function. It may be the case to find inadequacies in the text due to translator's lack of terminological knowledge. Solving terminological problems usually requires some documentation either by parallel, comparable corpora, termbanks, etc.

The use of parallel corpora is very useful to extract a bilingual glossary of terms extracted with a terminological management system (i.e. *Multiterm*). However, as a handicap, the target terms tend to be influenced by the ST. Therefore, it is essential to check terminological candidates (i.e. *splice out, addition, specific/genetically modified/altered organism*) with the aid of a comparable corpus as it is well-known that documentation should be in the TL to present a reliable study.

To verify the validity of term candidates, including neologisms, an informant, who is usually an expert on the field, has been called up to corroborate data. But some documentary databases have also been employed to check and validate candidates:

- IATE (Inter Active terminology for Europe)
- ILOTERM (International Labor Organization),
- UNTERM (United Nations Multilingual Terminology Database)

At the EU's multilingual term bank, we searched for *gene* and we discovered other combinations that collocate with these terms, such as *gene gun*, *gene cassette* and *gene delivery*:

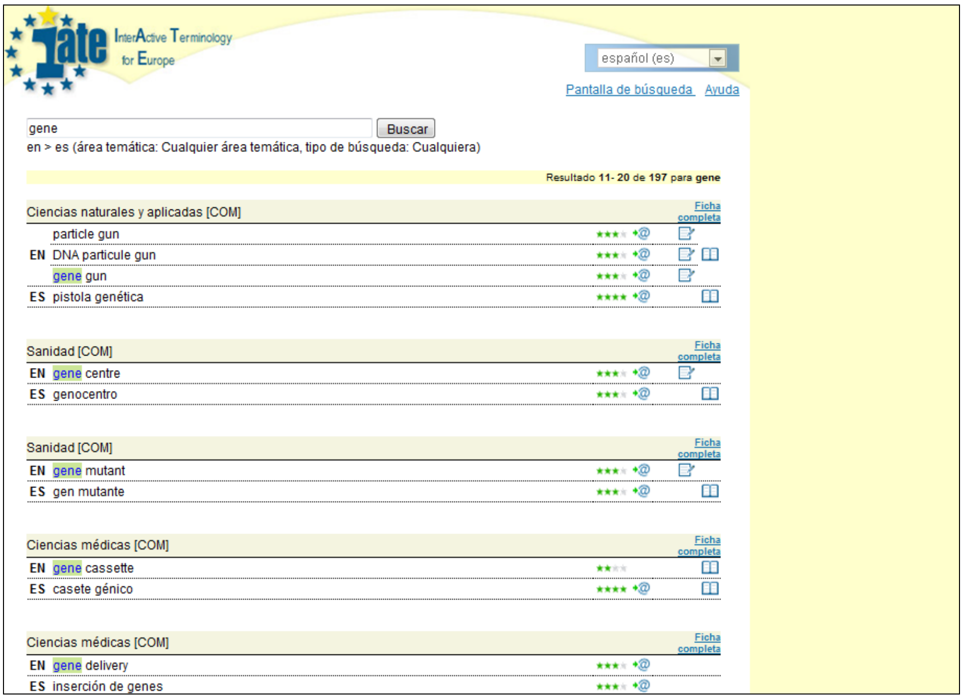


Fig. 4.43: *Term search for 'gene' at IATE database.*

The findings enrich our knowledge about the existence of new related terms and their equivalence in Spanish and other target languages. In some entries, denominative alternatives are offered within the same term. Not only terms are available but also, phraseological units. For example, *to deliver the corrected gene in vivo* is rendered by *introducir (to introduce)*, which is not a literal translation of *deliver*.

At ILOTERM (http://www.ilo.org/iloterm/), which is a UN agency, the possibility of selecting between several target languages will allow the researcher to have a bilingual or multilingual glossary of terms. The output will look as in the following screenshot:

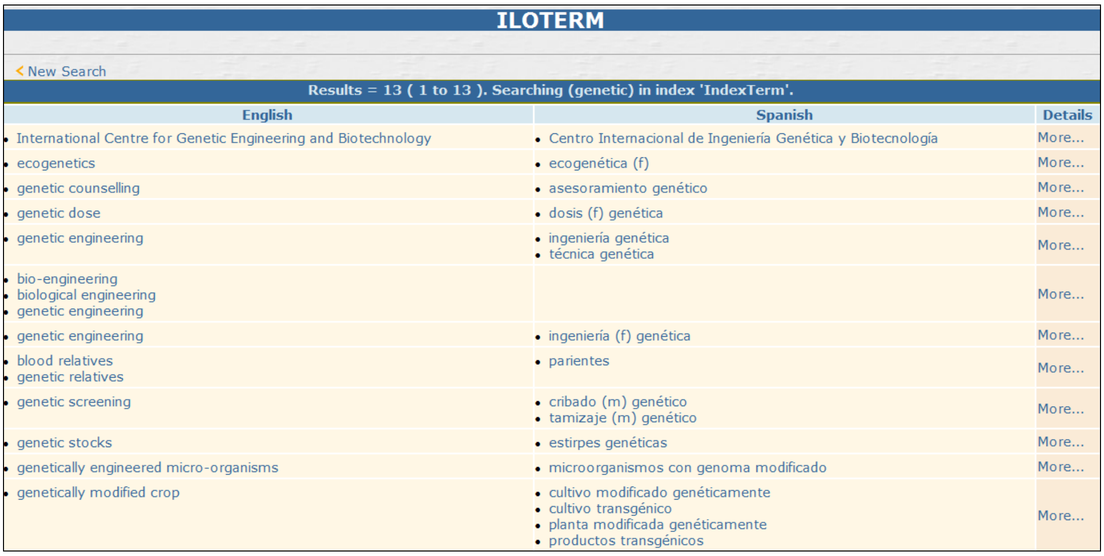


Fig. 4.44: *Term search for 'genetic' at ILOTERM database.*

At UNTERM (http://unterm.un.org/), the information obtained was useful since the notes include value judgments and expert's opinion about, for example, the new premodifiers of the term *transgenic*:

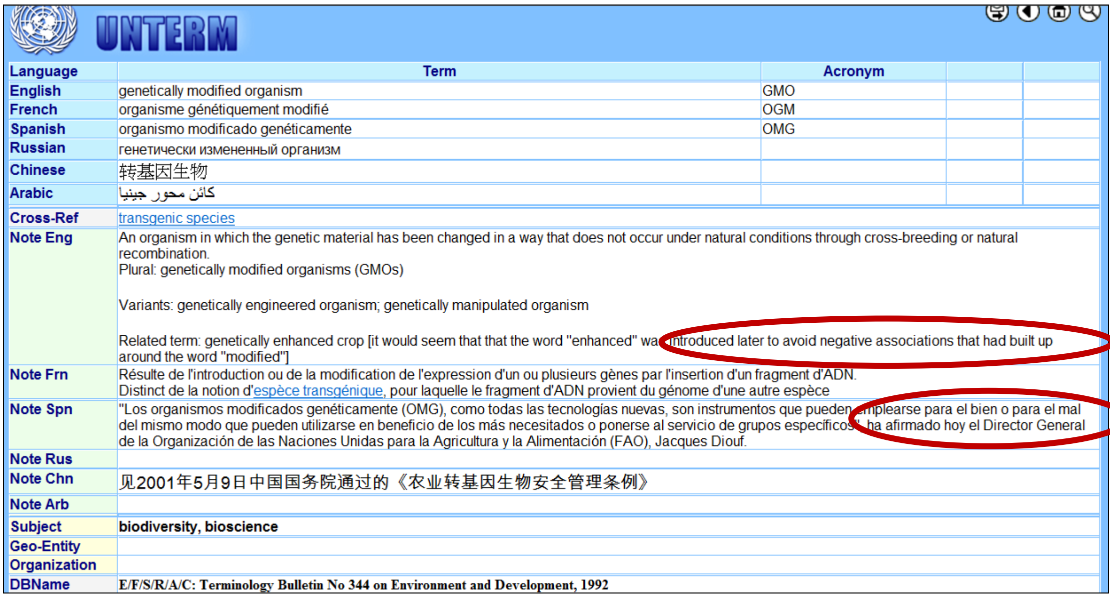


Fig. 4.45: *Term search for 'transgenic' at UNTERM database.*

At the time of consulting these online term banks, glossaries were also a useful documentary resource. An English glossary of biotechnology can be accessed at The International Service for the Acquisition of Agri-biotech Applications (ISAAA) (http://www.isaaa.org/Kc/inforesources/acronymsandglossary/default.html). Below is a screenshot of the English glossary of biotechnology:

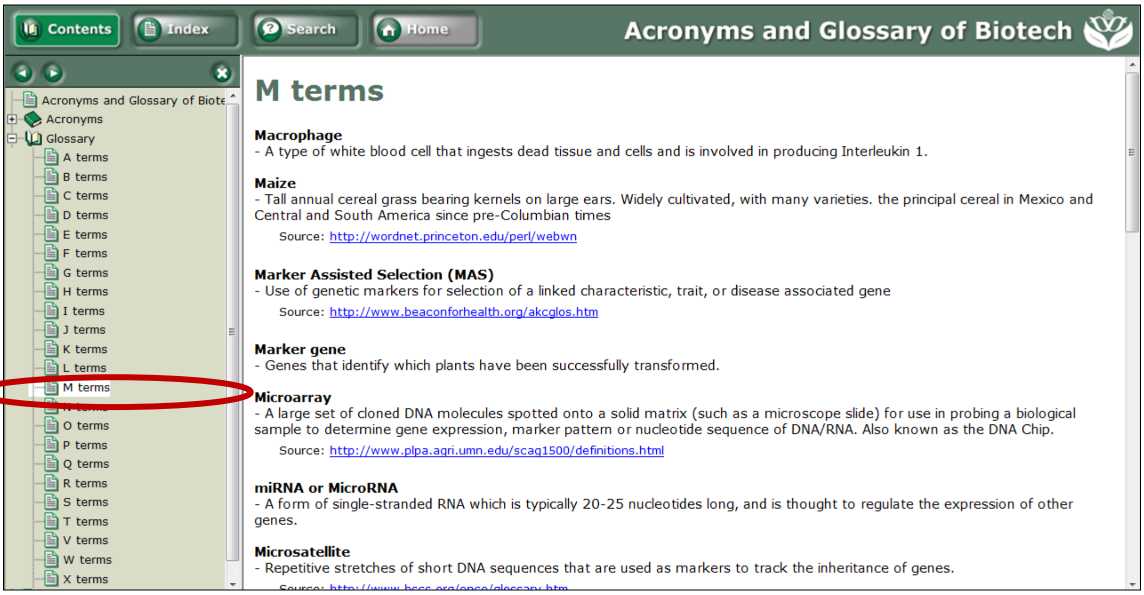


Fig. 4.46: *Glossary of biotechnology at ISAAA website (M terms).*

Apart from this glossary, ISAAA website has a wealth of information, such as videos, educational resources, briefs and perception studies among others.

In the FAO website (Food and Agriculture Organization of the United Nations), there is a multilanguage glossary entitled *Glossary of Biotechnology for Food and Agriculture* published in 2001 (http://www.fao.org/biotech/index_glossary.asp). The original version is in English and the TTs are rendered into Arabic, French, Russian, Spanish, Serbian and Vietnamese, as shown below:

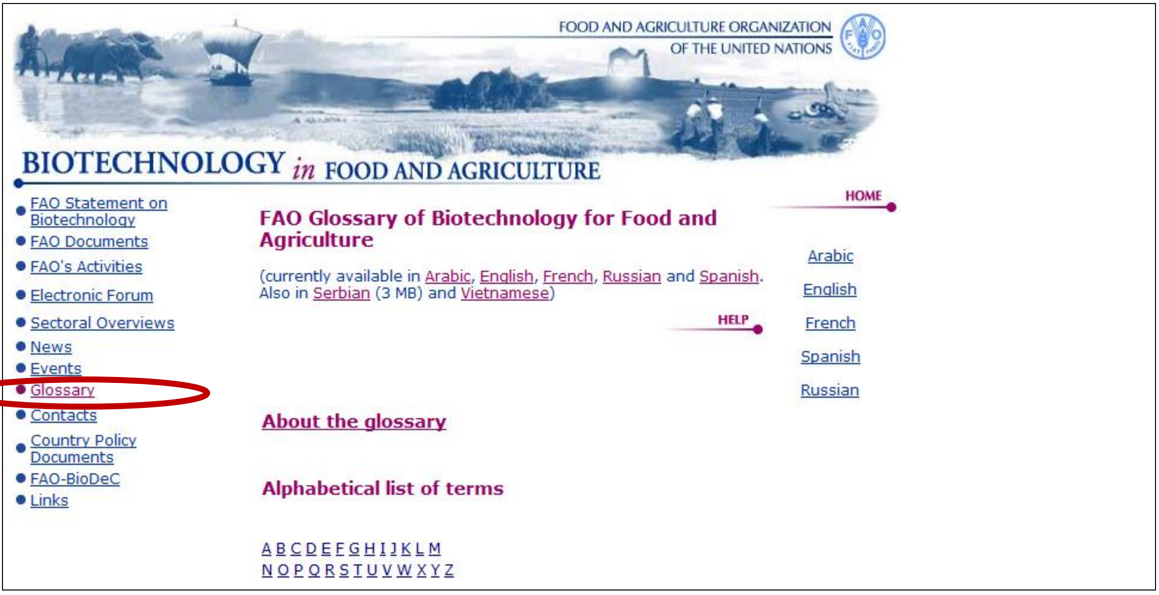


Fig. 4.47: *Glossary of biotechnology at FAO website.*

In the case of our target language, the glossary comprises translated terms in Spanish, along with their definitions. In the appendix of the glossary, there is a bilingual lexicon of the original English terms matched with the Spanish ones.

Besides websites, the access to specialized dictionaries was considered particularly enlightening:

- Arora, H. (2009). *Ane's Illustrated Dictionary of Biotechnology.* Kentucky: CRC.
- Fulekar, M. H. (2009). *Dictionary of Biotechnology*. New Delhi: IK International Publishing House.
- Kaufmann, U. & Bergenholtz, H. (2000). Genteknologist ordbog dansk-engelsk, engelk-dansk. Molekylærbiologi og DNA-teknologi. Copenhagen: Gads Forlag.

After obtaining a final list of keywords, we made a classification of the term type (technical or subtechnical) and we traced these entities through DCL as explained in the next section.

4.3.3.1.4. *Detailed Consistency List (DCL)*

Another statistical measure is the Detailed Consistency List. The *Wordlist* function has an option to generate .dcl lists in the Wordlist *Controller:*

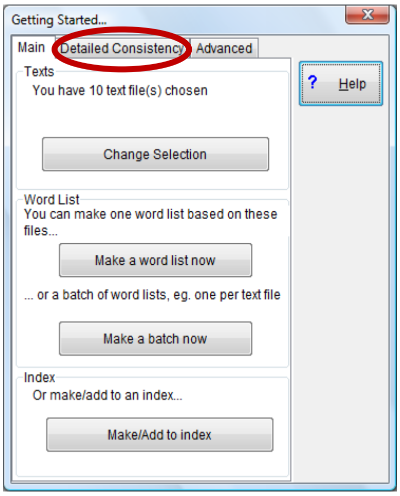
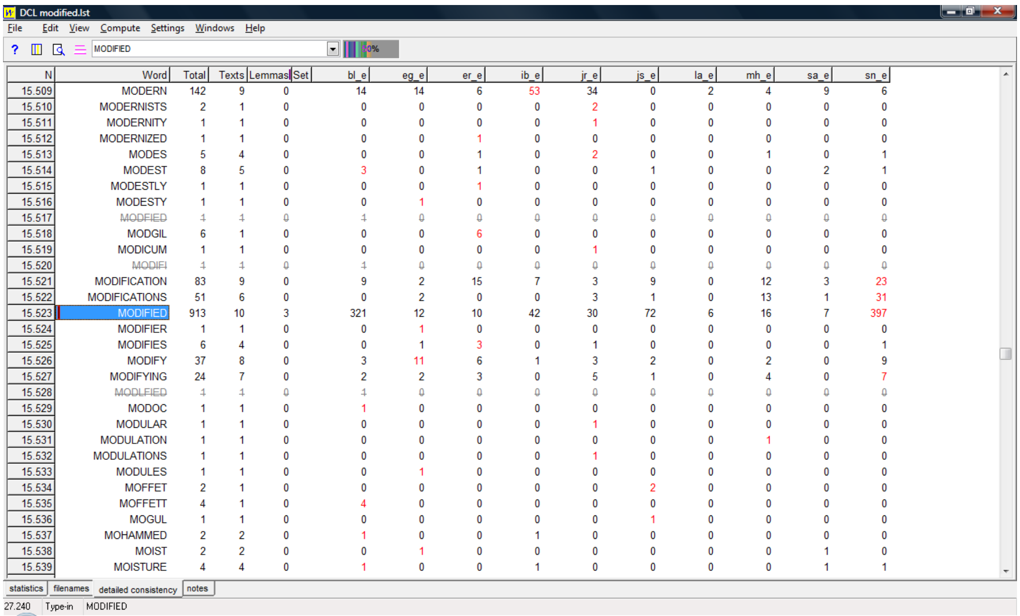


Fig. 4.48: *Wordlist Controller of Detailed Consistency Analysis.*

The input files are the individual wordlists of every book, so that the frequency of the searchword can be traced in each book. The dcl list ranks items alphabetically according to frequency and in as many texts as previously selected.

The following table shows part of a detailed consistency list alphabetically sorted. It is useful to gather information about where lexical items concentrate in what books. In the next figure, the word *modified* occurred in all 10 English books. It occurred 913 times in all, and it was most frequent in 10JS_en.txt at 397 occurrences.


DCL modified.lst

File Edit View Compute Settings Windows Help

MODIFIED

N	Word	Total	Texts	Lemmas	Set	bl_e	eg_e	er_e	ib_e	jr_e	js_e	la_e	mh_e	sa_e	sn_e
15.509	MODERN	142	9	0		14	14	6	53	34	0	2	4	9	6
15.510	MODERNISTS	2	1	0		0	0	0	0	2	0	0	0	0	0
15.511	MODERNITY	1	1	0		0	0	0	0	1	0	0	0	0	0
15.512	MODERNIZED	1	1	0		0	0	1	0	0	0	0	0	0	0
15.513	MODES	5	4	0		0	0	1	0	2	0	0	1	0	1
15.514	MODEST	8	5	0		3	0	1	0	0	1	0	0	2	1
15.515	MODESTLY	1	1	0		0	0	1	0	0	0	0	0	0	0
15.516	MODESTY	1	1	0		0	1	0	0	0	0	0	0	0	0
15.517	~~MODFIED~~	~~1~~	~~1~~	~~0~~		~~1~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~
15.518	MODGIL	6	1	0		0	0	6	0	0	0	0	0	0	0
15.519	MODICUM	1	1	0		0	0	0	0	1	0	0	0	0	0
15.520	~~MODIFI~~	~~1~~	~~1~~	~~0~~		~~1~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~
15.521	MODIFICATION	83	9	0		9	2	15	7	3	9	0	12	3	23
15.522	MODIFICATIONS	51	6	0		0	2	0	0	3	1	0	13	1	31
15.523	MODIFIED	913	10	3		321	12	10	42	30	72	6	16	7	397
15.524	MODIFIER	1	1	0		0	1	0	0	0	0	0	0	0	0
15.525	MODIFIES	6	4	0		0	1	3	0	1	0	0	0	0	1
15.526	MODIFY	37	8	0		3	11	6	1	3	2	0	2	0	9
15.527	MODIFYING	24	7	0		2	2	3	0	5	1	0	4	0	7
15.528	~~MODLFIED~~	~~1~~	~~1~~	~~0~~		~~1~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~
15.529	MODOC	1	1	0		1	0	0	0	0	0	0	0	0	0
15.530	MODULAR	1	1	0		0	0	0	0	1	0	0	0	0	0
15.531	MODULATION	1	1	0		0	0	0	0	0	0	0	1	0	0
15.532	MODULATIONS	1	1	0		0	0	0	0	1	0	0	0	0	0
15.533	MODULES	1	1	0		0	1	0	0	0	0	0	0	0	0
15.534	MOFFET	2	1	0		0	0	0	0	0	2	0	0	0	0
15.535	MOFFETT	4	1	0		4	0	0	0	0	0	0	0	0	0
15.536	MOGUL	1	1	0		0	0	0	0	0	1	0	0	0	0
15.537	MOHAMMED	2	2	0		1	0	0	1	0	0	0	0	0	0
15.538	MOIST	2	2	0		0	1	0	0	0	0	0	0	1	0
15.539	MOISTURE	4	4	0		1	0	0	1	0	0	0	0	1	1

statistics | filenames | detailed consistency | notes

27.240 Type-in MODIFIED

Fig. 4.49: *Detailed Consistency List (DCL) of 'modified' from WST5.*

In this part of terminological data extraction, we have checked the possibilities of the open choice principle. In the next section, we will move to study the idiom principle through concordances.

4.3.3.2. Phraseology: Concordance and Semantics

The second set of research questions is put forward here in order to shed light on semantic prosodies. Once the terms and keywords have been identified, then a case in point is to search for collocational profiles of both categories. The software used was WST5 and the AKSIS search form.

4.3.3.2.1. *Preselection: Collocations of terms and keywords*

The aim of this part is the study of the co-text of selected lexical entities, that is, how a certain keyword or term is used. A preselection is made out of English lexical items through WST5. Under *Settings* we can choose the type of inferential statistical test between MI, Z, MI3 and log-likelihood to study the strength of collocations. Inferential implies that a hypothesis is being tested (e.g. a word is statistically significant due to context not chance).

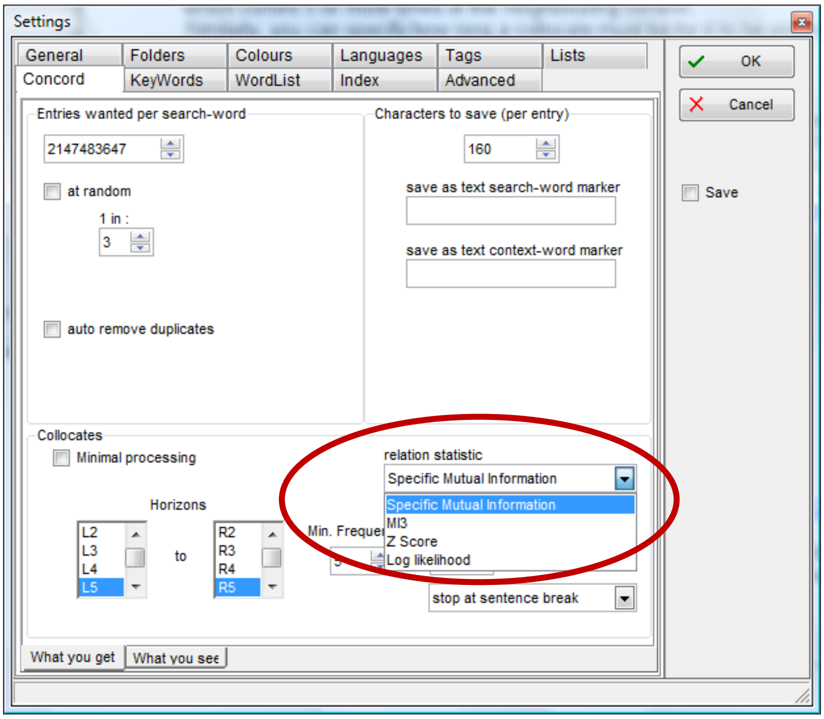


Fig. 4.50: *Pull-down menu to choose inferential statistics in WST5.*

The given default option is MI, as it is used "to find the degree of association between pairs of technical terms" in two languages and also, idiomatic collocations (e.g. *drink strong tea, not *powerful* tea, to drive a powerful car, not a *strong* car*) (Oakes 1998: 90-2). It can be defined as the:

> Probability of two things happening together compared with the probability of their occurring independently; it is thus a statistical measure of the degree of relatedness of two elements (Oakes 1998: 253).

A high MI score is a sign of a strong link between a node and its collocate. A rate of 3 and higher is considered significant for a word to be a collocate (Hunston 2002: 71). Although we used MI scores, these tests are not a completely reliable method that assures the identified collocations as meaningful (Hunston 2002: 72). Mutual Information and Z scores devote focus to rare occurrences having low-frequency items a high MI score. However, Z scores is a less used measure in CL. It compares "the observed frequency with the frequency expected if only chance is affecting the distribution" (McEnery et al. 2006: 57). Unlike MI and Z scores, MI3 gives more importance to more frequent words (McEnery et al. 2006: 217) whose observed frequencies are not doubled but cubed (Oakes 1998: 171-2). As studied in the keyword section, log likelihood is not a pertinent measure for our purposes of studying collocations inasmuch as it measures that a word was overused or underused in a specialized corpus compared with a reference corpus (Oakes 1998: 150).

Back to the *Settings* window in fig 4.50, there is a minimum of frequency of 5 occurrences for the concordance word to appear. A collocational horizon of 5 words on the left (L5) and right (R5) of the node is set by default in order to look into local proximity –collocates– of keywords and terms. The broad- and narrow-span linkages (fig. 4.42) that we talked about in the keyword section can be computed through the *Concord* function, particularly the strength of links in a more precise way (setting horizons) in the form of a concordance. We should distinguish between strong and weak collocations:

> The literature on collocation has never distinguished very satisfactorily between collocates which we think of as "associated" with a word (letter - stamp) on the one hand, and on the other, the words which do actually co-occur with the word (letter - my, this, a, etc.) (Scott 2004: 86-7).

Scott (2004: 86-7) called the first type *coherence collocates*, and the second *neighborhood collocates* or *horizon collocates*. We should be careful with the first type since, out of the 5-collocate window, results tend not to have the same strength as neighborhood collocates. By this way of reasoning, the *Concord* function generates lists of concordance lines (also known as KWIC, as already mentioned), which makes possible the identification of frequent linguistic patterns:

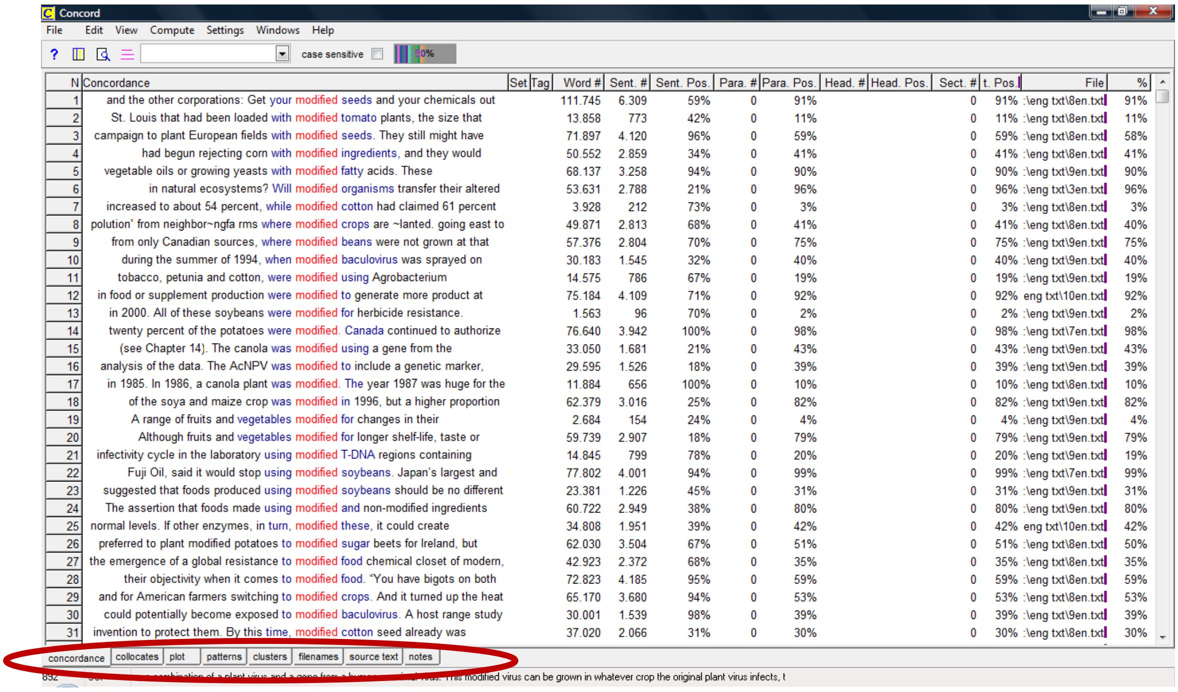
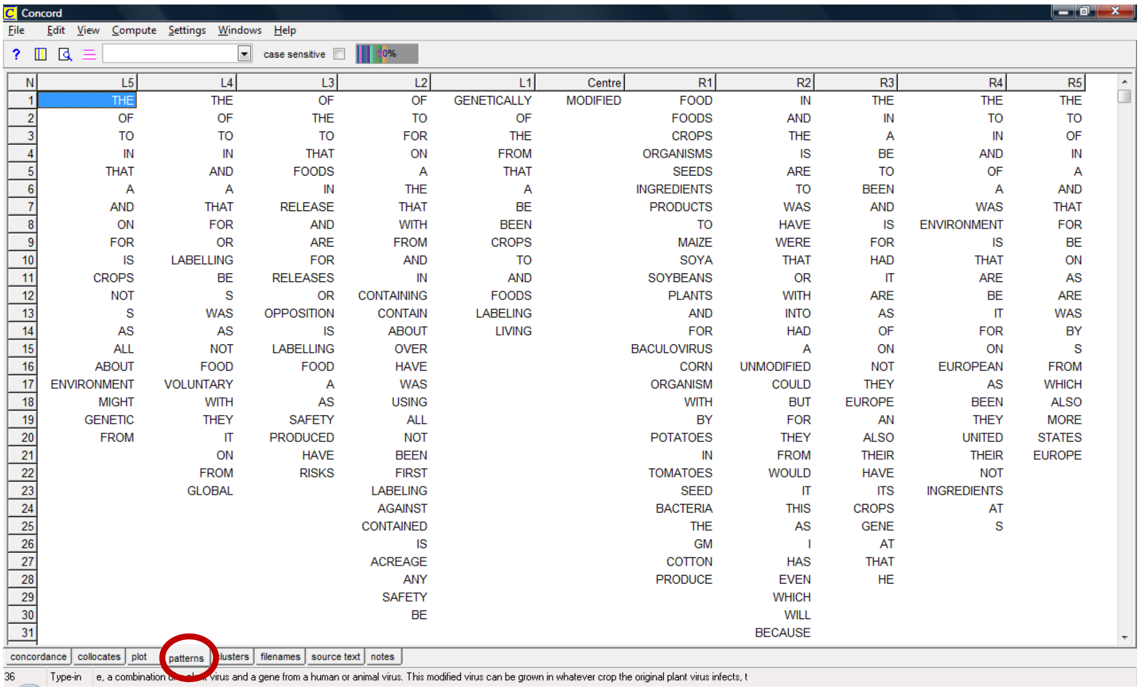


Fig. 4.51: *Concordance of 'modified' from WST5.*

When a keyword seems unusual to be key, the concord function is used to investigate why a particular word has jumped out with unusual frequencies to be key, as in the case of *modified* above. We cannot say that *modified* is key in the English language in general, but it is in the biotechnology discourse due to its frequency and collocates.

WST5 integrates *Concord* applications into six different functions, as shown on the bottom part of the screenshot: Concordance, Collocates, plot, patterns, clusters and source text. Patterns and clusters reveal similar information but with a different display (fig. 4.52).

The last feature is the study of plots. There are two types in the *Concord* function: a raw dispersion plot (fig. 4.53) and a *uniform plot* (fig. 4.54). A dispersion plot under *Concord* can track the location of a word over more than one book or file. It contains a statistics column on the left, which shows a list sorted by frequency -the number of hits- and a plot area, which represents the corpus in a graphical way from left to right meaning the beginning to the end of every book. Plot areas can be converted into a text position graph. The default screen for a plot looks like fig.4.53



N	L5	L4	L3	L2	L1	Centre	R1	R2	R3	R4	R5
1	THE	THE	OF	OF	GENETICALLY	MODIFIED	FOOD	IN	THE	THE	THE
2	OF	OF	THE	TO	OF		FOODS	AND	IN	TO	TO
3	TO	TO	TO	FOR	THE		CROPS	THE	A	IN	OF
4	IN	IN	THAT	ON	FROM		ORGANISMS	IS	BE	AND	IN
5	THAT	AND	FOODS	A	THAT		SEEDS	ARE	TO	OF	A
6	A	A	IN	THE	A		INGREDIENTS	TO	BEEN	A	AND
7	AND	THAT	RELEASE	THAT	BE		PRODUCTS	WAS	AND	WAS	THAT
8	ON	FOR	AND	WITH	BEEN		TO	HAVE	IS	ENVIRONMENT	FOR
9	FOR	OR	ARE	FROM	CROPS		MAIZE	WERE	FOR	IS	BE
10	IS	LABELLING	FOR	AND	TO		SOYA	THAT	HAD	THAT	ON
11	CROPS	BE	RELEASES	IN	AND		SOYBEANS	OR	IT	ARE	AS
12	NOT	S	OR	CONTAINING	FOODS		PLANTS	WITH	ARE	BE	ARE
13	S	WAS	OPPOSITION	CONTAIN	LABELING		AND	INTO	AS	IT	WAS
14	AS	AS	IS	ABOUT	LIVING		FOR	HAD	OF	FOR	BY
15	ALL	NOT	LABELLING	OVER			BACULOVIRUS	A	ON	ON	S
16	ABOUT	FOOD	FOOD	HAVE			CORN	UNMODIFIED	NOT	EUROPEAN	FROM
17	ENVIRONMENT	VOLUNTARY	A	WAS			ORGANISM	COULD	THEY	AS	WHICH
18	MIGHT	WITH	AS	USING			WITH	BUT	EUROPE	BEEN	ALSO
19	GENETIC	THEY	SAFETY	ALL			BY	FOR	AN	THEY	MORE
20	FROM	IT	PRODUCED	NOT			POTATOES	THEY	ALSO	UNITED	STATES
21		ON	HAVE	BEEN			IN	FROM	THEIR	THEIR	EUROPE
22		FROM	RISKS	FIRST			TOMATOES	WOULD	HAVE	NOT	
23		GLOBAL		LABELING			SEED	IT	ITS	INGREDIENTS	
24				AGAINST			BACTERIA	THIS	CROPS	AT	
25				CONTAINED			THE	AS	GENE	S	
26				IS			GM	I	AT		
27				ACREAGE			COTTON	HAS	THAT		
28				ANY			PRODUCE	EVEN	HE		
29				SAFETY				WHICH			
30				BE				WILL			
31								BECAUSE			

Fig. 4.52: *Patterns of 'modified' from WST5.*

N	Words	Hits	per 1,000	Dispersion	Plot
1	122.480	321	2,62	0,869	
2	55.677	12	0,22	0,619	
3	75.451	10	0,13	0,522	
4	78.486	42	0,54	0,642	
5	91.687	30	0,33	0,501	
6	82.126	72	0,88	0,782	
7	29.333	6	0,20	0,300	
8	95.042	16	0,17	0,665	
9	82.993	7	0,08	0,640	
10	76.044	397	5,22	0,735	

Fig. 4.53: *Dispersion plot of 'modified' under Concordance from WST5.*

A uniform plot is generated by selecting *view*:

Fig. 4.54: *Uniform plot of 'modified' under Concordance from WST5.*

The main difference in fig. 4.54 is that the majority of the books (except for the first one on the list) contains the word *modified* less expanded than in figure 4.52, which is spread along the plot status bar evenly. The blue circle in the uniformed plot on the right-hand side indicates the end of the book and the light grey circle comprises chunks of 800 words.

4.3.3.2.2. *Semantic prosody extraction*

After concondances were extracted, both general and keyword-based, then concordancing (collocation extraction) was the focus of this part. Collocates were shown by frequency and by MI value in WST5. We resort concordances to look for collocates. After selecting the significant collocations, the search word is entered in the AKSIS query processor. Below is a bilingual concordance:

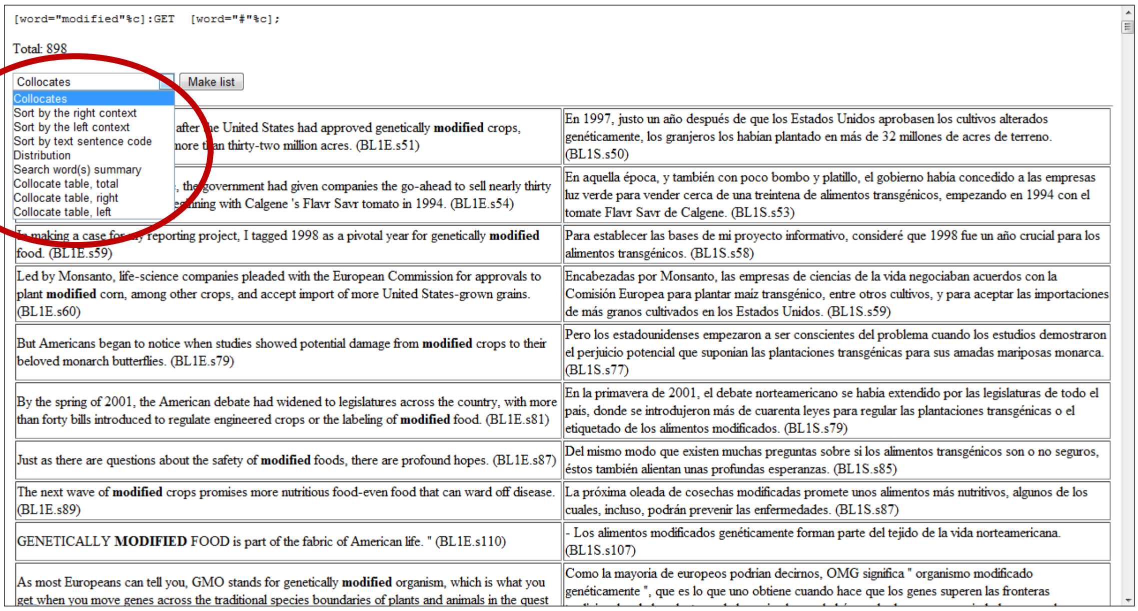


Fig. 4.55: *Bilingual concordance of 'modified' from AKSIS search form.*

In the search form, there are some options such as *collocates*, *sort by the right/left context* or *text sentence code*, *distribution*, *search word summary* and *collocate table* (total, right or left). Left and right collocates have been scrutinized in detail so as to examine semantic prosodies first in the ST and TT and then, ST-TT pairs have been compared cross-linguistically. For example, words from the GL, such as *considerable*, keywords and terms, such as *genetics* and *gene*, have been studied and checked whether they collocate with positive or negatively evaluated lexical items. Therefore, the examination of collocates is a manual process, since human interpretation of data is needed.

4.3.4. The search for norms and decision-making implication for future translating.

This section was intended to provide answers to the research questions formulated in the introduction chapter, as well as to compare denominative variants and semantic prosodies cross-linguistically and study the translation norms. In this section, new searches were made, so as to unveil results related to norms and ideology, using the AKSIS search form (e.g. *war* from one of the book titles). In order to detect translation units, word alignment is especially useful for finding translation equivalents (Baker et al. 2006: 9), but it is a much more complex process than sentence alignment. In word alignment, there are several hurdles to overcome, for example, that more than one word or no equivalent is rendered in the translated version of the original text. Word order is another variable that usually differs from one language to another. However, in sentence alignment, the variable that needs to be controlled is sentence breaks, since they may be located in different places in the ST and TT.

To begin with in this part, a preliminary approach to translation shifts has been carried out by means of approaching the translation of book titles. The analysis of book titles has been a quick approach to observe general tendencies of translation. After building a descriptive profile of the corpus facilitated by corpus methods, this part consists of summarizing tendencies that have been observed in the data and of grouping results into norms of translation. Norms have been grouped into terminological, dual semantic prosodies and translational sets. For example, translation shifts have revealed whether terms were translated by terms in Spanish or some other strategy was used (e.g. paraphrase). Therefore, the aim of this section has been to observe translation regularities.

4.4. Final remarks

This chapter has provided a yardstick for the selection of texts and at the same time, the construction, alignment and exploitation of the GE corpus. This chapter was useful not only to explain the procedure of creating wordlists and concordances, but to understand the meaning of statistical measures.

The process of designing and compiling a corpus is not a straightforward one. It has been necessary to conduct an exploratory and pilot study before proceeding with the empirical investigation of the main research project. Regarding the volume of data, the monolexical wordlists and keyword lists will be selected, so that their collocational profile can be studied. After providing a descriptive account of language use in a particular social context, we will move to a summarizing stage as the one of formulating norms in future translating.

Once the procedure has been explained, the semi-automatic extraction and interpretation of data by statistical means will be explained throughout the next chapter.

5. Data Analysis

5.1. Pilot study
- 5.1.1. Bill Lambrecht
- 5.1.2. Stephen Nottingham
- 5.1.3. Jeffrey Smith
- 5.1.4. Pilot study conclusions

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- 5.2.1. Description of the popular science books
- 5.2.2. Comparison of ST-TT covers
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- 5.3.4. Denominative variation
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  - 5.3.4.2. Subtechnical terms: *Crop/s* and *food*
- 5.3.5. Semantic prosody
  - 5.3.5.1. Technical terms (speciality field): *Genetic + N*
  - 5.3.5.2. Technical terms (speciality field): *Genetically + Adj*

5.4. **Norm-searching**: Comparison of English-Spanish data sets (ideological aspects)
- 5.4.1. General strategies about the translation of DVs
- 5.4.2. General strategies about the translation of Semantic Prosodies (SPs) for DVs: *Adj + N* (*DNA, gene/s, food/s* and *crop/s*)
- 5.4.3. General strategies about the translation of book titles

5.5. Final Remarks

6. Conclusion

5. Data analysis

In the support and practice of correct principles we can never reach wrong results

Andrew Johnson (1808-1875), 17th US President

Quoted in Pine (2001: 28)

This chapter presents the results through empirical and statistical analysis of the language. The results have been subdivided into four sections: (i) a pilot study, (ii) a section of qualitative data, (ii) an intralinguistic quantitative study of denominative variation of four prominent terms (*DNA, gene/s, food/s* and *crop/s*) and semantic prosodies of *genetic* and *genetically* in both corpora, and (iv) an interlinguistic analysis of the quantitative results that summarizes the most common translating norms observed in the TTs.

5.1. Pilot study

The pilot study was based on the preliminary research questions extracted from the exploratory study presented in the methodology chapter.

Some notes were taken regarding genre, terms, modality and keywords after reading a chapter of each one of the three books selected for the pilot study. The books used for the pilot study are the English versions (STs) of the three most recent books of the corpus:

- 8BL_EN: *Dinner at the gene café* (2001, Bill Lambrecht - journalist)
- 9SN_ EN: *Eat your genes* (2003, Stephen Nottingham - scientist)
- 10JS_EN: *Seeds of Deception* (2003, Jeffrey Smith - activist)

5.1.1. Bill Lambrecht

8BL is the most popularizing of the three books chosen for the pilot study. Chapter 14, entitled 'In Britain, absolutely unstoppable', called our attention because of the following points:

- This book is a description of an anti-GM protest. It is mildly critical of GMOs but not as much as *Seeds of deception* (10JS). Most of the chapter is like a newspaper account of protest than a book on GMOs. It seems the content reveals more interest in personalities and poets than scientific issues (e.g. *a well-tanned blonde*).

As for terminology and the collocative profile of words, here are several interesting findings:

- There is comparatively little technical terminology. Recurrent terms include *genetically engineered food* and *genetically modified food.* There are also variants of the term, such as *Frankenstein foods, mutant potatoes* and *GM foods.* Several expressions call the reader's attention, for example, *a diet riddled with GM foods* and *to gauge the safety of modified foods.*
- Value judgements are present in: (1) collocations including *threat, risk, benefit* and *genetically + adjective;* (2) the study of subject pronouns and, (3) in apparently neutral adjectives, such as, *organic,* whose remarkable use in comparison with the use of *GMOs* reveal the author's viewpoint of *exploiting uncertainties for profit*.
- There is much colloquial and informal language (*savaged, decimated, trumpeted, bombarded, fumed, pilloried, showed up, bumbling*) along with idioms typical of catchy journalistic language –even slang highlighted in italics:
    - The public *was in for* another shock
    - The country *stewed over*
    - Greatest *cause for concern*
    - …left the biotech industry *reeling*
    - So we decided *to go whole hog* and remove it all
    - [Prince Charles's] *salvo*
    - British tabloids *laid the wood to* the biotech industry
    - Blair and genetic modified food proved to be a *dependable combo*
    - …organization *poured fuel on the fire*
    - The *GM genie is out of the bottle*

Regarding genre, some observations were noted down, such as:

- Overt explanation (e.g. "which is what you get when you move genes across the traditional species boundaries of plants and animals in the quest for new traits").
- Explanation (e.g. "GMO stands for genetically modified organism").
- The author sets his status as a journalist (e.g. "I as a newspaper reporter").

Some possible research questions out of these observations are stated here:

- This is language that must be difficult to translate well –may be more thorny than formal scientific language. So how well does the Spanish TT capture the informal register flavor of the original? How does the Spanish TT decode translation quality, translation norms, and register transfer?
- Is the TT more formal and scientific than the ST? If so, how is this marked in the vocabulary and phraseology used?
- Are there any ideological differences between the ST and the TT?

5.1.2. Stephen Nottingham

This book (9SN) has been written by a scientist who provides a serious, academic treatment of the topic. The first chapter "Genetic Engineering and food production" was carefully read and the use of technical terms was observed. The text describes technical details of genetic engineering and devotes a small section to introduce biotechnology companies to the reader. It tries to strike an objective tone, a scientific balanced objective approach.

- Regarding linguistic features, we can point out to the following characteristics. There is more technical terminology than in Lambrecht's book. Some examples are very frequent, being *gene* one of the most outstanding ones:
  - Transcription
  - Eukaryotic organism
  - Reverse transcriptase
  - Spongiform encephalopathies
  - Prion
  - Genomes
  - Intron regions
  - Bt toxin
  - Mutagenic
  - Genetic drift
  - Gene linkage
  - Gene pool
  - Gene sequence
  - Gene mutations
  - Foreign gene
- There are not as many denominations of the noun *GMO* as in the previous book. The noun phrases, *transgenic crops* and *GM food,* are mainly predominant, except for the only variant of *genetically transformed crops*.
- There is careful use of modal verbs (*may*, *could, might*, etc.) that are employed to hedge and qualify comments on benefits, threats and risks. Some examples of modalization were noted down:
  - Could provide longer term benefits
  - Can have an adverse impact
  - May be a risk due to
  - Many of the claims look overoptimistic
  - Raises the possibility of
  - Might become more serious
  - Maybe detrimental
  - Regulation of GMOS might adversely impact
- There is also careful use of degree adjectives (e.g. *significant, considerable*) as in:
  - Considerable resistance
  - Massive investment
  - Detrimental effects
  - Significant weed control benefits
  - Potential changes in allergenicity
  - Substantially equivalent
- A high use of nominalization –not very complex noun phrases though– is also observed. Some lexical items worth mentioning are included in the following list:
  - Enhanced nutritional properties
  - Reduced insecticide use
  - Higher pest mortality
  - Enormous potential for disease prevention
  - The management of insect resistance

- Spread of herbicide resistant transgenes
- Zero tolerance for transgenic contamination
- Environmentally friendly agricultural biotechnology

Among the possible research questions, we can formulate the following queries:

- What is the amount of denominative variants of the key term *GM food* in the Spanish TT?
- How does the Spanish TT use modality?
- How does the Spanish TT render degree modifiers (e.g. *considerable, significant*)?
- How are lexical entitites, such a *concern, risk* and *benefit*, translated?

5.1.3. Jeffrey Smith

The last book of the pilot study ass been written by Jeffrey Smith, the director of the Institute for Responsible Technology in the US (http://www.responsible technology.org/GMFree/Home/index.cfm). Some of the characteristics found in chapter 2 “What could go wrong?” are below:

- There is no attempt to be objective but explicitly hostile to GMO, since the prologue reads “shrewd dissection of the true nature of GM technology, a devastating critique of the health and environmental hazards of GM crops, and scarifying examples of the manipulation of both science and the media by the biotech industry”.
- Some examples of colloquial, informal and journalistic phraseology that have been highlighted in italics are far from being objective scientific language:
    - Crack this code
    - A freak show
    - A myriad of
    - Bag of tricks
    - Tampering with
    - Spin their technology
    - Way too risky
    - Devoid of
    - Chaperone folders
    - Drastic effects
    - The gene quietly hangs out
    - Hitchhiker molecules
    - To be scare-mongering
    - Scores of other mishaps
    - Problems that might be plaguing society
    - Cells are all *doused with* antibiotics
    - *To figure out* which of the thousands of cells…
    - Genetic engineering is generally a *hit and miss* affair
    - The corn cell *doesn’t have a clue* what to do with this gene
    - Genes can *hop around* the genome for no obvious rhyme or reason
    - When a foreign gene makes it into the DNA, there is *no telling where* along the strand it will end up

- There is no great deal of complex noun phrases. The majority of them are concentrated in those parts where genetic engineering processes are explained by means of technical vocabulary of the type:
  - Restriction enzymes
  - Ligase enzymes
  - Staggered cuts
  - Microbially derived restrictions
  - Bacteriophage
  - Tissue culture techniques
  - Cloning vector
  - Gene silencing mechanisms
  - Gene mapping
  - Introns
  - Signal beacons
  - Cauliflower mosaic virus
  - Gene transfer
  - Transfer of genetic material

- In addition, there is use of shortened words to substitute technical terms in order to popularize scientific content (e.g. *biotechnology → biotech*) and there is more use of personal pronouns and more personal subjects (e.g. scientists). There is also a high use of the nouns *risk, concern, threat* and *catastrophes.* And a more attempt to interact directly with the reader was observed through metadiscourse (e.g. imperatives such as *guess what, imagine, let's consider*).

Several research questions are extracted from this book:

- This journalistic informal language has room for terms that express genetic modification. Which are the key terms and which ones are their denominative variants?
- Does the TT include more or fewer terms –along with their denominative variants– than the ST?

5.1.4. Pilot study conclusions

The concluding remarks from the pilot study are articulated into three blocks that constitute the three main research questions of the present study:

- Research question 1: DENOMINATIVE VARIATION.
  - The different denominations of *GMOs* (e.g. *genetically engineered food, genetically modified food, Frankenstein foods, mutant potatoes, GM foods*) were found interesting to be looked into as well as the frequency of the different terminological variants in each book and what book holds the wider range of variation.
- Research question 2: SEMANTIC PROSODY.
  - Since *genetically* above collocates with several adjectives as *engineered, modified* and *manipulated* among others, which ones strike a more objective tone and which ones suggest negative semantic prosody? The case of *genetic* will also be examined to study the concept of *genetic modification.*

- Research question 3: TRANSLATION STRATEGIES + IDEOLOGY.
  - The results from the two previous research questions will be contrasted. The English and Spanish data results for denominative variants and semantic prosodies will be compared in order to answer if the translation strategies comply with translation universals (e.g. explicitation at the time of translating terms that may trigger ideological insertion) or whether the TTs rendered the same semantic prosodies and DVs as the original STs (cf. notion of equivalence).

The relationship between authorship (see tables 8.7. and 8.8.) and content was found significant and first noticed at the time of corpus compilation and later, the relevance was confirmed when conducting the pilot study. This way, the corpus was divided into two data sets according to authorship:

- The scientists (1ER, 2SA, 3EG, 5MH and 9SN) = the *sci corpus*
- The 'social group', composed of journalists and activists (4JR, 6LA, 7IB, 8BL, 10JS) = the *soc corpus*

Both the *sci* and the *soc corpora* comprise a balanced number of books, that is, five each. The results extracted from the comparison of the two data sets will serve to answer each one of the three blocks of research questions.

Up to here, the findings presented are mere observations that need verification through qualitative (first stage in Toury's methodology) and quantitative CL methods. Several qualitative steps preceded the extraction of quantitative research as follows.

5.2. QUALITATIVE ANALYSIS: Placement of the ST and TT into their culture systems

In order to place both the STs and the TTs into their culture systems, some steps were taken: a brief description of the book contents, a comparison of ST-TT covers, a documentation stage and a field diagram.

5.2.1. Description of the popular science books

A general description of the contents was annotated for each one of the books:

- There is an identifying characteristic in the discourse of the scientist writers. The group of scientists departs from an informative and objective account of genetic engineering and reaches the point of addressing and accepting the concerns about this new technology.

> No matter what your personal opinion of the different Green movements, from Greenpeace to Green political parties, it has to be agreed that they are correct to remind us of the basic utility of

> plants and of the importance of ecological problems related to them. (ER2E.s75)

- There is also a main feature that defines the 'social' writers as a group. Whereas the scientists' arguments are based on first-hand scientific data, the 'social' writers document their content on previous research, mainly through the news that had already been provided in the media. Not all the 'social' writers but a few of them, especially in books 8BL and 10JS, recur to usual scare tactics, which some of them were grounded in science fiction (e.g. *Frankenstein foods*).
- In the *sci corpus,* books explicitly say that they were written for all who do not have necessarily a scientific background on the topic:

> This book sets out to describe to readers who have not necessarily had a scientific education, the background of how genetic engineering is carried out, what it can be used for and considers the possible benefits and dangers of this new knowledge. (ER1E.chapter 1).

- The majority of the books in the *sci corpus* start explaining the mechanisms of genetic engineering techniques (e.g. how a cell replicates, how gene markers are inserted). By contrast, the introductory chapter from the books belonging to the *soc corpus* emphasize the beginning of a new era in which GMOs will transform our world in unprecedented ways. Some books, as in Bill Lambrecht's, start with a couple of quotes from famous writers and personalities related and unrelated to agriculture (e.g. Agriculture Secretary). The main difference stems from the fact that the *sci corpus* tends to focus more on the process of genetic engineering techniques, whereas the *soc corpus* has a tendency to make more emphasis on the product and the environmental outcome of biotechnology.

Against this background, a skeleton of the contents for each book in the *sci corpus* was outlined and summarized below:

- 1ER: This book has three parts: genetic engineering processes, the achievements accomplished by the technology (and the potential in the future) and ethical concerns. It is structured as question-answer pattern. It also contains illustrations, metaphors and analogies (e.g. *a gene as a house, theatre, car*).
- 2SA: The author explains what *DNA* and *genetic engineering* are, then moves on to biotechnological applications and further issues (e.g. section entitled *Beyond DNA*).
- 3EG: The third book makes an introduction to biotechnology, genetic engineering applications (e.g. in the farm, the environment, the sea) and finishes with ethical issues.

- 5MH: It is the only book within the *sci corpus* that does not bring an explicit chapter about genetic engineering and its applications, but interestingly, it follows the strategy of 'social' writers, that is, the book is structured around biotechnology cases that combine scientific explanations:

  > I have felt obliged, ever since, to tell the other side of the story, in the interest of promoting real public understanding of science in general, and of genetic engineering biotechnology in particular (MH1E.s16)

- 9SN: The author introduces the main topics of the whole book in chapter 1 by enhancing terms in italics. The stylistic conventions make easier the search for technical vocabulary. The 15 chapters deal with two main blocks: (1) genetics, GE and GM products, and (2) a considerably large section of risks, ethical and patenting issues.

The book contents in the *soc corpus* are also summarized below. We noticed that these five books do not bring a section especially focused on ethics because it is integrated along the text. It is worth noting that the titles of each chapter are particularly metaphoric and part of them reminds us of tale titles.

- 4JR: The author opens up the book highlighting the strengths and weaknesses of the new technology. Scientific advances are explained in the context of great economic changes in history. The explanation of genetic processes is intertwined with stories of scientists, authors and multinationals among others. It seems this is the book that devotes a greater deal of subsections to discuss the consequences of the technology as some titles read, *inter alia*, "Patented life", "Human being as intellectual property", "A second genesis", "A eugenic civilization", "The sociology of the gene", "Genetically correct politics", and "Genetic discrimination".
- 6LA: Unlike 4JR, every section of this book is an explanatory section about genetic engineering, except for a few subheadings more oriented to ethics such as "Short-term gains, or long-term sustainability?", "Follow the money", "What's in the pipeline?", and "Two views of progress".
- 7IB: The book does not devote any chapter to the explicit explanation of genetic techniques but every chapter combines scientific explanations and relevant cases. Catchy chapter titles are present throughout the book (e.g. "Gene jockeys" and "Is bigger better?").
- 8BL: The text combines the stories of several individuals (e.g. *Carl Ripken*) with an introductory explanation of genetically modified food. There are very many personal subjects and a great deal of personalization. It addresses the main difficulties that biotechnology

has, and presents an overview of cases in different countries. Metaphors are abundant (*Jeremy Rifkin [...] became a burr beneath the saddle of the gene jockeys*). Sentences alluding to religion are present (*[...] genetic engineers turned their magic to our daily bread*).

- 10JS: This book states at the beginning that it was written "somewhere between a documentary and a thriller" (chapter 1); however, a careful examination of the book tells us the very discourse can still be considered popular science. The first chapter introduces the issues over GM potatoes that were investigated by the scientist Dr Arpad Pusztai from the Rowett Research Institute in Scotland. Every chapter ends with a type of fable about GMOs, usually entitled "Wisdom of + an animal".

Albeit there are differences among the two corpora, there are some characteristics that make the whole corpus be considered popular science:

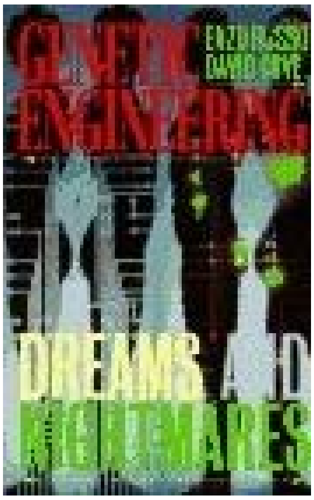
- The first unifying characteristic of both the scientists and the 'social' writers is that there is a clear aim to explain a new science to an audience that is not learned on the matter.
- The second is that useful analogies are offered for uninitiated readers in order to understand genetic processes on the part of the two types of authors in the two corpora.
- The third is that, writers in each one of the groups deal with ethical issues, an aspect that was not intrinsically expected in the *sci corpus* (neither was common in journal articles, but it is more and more often present nowadays).

In toto, this part has dealt with the placement of the ST within its culture system. As for the Spanish translated books, all of them include the translator's name, along with the original book title. The majority of them bring the publishing year of the edition the translator used. All of the TTs are rendered by a single translator, except for the last book that was translated by two professionals. The Spanish books contain a brief biographical summary of the author that does not appear in the original, except for 5MH, 8BL and 9SN that have the biography in both versions. Another exception is 6LA_en that brings a very brief bio of the author; but this does not appear in the TT. Since the placement of the TT usually confines to the examination of the title page and the copyright page (*ficha catalográfica*), both the placement of the ST and TT will be enriched through a semiotic study of the book covers.

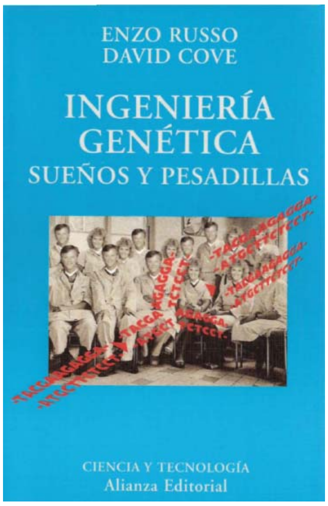
5.2.2. Comparison of ST-TT covers

Since "media imagery can play a symbolic role in how the public views new technological advances" (Crawley 2007: 341), this section investigates the covers both in the English STs and the Spanish TTs. Semiotics provides the basis for a qualitative analysis so as to interpret how the visual signifier is encoded and, how the signified can be construed taking into account the *context of communication* (Cook 2001: 3-4) in which the message is transmitted.

The very last part in chapter 3, that is entitled "Intersemiotic translation" (see 3.3.2.3.), is especially useful to give an account in this section. For the covers that are being compared, we checked the copyright page and looked for the English edition that the translators used for the rendering of the Spanish books.



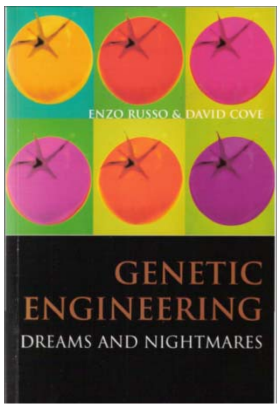
1ER_en (1995)

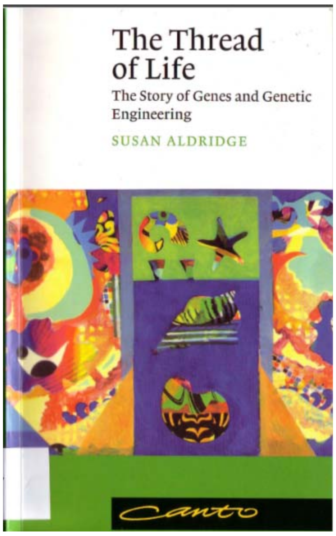


1ER_sp (1999)

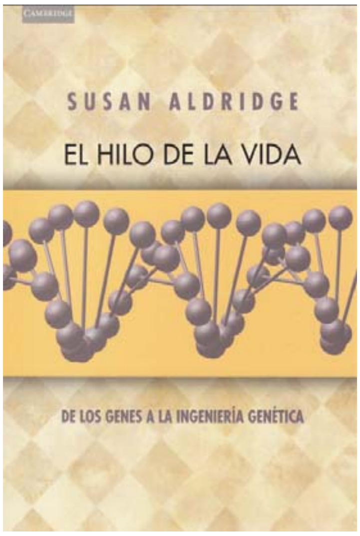
In the Spanish covers (7IB, 10JS) and especially of the books written by scientists (1EN, 2SA, 3EG, 5MH, 9SN), there is a tendency to include the author's name above the title and some illustrations underneath. In the English covers –not necessarily in the books written by scientists–, the tendency for the whole pool of English books is to write the title in first position (2SA, 3EG, 5MH, 6LA, 8BL, 10JS). This may suggest a major emphasis on the role of the authors –especially scientists on the part of the Spanish publishers–.

The English cover of 1ER (1995) shows the silhouette of four human beings. They all look the same to possibly illustrate the issue of cloning. These figures may remind the popular series at that time, *X-files*. As for the Spanish cover (1999), there is a photo of a group of scientists along with a series of gene sequences. The names of the authors –in this case, scientists– appear on top just before the title, whereas the English cover contains the title and the authors' names at the same level. There are several covers for the different English editions. For example, a later edition by OUP (1998, shown on the right) displays some tomatoes of usual and unusual colors as a sign that the public debate about GE has redirected the focus from human beings to food.

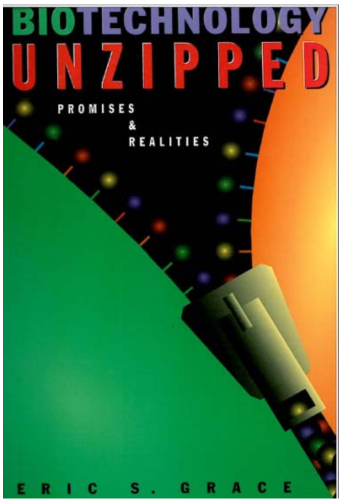




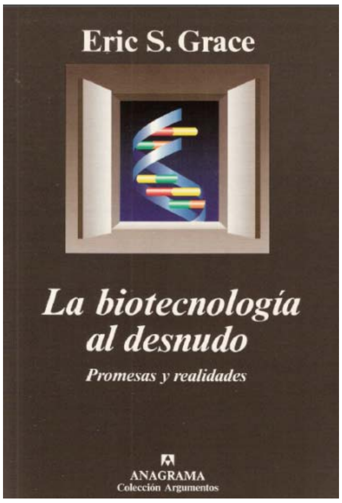
2SA_en (1996)



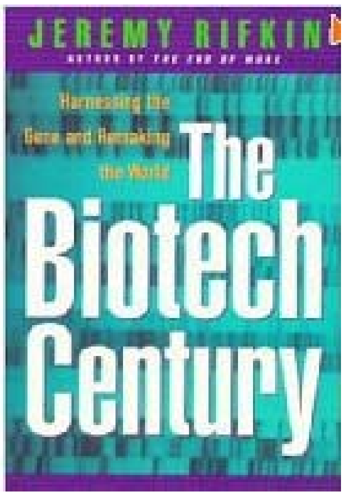
2SA_sp (1999)



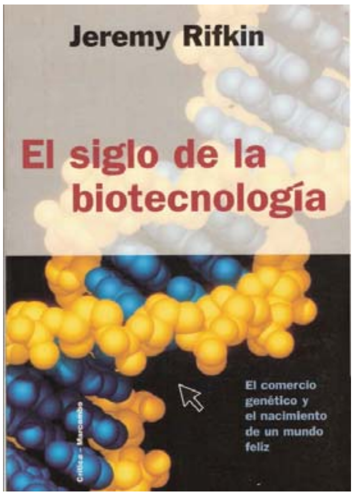
3EG_en (1997)



3EG_sp (1999)



4JR_en (1998)

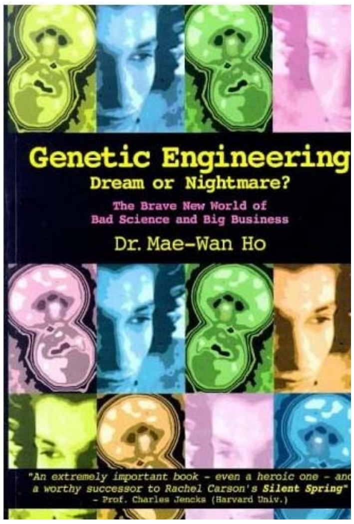


4JR_sp (2001)

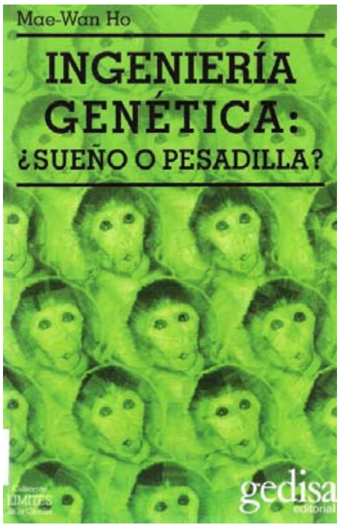
In the second book by a scientist (2SA), the English cover (1996) contains the title, the author’s name and a colorful picture whose first impression is far from being a scientific book. On the contrary, the Spanish cover comprises the author’s name, the book title and an amplified string of DNA underneath, giving a more serious treatment to the topic of GE.

The author of book number 3 (EG) is also a scientist. His name appears at the bottom of the English cover and right at the top in the Spanish one. Both covers illustrate a part of DNA string. The English one exemplifies the process of DNA replication with two strands that are being unzipped to figuratively reveal the promises and realities of the new technology as stated in the title. The Spanish cover is more austere regarding design and shows the form of the double helix placed inside a window where the reader may possibly look through to deepen into biotechnological aspects.

Book 4JR is the first book in the *soc corpus*. The author’s name is shown on top in both covers. Some marking stands out in the background to signify a graphic representation of the human genome. The title is enhanced with a large font in order to clarify the picture placed behind in the background. The subtitle is even more clarifying (*Harnessing the gene and remaking the world*) and is located to the left and above the main title. The Spanish book displays a section of DNA strand as in the cover of the two previous books authored by scientists. In this case, the picture is a clearer index than that of the English cover, and therefore, the title may not need to be as large as that of the English one.

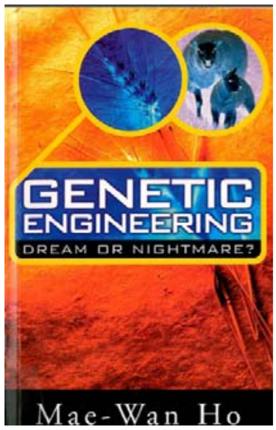


5MH_en (1998)



5MH_sp (2001)

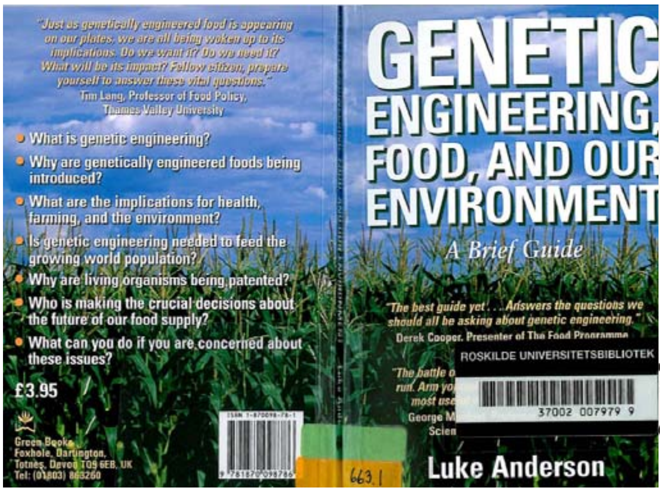
The next text (5MH) is authored by a scientist. The English cover gives emphasis to the shape of similar microorganisms and the same human face in different colors making again reference to cloning. The Spanish cover preserves the same ideas as the original, since the cover has the face of a monkey cloned as many times throughout the entire illustration as it is possible to fit in.



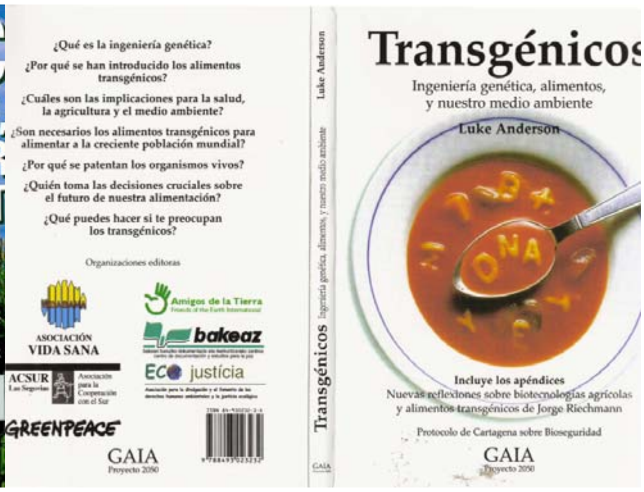
The revised edition by Gateway (1999) (on the right) brings a more updated and modern design. This new edition does not contain the subtitle of the first edition, *The Brave New World of Bad Science and Big Business*, but it keeps a design of animals. In this case, it is a sheep echoing the birth of Dolly in 1996 as the first cloned mammal from an adult cell. The cover also includes a new element that was not seen in previous covers: a wheat ear.

The juxtaposed pictures below correspond to Anderson's book (6LA). This book and the following two belong to the *soc corpus*. This time the front cover and the back cover are shown, since the Spanish edition is the only one that displays the sponsorship of ecologist groups (Greenpeace and Amigos de la Tierra [Friends of the Earth]) and other Spanish NGO's (ACSUR; Vida Sana, Bakeaz and ECO Justicia).

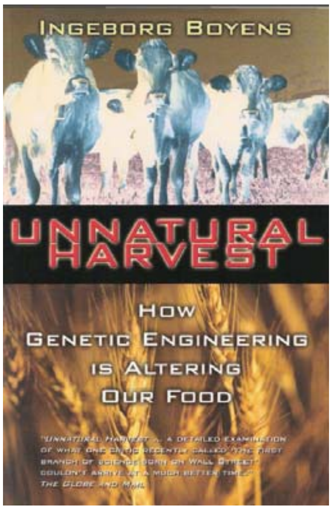
The cover of the English book shows a wheat field, which is basic food, whereas the Spanish book is focused on a soup plate with the DNA letters. It is a manufactured food product that is closer to the consumer than the wheat field.



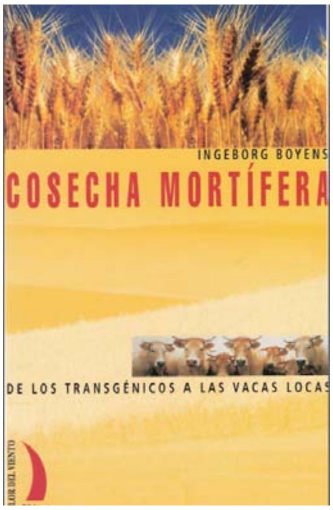
6LA_en (1999)



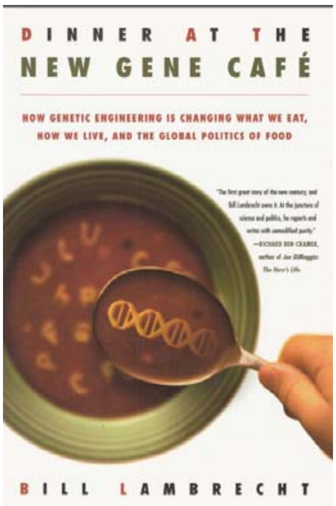
6LA_sp (2001)



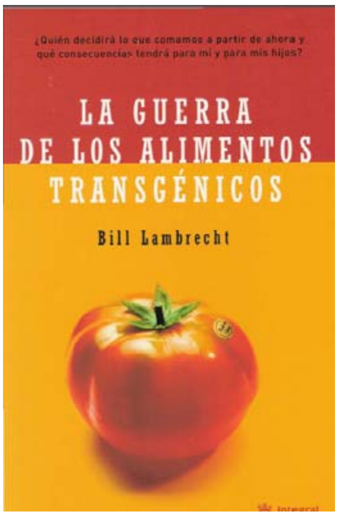
7IB_en (1999)



7IB_sp (2001)



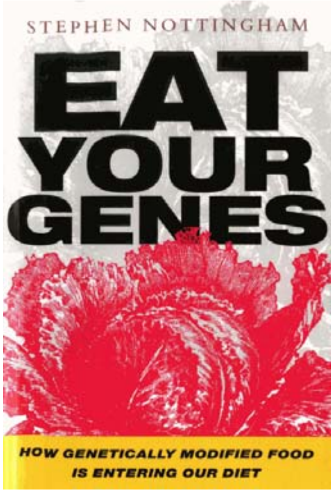
8BL_en (2001)



8BL_sp (2003)

In book 7IB, the same animals (*cows*) and food (*wheat*) are shown on both covers, but the arrangement of elements is different. The English cover seems to emphasize animals by placing the cows on top of the wheat and making coincide the subheading (*How Genetic Engineering is altering our food*) with the picture of the wheat. Whereas the Spanish cover prioritizes the cereal over the cows, as it is the content of the book title (*harvest* = *cosecha*). The Spanish subheading is rendered into a less biased message than the English one (*From transgenics to mad cows*).

In the next book (8BL), the message of the healthy soup is recursive but it seems that the Spanish conceptualizes an apple as a more familiar image of healthy food than hot soup. The word 'guerra' (*war*) in the Spanish cover

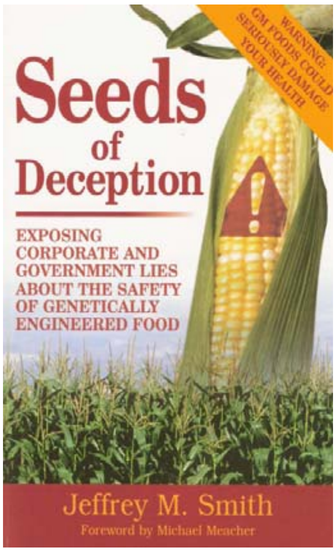


9SN_en (2003)

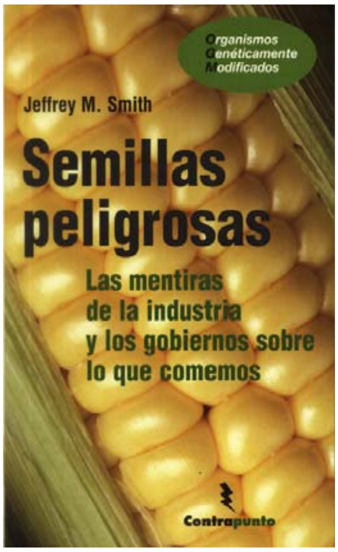
9SN_sp (2006)

may possibly call the Spanish reader's attention over a plain two-colored background as if it were representing a flag.

9SN is the last book in the *sci corpus*. The English cover makes reference to food by using a red cabbage. At first glance, the English book may look like a cooking book. The Spanish cover looks austere giving the impression of dealing with a handbook.



10JS_en (2003)



10JS_sp (2006)

On the following cover (10JS), it is clear that the dangerous face of GMOs is more prominent in the source book by means of a red sign of warning. The photo in the Spanish cover is neutral although the title makes explicit the dangers by employing the adjective *peligrosas* (*dangerous*), which is sharper than *deception* in the English cover. At the back of the English cover, it reads "If you think that GM food is safe, this book will change your mind". The back cover of the two books includes quotes, opinions and reviews from experts in the style of the back cover of a novel.

The main semiotic observations offered in this section can be wrapped up as follows:

- There is a tendency to place the author's name at the bottom of the English covers and under the title, whereas it is located at the top in the Spanish ones.
- The illustrations have changed from understanding GE as cloning and as a lab process of DNA modification to being viewed as a consumer topic through food products, plants and animals.
- A more scientific treatment than the original cover is seen in the Spanish version of 1ER, 2SA, 3EG and 9SN in the *sci corpus*. In the remaining book of the *sci corpus* (5MH), the type of treatment seems to

be preserved. Therefore, it seems that authorship is taken into account at the time of designing the Spanish edition of the book covers.

- In the *soc corpus*, the visual signifier (*DNA soup*) corresponding to the images of Spanish 6LA and English 8BL is a bit more figurative than the rest of the images in 4JR, 7IB and 10JS. In Piercean terms, the DNA soup represents an index by implying that we eat the genes contained in food, while the images in 7IB, 8BL and 10JS (*a wheat field, a shinny tomato* and *a corncob*) are identified as icons, a pattern that physically resembles what it stands for –basic and healthy food–. Nonetheless, the message carried by the tomato in 8BL_sp is intensified with the book title (*guerra*).
- Images in Spanish 7IB and 10JS may fit better with the idea of sound science than their originals, since they are photographs and not pictures. Albeit, in the English covers, the light on the cows makes them unnatural and the symbol of precaution on the maize is intended to warn the reader.
- The remaining book in the *soc corpus,* the Spanish 4JR, holds the picture of a DNA strand, and this way, maintains the scientific treatment of the original. Nevertheless, the DNA strand makes the scientific treatment clearer than the graphic representation of genome sequences of the English cover.
- In view of the fact that images are the material assessed here from a semiotic point of view, the concluding remark is that there is a tendency to maintain or create a scientific treatment in the Spanish book covers –especially in the *sci corpus*–. The most clarifying example is the trivial treatment of the human figures in 1ER_en that is changed by the photograph of the research group in 1ER_sp. The same is true for 2SA.

This section has studied images that "not only constitute means of expressing ideas, but also function as sociocognitive devices that help to organize the understanding of a phenomenon" (Bauer and Gaskell 2002: 266).

5.2.3. Documentation stage

The examination of the book covers and the content of the books was essential to deepen into the sociocultural and sociocognitive perspective of GE within the culture systems of the texts and, hence, to become familiar with proper terminology. This part was documented with the material mentioned in the methodology chapter (see 4.3.2.1). Following the groups made in the documentation stage, this section is divided into two parts: biotechnology as (1) a scientific endeavor and as (2) a hot debate, the latter as a result of the release and public awareness of GMOs.

As (1) a scientific activity, GE techniques are used to obtain qualities in vegetables and fruits that will probably take much longer or may not even take place through traditional breeding. In 1987-8, the first plants that conferred resistance to both insect and herbicides were created. Genetically modified seeds were obtained 10 years later and proponents argue that GM seeds made possible a lesser use of artificial products like insecticides and herbicides.

Another decade after the first plants were created, there was a peak of biotechnological events between 1997 and 2001. Cataldi (2003: 6-7) argues that it is especially during 1999 and 2000 when the most paradigmatic cases related to GMOs took place: Putzai case, the Cartagena Protocol on Biosafety, the study of the Monarch butterfly, a 18-month voluntary moratorium for the approval of new genetically modified seeds that was ratified by all the EU countries except Spain, Ireland and Portugal and also within the EU, the approval of the compulsory labeling of food products that contain more than 1% of transgenic material, to name a few.

From the numerous lines of study –microorganisms, plants and animals–, a prominent line of research –focused on plants– and is the one that investigates the three major enemies of a crop: weeds, insects and the lack of fertilizers. In the 20th century, the solution to these three issues was offered by the creation of artificial fertilizers through nitrogen to obtain a more cultivable and fruitful quality of the arable lands. Also new chemical components were created to protect crops from insect plagues, and herbicides so as to free crops from weeds.

Scientists also work on the elimination of the aluminum toxicity that is present in the 40% of world's arable land. When the toxicity is found, particularly in Asia, Africa and Latin America, the productivity of the land is 80% reduced. Genes are isolated from wild plants that grow in aluminum toxic lands. Some other scientific discoveries can make fruits ripe slower and resistant to floods mainly by silencing genes in the organism of study or by transferring genes from one species to another. Both in the case of silencing and transferring genes, the result is always a genetically modified organism. However, it is only in the second case when the GMO is also transgenic.

As (2) a matter of debate, food and plants are the products out of all the genetically modified organisms (GMOs) that have generated, over microorganisms and animals, most debate. The opinion about GMOs in the US and Great Britain in comparison with the rest of the European countries is at the opposite ends of the spectrum.

In Europe, Australia and Japan, GMOs are to be labeled whereas it is not compulsory in the US. At the level of consumers, the ones in the US and Britain (which are the countries of the publishing houses of the STs) are generally aware of the presence of GMOs in everyday life, to the extent that the general public has been campaigning in front of the supermarkets both for and against.

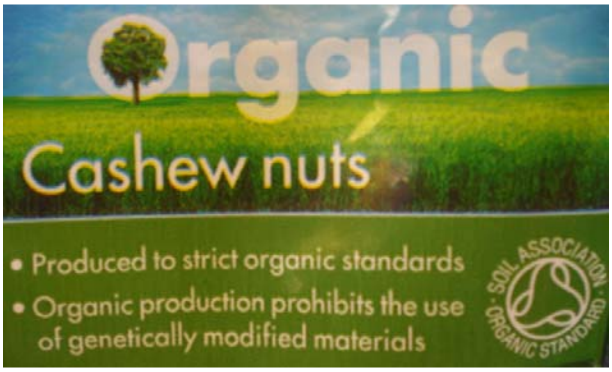


Fig. 5.1: Label from organic products in the UK certified by the Soil Association.

It is common to find labels of food products in supermarkets in the UK that state the nature of the produce. Labels are beginning to appear in Spanish department stores but they are not common in regular supermarkets.

Public awareness is almost absent in southern European countries such as Greece, Italy and Spain (Bauer and Gaskell 2002: 45). This idea is corroborated by the Eurobarometer (1996), document that registers Spain as a country that is not among the ones associated with high-intensity discussions on biotechnology (Bauer and Gaskell 2002: 162) and, due to the absence of debate the highest proportion of ambivalence arises:

> Ambivalence, i.e. the tendency to attribute both good and bad effects to biotechnology, is also correlated with the south-north axis, with the highest proportion of ambivalence found in Portugal, Spain and Greece (20-21 per cent), and the lowest found in Finland, the Netherlands and Sweden (all 5 per cent) (Bauer and Gaskell 2002: 210).

Regardless of the degree of ambivalence, or the intensity of biotechnology discussions, there is one fact about the sociocultural understanding of GMOs in Spain. The majority of Spanish consumers have not shown public awareness, support or rejection against GMOs, except for groups of ecologists, independent scientists and organic farmers.

Whereas ecologists and other biotechnology opponents vigorously announce a list of controversies, proponents refuse to accept their environmental arguments with a similar energy. It is not the objective of this dissertation to assess the validity of arguments of both sides but to trace attitudes that can be tested through linguistic correlates. Linguistic choices regarding biotechnology advances can be studied in the following areas:

> Reproductive technologies; gene therapy; genetic screening; transgenic animals; genetically modified food; releases of genetically modified organisms (GMOs); GMO contained use; health and safety; research and development policy; and intellectual property rights (Bauer and Gaskell 2002: 7)

We consulted websites on those biotechnology areas and studied their content by biotechnology companies, governments and ecologists. Particularly interesting is Monsanto website (http://www.monsanto.com/) as the multinational company became synonymous with GM products (Bauer and Gaskell 2002: 2). Marie-Monique Robin (2008) makes an exhaustive study about the history of the company that was founded in 1901 in St Louis (Missouri). On the website, this multinational presents itself as an agricultural company, but Robin (2008: 19) highlights it was formerly a chemical one.

Fig. 5.2: *Monsanto website.*

As well as Monsanto's, most of the websites consulted are oriented to food and agriculture, since a great deal of the books in the corpus is devoted to these two areas. In the same vein, the field diagram presented below shows a particular interest in food and plant biotechnology.

5.2.4. Field diagram

The field diagram is the last step in the qualitative analysis before the extraction of denominative variants and semantic prosodies. A well-defined conceptual structure not only facilitates the detection of terms and collocations, but also the area of study we seek to search keywords. The areas of molecular biology and ethical concerns correspond to the two-fold division in the documentation stage, that is, scientific activity and debates, respectively.

An abridged index and the subsequent field diagram were both made by the researcher and, compiled from different sources as shown below:

1. Molecular biology (scientific activity):
    a. The cell
    b. DNA
    c. Bacteria
    d. Applications: Genetic Engineering

2. Ethical concerns (debate):
    a. Companies
    b. Governments
    c. Ecologists

An expanded field diagram is presented here:

1. MOLECULAR BIOLOGY:

    a. The cell: Biological and chemical processes
        ➔ **Cell**→(Thousands of) **enzymes** (that allow chemical reactions)
            → Enzymes (e.g. polymerase, restriction, ligase) are **proteins**
                - Proteins are **molecules**
                    - A molecule consists of 20 **amino acids**
                        - Every amino acid has C, H, N, O
                        - Every amino acid makes a linear structure
                    - Proteins are synthesized by **ribosomes**
                        - A ribosome: a set of more than 50 proteins
                        - A ribosome joins amino acids

    b. DNA:
        - It is inside the nucleus of the cell:
            - In most **eukaryotes** (multicellular): chromosomal DNA
            - It is in the cytoplasm in **prokaryotes** (bacteria): bacterial DNA
        - Human DNA:
            - 1% is functional (**protein-coding**),
            - 9% dark matter
            - 90% regulatory functional: **junk DNA** (**non-coding DNA**)
        - **Chromosomes:** structures in the nucleus of a cell consisting of a long **DNA helix** on which thousands of genes are encoded
        - **Genes:** functional subunits of DNA containing the coded information to make **proteins,** that is, genes **code for** proteins
        - A **nucleotide** makes the structural unit of DNA: this is the chemical composition of A, G, T, C plus pentose (a sugar) and phosphoric acid
        - A **DNA strand** has a sequence of nucleotides called **bases** arranged in pairs (**pair bases**)
        - Gene expression (DNA is turned into a protein through 2 processes):
            - **Transcription**: from DNA to messenger RNA (**mRNA**)
            - **Translation**: from mRNA to protein

Cell
↓
Chromosome
↓
DNA
↓
Gene
↙ ↘
Made of Nucleotides | Codes for proteins
↓ | ↓
Pair bases | Amino acids

c. Bacteria:
  - Bacteria were the first genetically modified organisms
  - **Escherichia coli** (E. coli) is a bacterium
    - It is one of the organisms most used in Genetic Engineering (GE)
    - It can be reproduced every 20 min
    - A **recombinant plasmid** (a genetically modified transferable DNA molecule of autonomous replication) is introduced in the E. coli to produce e.g. human insulin
      - The human gene that codes for this hormone (a protein) is selected and inserted into the genetic code of the E. coli
  - The wall of a bacterium is made of **polymers**
      - Polymers contain sugars which make a molecular net (**polimerasa** enzyme)
  - Other bacteria to genetically modify plants:
    - **Agrobacterium tumefaciens:** used as a plasmid (T-DNA)
    - **Bacillus thuringiensis (Bt):** a soil-dwelling bacterium functioning as naturally-occurring pesticide
      - Bt genes inserted in a plant that now has an 'inbuilt' device as insecticide

d. Applications: Genetic Engineering (Cell engineering processes)

➔ <u>Definition of GMOs</u>: Organisms that have been genetically modified or engineered deliberately in the laboratory to obtain specific qualities.

➔ <u>To engineer a gene (recombinant DNA), the gene is to be</u>:
  - **Selected**: the selected gene is called **gene of interest** (e.g. the gene that codes for insect resistance found in a source organism like Bt bacteria)
  - **Isolated**: *in vitro* within a test tube or inside a vector (e.g. bacteria)
  - **Replicated** (copied): by multiplying the gene (**amplification**) using bacteria as a natural "replicator" (cloning) or by polymerase chain reaction (PCR) (test tube)
  - **Sequenced**: the gene's sequence of nucleotides is identified
    - At the nucleotide level, modifications can be made in the sequence through **splicing** (restriction enzymes cut the DNA of a gene to add or modify base pairs)
  - **Spliced (gene splicing):** process of chemically cutting DNA to add bases to the DNA strand
    - Base pairs cannot be modified randomly except for **exon** regions since only the exons encode the protein
    - After the DNA is transcribed into RNA, the splicing takes places, and as a result, the **intron** regions are removed
  - **Inserted**:
    - The gene to be replicated is inserted in copies of a **plasmid**
      - Plasmids are present in most bacteria (*E. coli, Agrobacterium*)
      - Plasmids are extrachromosomal DNA molecules that can self-replicate inside a:
        1. **cell** (e.g. E. coli) that is then hybridized with the host
           - Bacterial plasmid (e.g. Ti Plasmid of *Agrobacterium*) works as a **vector** (plasmids in GE are called vectors) to be transported (**transformation**) to a host

2. **host organism**
    - The gene can also be inserted directly into the host through micro-injection, macro-injection and micro-encapsulation
- Bacteria are exposed to antibiotics to know which cells are GM
    - Plasmids are inserted into bacteria (**transformation**)
    - Plasmid copies contain genes that make cells resistant to specific antibiotics (**antibiotic-resistant marker genes**)
    - The antibiotics select only the genetically modified bacteria
- The recombinant gene is **expressed** to make a protein
    - The modified bacteria are replicated in the host, that is now a genetically modified organism since recombinant DNA (*in vitro*) cannot be expressed unless it is inserted into a living organism (host)
    - In the case of maize, Bt genes are inserted and expressed in a control host organism such as Arabidopsis thaliana or Nicotiana tabacum

➔ Genetically engineering techniques:
- **Transgenesis (transgenic organism)**:
    - The gene to be inserted (**foreign gene**) comes from a different organism
    - Result: A **transgene** (a new phenotype is expressed)
- **Cisgenesis (genetically modified organism)**:
    - The gene to be inserted comes from the same organism
    - Result: An organism with modified characteristics and/or silenced genes
        - **Silenced genes**: the expression of the enzyme codified for that gene is reduced or eliminated (**antisense technology**)

➔ Areas to perform genetic modification
- **Genetic modification of microorganisms**
    - Most frequent methods:
        - Recombinant plasmids
    - Genetically modified microorganisms:
        - Insulin, growth hormone, somatostatin (inhibiting-hormone human protein synthesized in E. coli), Hepatitis B vaccine, human papillomavirus (HPV) vaccine, etc.
        - Tryptophan: amino acid used as a food supplement
        - Chymosin: enzyme in cheese making
        - Microorganisms to produce fuel and clean up toxic waste (**bioremediation**)
- **Genetic modification of plants**
    - Most frequent methods:
        - **Bacteria:**
            - **Agrobacterium tumefaciens:** it causes tumors in plants from the bacterial tumor-inducing (Ti) plasmid and this way can transfer genes (T-DNA) to plants
            - **Bacillus thuringiensis (Bt):** Bt gen that codes for the toxin of Bt is inserted into the plant so the new genes can be expressed being lethal for insects (insecticide)
            - **Pseudomonas syringae:** reduces damage from frostbite by using E. coli (Artificial P.syringae known as **ice-minus** bacteria)
        - **Biolistic** / bioballistic methods: gene gun (tungsten particles coated with a marker gene)
        - **Electroporation**: electricity to transfer DNA across the cell membrane

- Genetically modified plants:
  - **Tobacco plants**: engineered to be resistant to herbicides (1986)
  - **Flavr Savr Tomato**: genetically engineered slow-ripening tomato (1994, Calgene Company)
  - **Bt maize, Bt cotton, Bt potato**: first pesticide-producing crops in the US (1995-1996)
    - Bt maize is engineered to kill corn borers that cause economically important losses
  - **Bt brinjal**: an aubergine inserted with a crystal gene (**Cry1Ac**) from the soil bacterium Bacillus thuringiensis

- Types of genetically modified crops (aim: to increase crop yield)
  - *1st generation*: crops resistant to insects, herbicides and virus
  - *2nd generation*: by improving the nutritional value of the crops (*golden rice*) or making crops resistant to extreme climate conditions (e.g. cold or drought tolerance)
  - *3rd generation*: pharmaceutical crops that contain edible vaccines and other drugs

- **Genetic modification of animals**
  - Most frequent methods:
    - Electroporation
    - **Microinyection**: a needle (used as a vector) penetrates the cell membrane
  - Genetically modified animals:
    - There is no genetically modified animal suitable for human consumption yet
    - The **Oncomouse** and the **Knockout Mouse**: some genes have been silenced for the study of diseases
    - The **Glofish**: the 1st genetically modified animal to be sold as a pet
    - Engineered animals to express drugs and other proteins in their milk:
      - **Polly** and **Molly**: first two mammals (ewes) cloned and transgenic at the same time to express human clotting protein in the milk of sheep (1997, Roslin Institute in Edinburgh, Scotland).
      - **Alpha-1-antitrypsin** (AAT): a protein synthesized to appear in sheep's milk (1991)
      - Anticoagulan plama protein, **ATryn** (2006) engineered and produced in goat's milk
      - **Herman the Bull** (1990-2004): the first genetically transgenic bovine; cells were inserted with the human gene coding for lactoferrin so that milk produced by his female offspring bears a human milk protein
    - Genetically modified pigs:
      - For human organ transplantation (**xenotransplantation**)
      - ***Enviropig*** (University of Guelph, Canada): to reduce phosphorous pollution from fecal contamination of pigs in lakes and rivers by creating pigs that generate faeces containing less phosphorous

2. ETHICAL CONCERNS

a. Biotechnology companies
- ➔ **Monsanto products**
  - o Genetically modified:
    - ▪ Herbicide:
      - ❑ **Roundup Ready**: engineered to resist GM plants
    - ▪ Hormones:
      - ❑ rBST / rBGH: recombinant Bovine Somatotropine
    - ▪ Others
      - ❑ Golden Rice (more beta-carotene)
  - o Non-genetically modified (Robin 2008: 20)
    - ▪ Polychlorinated biphenyls (PCBs): persistent organic pollutants (dioxine)
    - ▪ Agent Orange (2-4-5-T and 2-4-D): an herbicide and defoliant used by the U.S. military in its Herbicidal Warfare program during the Vietnam War
    - ▪ DDT: pesticide
    - ▪ Aspartame (or APM): an artificial, non-saccharide sweetener
- ➔ **Genentech:**
  - o The first genetic engineering company in 1976
  - o Produced human insulin in 1978
- ➔ **Other companies**:
  - o DowChemicals, DuPont, Aventis
  - o Syngenta: Bt maize called **CompaCB**
  - o Calgene (later a subsidiary of Monsanto): Flavr Savr Tomato
  - o Delta & Pine Land (later a subsidiary of Monsanto): **Terminator seeds** (crops not producing seeds in the 2nd generation)

b. Governments

- ➔ European and US governments have strong disagreements about GM food
- ➔ Genetically engineered life can be patented (U.S. Supreme Court, 1980)
- ➔ Governments have safety councils: e.g. European Food Safety Authority (EFSA), FDA (US Food and Drug Administration)
- ➔ Public concern in Europe about GMOs seems higher than in the US. Opinion about GMOs seems less controversial in the US

c. Ecologists (topics they deal with regarding GM food):

- ➔ Food safety (e.g. allergenicity)
- ➔ GMO's effect on non-GM crops and natural ecosystems (e.g. biodiversity)
- ➔ Moral/religious concerns (e.g. vegetarians, believers)
- ➔ Corporate control of the food supply

For the purposes of this PhD dissertation, the field diagram, the documentation stage and the succinct description of the book covers seem to be an appropriate account to place the ST and TT in their culture systems, and from now on, to approach the text from a linguistic point of view. It is due to CL methods that we have observed the real value of the present data. Thus, the next section will focus on wordlists and keyword lists in order to shed light on the issues presented in the research questions.

5.3. QUANTITATIVE ANALYSIS: Recognition of ST-TT segments at terminological, phraseological and translational levels

The final goal of this section is to analyze a number of terms (denominative variants) and collocations (semantic prosody), some of which have previously appeared in the pilot study. With this purpose in mind, the examination of TTRs (type/token ratio) is the first quantitative measure to be taken into consideration.

5.3.1. Type/token ratio (TTR)

To calculate TTR, we need the total number of tokens that comprise the *corpus size*. The tokens used for the wordlists are 10,000 running words fewer than the total number of tokens, for both the English and Spanish corpora. That is, a bit less than 1,000 words (e.g. symbols, apostrophes), from each one of the 20 books, are not included in the word count. The figures below are the raw number of tokens:

TOKENS	Running words in WST5	Used for wordlist in WST5	In the search form (AKSIS)
English corpus	802,608	793,789	794,422
Spanish corpus	908,109	899,217	893,100
Total	1.710,717	1.693,006	1.687,522

Table 5.3: *Overall corpus size of GE_P-ACTRES.*

Based on Bowker and Pearson's idea of representativeness (2002: 48), the number of tokens for the wordlist is considered large enough to provide a reliable basis for quantification. In the English corpus, the book size ranges from 30,000 to a bit more than 125,000 tokens. The shortest book is written by a British ecologist (Luke Anderson) and the largest book is written by an American journalist (Bill Lambrecht). Interestingly, no matter what the size of a book is (tokens), for the level of specialization (types) to remain constant (see figure 5.4).

Hence, a statistic result at studying TTRs concerns the level of specialization. By looking into the TTR, it is evident that the number of types is significantly much lower than the tokens as it was expected (fig. 5.4 and 5.5).

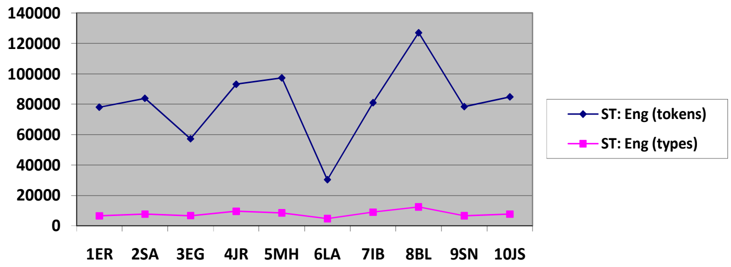


Fig. 5.4: *Type/token ratio in the English corpus.*

The graph indicates that every book includes a similar amount of types irrespective of its length. This similar amount of types helps to account for the issue of balance. In other words, there is balance in the number of types regardless of the difference in the number of tokens. The same is true for the Spanish corpus:

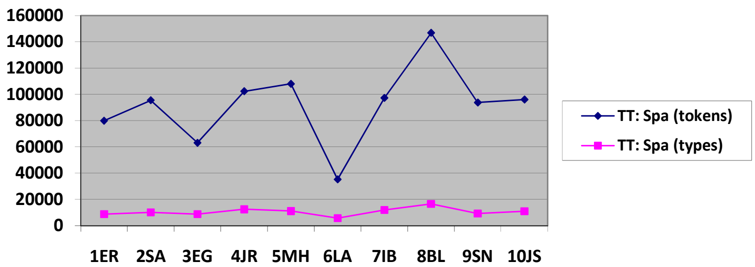


Fig. 5.5: *Type/token ratio in the Spanish corpus.*

In the statistics tab of WST5, the TTR figure ranges between 8 and 16 in the English corpus and between 10 and 16 in the Spanish corpus. These figures mean that the group of different word forms or types represents less than 20% of the total number of tokens. The help file option in WST5 clarifies that the TTR measure presents doubts about the veracity of assuming any connection of this result with the level of specialization in a given text when the TTR is larger than 20%. However, when the TTR is small, this connection may be clearer to be taken for granted as suggested in WST5.

These first quantitative findings lead to the next sections that will be devoted to the extraction of terms through wordlists and keyword lists. This is a semi-automatic process, as the initial wordlists are gradually refined until a final keyword list is delimited. For the purpose of obtaining a keyword list, it is imperative to generate a monolexical wordlist first.

5.3.2. Monolexical wordlists

The wordlist function on WST5 allows us to obtain English and Spanish wordlists, which are by default monolexical.

5.3.2.1. Lexical preselection for the English corpus

Below are the fifty raw frequencies and percentages retrieved for the English wordlist. As it was anticipated in chapter 4 (see 4.2.1.6.), it is not surprising to observe that most of the words from the list are grammatical. A number of words that are enhanced in red show that they are all nouns and there is just one adjective. All the tokens from the list are present in the 10 books of the entire English corpus.

N	Word	Freq.	%	N	Word	Freq.	%
1	THE	52787	6,5791	26	AN	2799	0,3489
2	OF	29376	3,6613	27	WHICH	2718	0,3388
3	TO	21871	2,7259	28	AT	2639	0,3289
4	AND	19481	2,428	**29**	**GENETIC**	**2633**	**0,3282**
5	IN	18808	2,3441	**30**	**GENE**	**2562**	**0,3193**
6	A	16927	2,1097	31	ONE	2460	0,3066
7	THAT	11480	1,4308	32	WERE	2448	0,3051
8	IS	9811	1,2228	33	HAD	2396	0,2986
9	#	8856	1,1038	34	HAS	2382	0,2969
10	FOR	7574	0,944	**35**	**GENES**	**2353**	**0,2933**
11	IT	6051	0,7542	36	BUT	2339	0,2915
12	ARE	5932	0,7393	**37**	**NEW**	**2248**	**0,2802**
13	AS	5448	0,679	38	CAN	2236	0,2787
14	ON	5030	0,6269	39	WE	2228	0,2777
15	BY	4954	0,6174	40	MORE	2173	0,2708
16	BE	4928	0,6142	41	BEEN	2099	0,2616
17	WITH	4923	0,6136	**42**	**FOOD**	**1960**	**0,2443**
18	FROM	4790	0,597	43	INTO	1948	0,2428
19	WAS	4531	0,5647	44	HE	1902	0,2371
20	HAVE	3932	0,4901	**45**	**DNA**	**1885**	**0,2349**
21	THIS	3609	0,4498	46	WILL	1882	0,2346
22	NOT	3362	0,419	47	I	1837	0,229
23	THEY	3346	0,417	48	OTHER	1806	0,2251
24	OR	3068	0,3824	49	ITS	1793	0,2235
25	THEIR	2872	0,358	50	THERE	1784	0,2223

Table 5.6: *English 50 top-frequent tokens (both lexical and grammatical words).*

It was expected to find *the* and *of* at the top of the frequency list, since grammatical words have the function of joining the lexical content. The third person singular and plural form (*is, are*) of the verb *to be* in the present simple appears on the lists as exceptionally prominent. The bare infinitive *be* and *have,* and a past form *was* are following closely. The frequency of these verbs may imply a basic rhetoric present in the corpus, which is in accordance with the level of specialization. Hit number 9 (table 5.6), which is the sharp symbol #, stands for any number in the text. The content words **in red** are a few lexical words –*genetic, gene, genes, new, food* and *DNA*– that reveal the main topic of the corpus.

5.3.2.2. Lexical preselection for the Spanish corpus

The majority of hits of the Spanish wordlist are grammatical words as well as in the English one. They are mainly prepositions (*de, en, a, un, una, del, por, para, con*), articles (*la, el, los, las*) and conjunctions (*que, y, o*) but also verbal tenses like the present simple forms of the verb *to be* in Spanish (*es, son*) and the imperfect tense of *to have* (*había*). The table below shows the top-frequent tokens in the Spanish corpus:

N	Word	Freq.	%	N	Word	Freq.	%
1	DE	65599	7,2237	26	SUS	2685	0,2957
2	LA	40764	4,4889	**27**	**GENES**	**2605**	**0,2869**
3	QUE	29330	3,2298	28	SOBRE	2304	0,2537
4	EN	25813	2,8425	**29**	**GENÉTICA**	**2278**	**0,2509**
5	EL	23192	2,5539	30	SON	2008	0,2211
6	LOS	22788	2,5094	31	SI	1915	0,2109
7	Y	19902	2,1916	32	HA	1893	0,2085
8	A	18407	2,027	**33**	**ADN**	**1821**	**0,2005**
9	LAS	13854	1,5256	**34**	**ALIMENTOS**	**1810**	**0,1993**
10	SE	12371	1,3623	35	PERO	1777	0,1957
11	UN	10829	1,1925	36	ENTRE	1646	0,1813
12	UNA	9747	1,0733	37	HAN	1582	0,1742
13	#	8892	0,9792	**38**	**GEN**	**1569**	**0,1728**
14	DEL	8876	0,9774	39	SIN	1561	0,1719
15	POR	8793	0,9683	40	SER	1557	0,1715
16	PARA	8125	0,8947	41	PUEDE	1550	0,1707
17	NO	7017	0,7727	42	CUANDO	1534	0,1689
18	CON	6907	0,7606	43	TAMBIÉN	1504	0,1656
19	ES	5876	0,6471	44	ESTE	1491	0,1642
20	MÁS	4556	0,5017	45	HABÍA	1432	0,1577
21	COMO	4439	0,4888	**46**	**PLANTAS**	**1354**	**0,1491**
22	SU	4426	0,4874	**47**	**AÑOS**	**1306**	**0,1438**
23	AL	3921	0,4318	**48**	**MUNDO**	**1289**	**0,1419**
24	LO	3293	0,3626	**49**	**CÉLULAS**	**1284**	**0,1414**
25	O	2916	0,3211	**50**	**INGENIERÍA**	**1284**	**0,1414**

Table 5.7: *Spanish 50 top-frequent tokens (both lexical and grammatical words).*

Comparing wordlists, the adverb *no* (7017) is twice as frequent as the occurrence of the English adverb *not* (3362). The Spanish adverb *más* (4556) is also more frequent than the English *more* (2173). It may be relevant to notice that English *can* (2236) and Spanish *puede* (1550) have similar frequencies. In the case of *para,* its high frequency (8125) is outstanding. It can be classified as two different grammatical categories: verb (*it stops, stop!*) and preposition (*in order to*). The corpus retrieves that it is a recurrent structure of expressing purpose as, for example, *this technology is used for (esta tecnología se usa para + inf)* and agent, as in *for the biotechnology company* (*para la empresa biotecnológica*).

As for nouns in red, there are more varied lexical entities (10) in the 50-top frequent Spanish wordlist than in the English one (6). The Spanish lexical words generated from the wordlist are *genes, genética, ADN, alimentos* (*food*), *gen, plantas, años* (*years*), *mundo* (*world*), *células* (*cells*), and *ingeniería.*

After a wordlist is created, there is not an instant answer to any of our research questions unless this first output of results is resorted and interpreted. Since the majority of words in the previous wordlists are useless for our purpose of extracting keywords, we need to load a stopword list provided at UNIFOB (AKSIS) to refine results.

5.3.3. Keyword lists

A wordlist can change its shape into a keyword list by means of a stopword list. As has been explained above in 4.3.3.1.1 (Preselection: Wordlists), the keyword function on WST5 will output a depurated wordlist. The following keyword lists will include prospective terms from which we will choose the most frequent lexical entities as the object of our study in order to examine denominative variation, semantic prosody and ideology.

5.3.3.1. Semantic preference in the English corpus

The entire keyword list generated by WST5 holds 2,016 hits (including positive and negative keywords), a number that it is not possible for the researcher to analyze for the purposes of this dissertation. As a result, most researchers select a portion of the total keywords (50, 100 or 200 as a convention) or the smallest representative number of keywords to be interpreted. According to Berber Sardinha (1999: 5), a suitable sample size is calculated taking the total number of tokens in the keyword list (394,650) divided by the number of keyword entries (in this case we chose only the positive keywords, that is 1,304) in order to calculate the means that is 302. Therefore, keywords above 302 times frequent must be taken into consideration and in turn, the 50-top tokens are precisely above 302 times frequent. Thus, the following list brings together the lexical words that have the greatest statistical prominence in the English corpus:

N	Key word	Freq.	%	RC. Freq.	RC. %	Keyness
1	GENETIC	2632	0,3279	142	0,0116	3902
2	GENE	2564	0,3195	221	0,0181	3432,1
3	GENES	2356	0,2935	187	0,0153	3219,8
4	DNA	1885	0,2349	105		2777,4
5	GENETICALLY	1378	0,1717	19		2371,7
6	MONSANTO	1246	0,1552	0		2308,8
7	FOOD	1961	0,2443	270	0,0221	2260,4
8	BIOTECHNOLOGY	1149	0,1432	6		2060
9	CROPS	1173	0,1461	34		1898
10	TRANSGENIC	994	0,1238	1		1826,9
11	ENGINEERED	962	0,1199	4		1734,5
12	ENGINEERING	1067	0,1329	35		1701,9
13	MODIFIED	918	0,1144	10		1600,4
14	FOODS	887	0,1105	18		1484,8
15	CELLS	1278	0,1592	181	0,0148	1456,5
16	PLANTS	1226	0,1528	161	0,0132	1438
17	PLANT	1016	0,1266	103		1298,7
18	GM	671	0,0836	9		1156,4
19	BIOTECH	624	0,0777	9		1070,6
20	CELL	902	0,1124	115		1069,3
21	BACTERIA	822	0,1024	80		1063,2
22	SCIENTISTS	944	0,1176	139	0,0114	1059
23	FARMERS	760	0,0947	58		1047,7
24	INDUSTRY	850	0,1059	97		1046,8
25	PROTEIN	751	0,0936	56		1040,9
26	HUMAN	1598	0,1991	623	0,0509	953,12
27	RESEARCH	901	0,1123	173	0,0141	895,45
28	FDA	502	0,0625	6		870,78
29	ARE	5935	0,7395	5199	0,4249	855,1
30	SCIENCE	822	0,1024	147	0,012	846,17
31	TECHNOLOGY	753	0,0938	120		817,04
32	NEW	2248	0,2801	1304	0,1066	810,14
33	PROTEINS	525	0,0654	29		774,24
34	HEALTH	729	0,0908	125	0,0102	765,42
35	PRODUCTS	654	0,0815	94		740,75
36	HERBICIDE	406	0,0506	2		728,82
37	COMPANIES	723	0,0901	136	0,0111	725,98
38	CROP	521	0,0649	38		725,76
39	RESISTANT	499	0,0622	31		719,46
40	AGRICULTURE	484	0,0603	26		717,37
41	PATENT	398	0,0496	9		659,91
42	MILK	486	0,0606	41		653,5
43	VIRUSES	414	0,0516	17		640,79
44	ORGANISMS	630	0,0785	123	0,0101	620,67
45	SEEDS	391	0,0487	15		611,01
46	VIRUS	383	0,0477	13		608,16
47	CANCER	495	0,0617	57		607,69
48	RESISTANCE	653	0,0814	148	0,0121	592,3
49	SPECIES	789	0,0983	239	0,0195	587,77
50	ENVIRONMENT	623	0,0776	133	0,0109	584,9

Table 5.8: *English 50-top keywords.*

From this keyword list (table 5.8), it is clearly noticeable that the majority of hits are terms that belong to different levels of specialization. It is common to divide the lexicon of specialized languages into different levels or categories (Chung and Nation 2003: 104). Since term extraction can be linguistic, statistical and hybrid (Drouin 2003: 99), the method applied here is first statistical, by means of keyword lists (automatic recall), and then, linguistic, by examining the concordances of each keyword (manual check). A careful look in WST5 at the collocational behavior of each one of the hits revealed that certain keywords may be overlapped in two categories: technical terms, and subtechnical terms). The optimal solution to place each keyword within a group was to consider a cut-off point. It was found that at least 60% of the occurrences of every keyword behaved in the manner of the group it was included in. In a large number of cases, this percentage reached 90%.

The count of occurrences in table 5.8 showed that the terms highlighted in yellow comprise the *central terms* corresponding to science (mainly biology) and the specialized subject field (genetic engineering). And the majority of occurrences of the terms marked in blue confirmed that their specific use turns these lexical entities from general language words to *semitechnical terms*, that is, they are not particularly associated with a specific field but a large number of them.

By looking into the concordance lines of subtechnical terms like *crops, foods, plants* and *seeds,* it seems that these terms have changed their lexical status from words to terms, since they are not regular products as understood in GL but confined to mean *genetically modified*. Their natural habitat is the GL but they have taken on a restricted meaning to signify they are or about to be genetically modified organisms. It can be easily noticed that most of the terms in the keyword list are nouns, with the exceptions of *engineered, engineering, modified* and *new*. A large number of concordance lines for *new* revealed that it has also acquired a more precise meaning to indicate that *new* organisms have been those modified in the laboratory.

A third set of vocabulary that we were interested in concerns general language words, which are the rest of the hits not highlighted. Some of them are words understood by lay audiences (e.g. *farmers, scientists, human beings*) and some others may imply the existence of a social debate, such as *FDA* (hit number 28) and *companies* (hit 37). The rationale for this categorization is that *biotechnology companies*, *governments* and *ecologists* were tagged under the 'ethical concerns' label in the field diagram presented above (see 5.2.4). Based on the concordances examined, these three searchwords have been associated with ethics within popular science in this study. This does not mean that every time *company* appears, a social concern is claimed, but it is the signal that evaluative language –either positive or negative– may take place.

As sticks out, the name of the multinational biotechnology company, Monsanto, is the six-top frequent hit from the whole corpus. By contrast, there is not any hit of the name of this company in the reference corpus wordlist (RC) it was compared with (see RC column in table 5.8). Although a proper name is not considered a term, its frequency reveals we are dealing with a keyword. The names of other biotechnology companies such as Syngenta, Novartis (hit no. 204), Astra-Zeneca, AgrEvo are not as frequent as the American multinational but, as Bill Lambrecht put it, Monsanto is *the* company in the field of biotechnology, and as such, appears highlighted in italics in 8BL:

<s id="BL2E.s34" >It's been *the* company with the foresight to see the horizons of biology and the steadfastness to try to reach them.</s>	<s id="BL2S.s33" >Ha sido *la* empresa con la visión suficiente como para vislumbrar los horizontes de la biología, y con la tenacidad necesaria para intentar alcanzarlos.</s>

The fact that *Monsanto* has shown as a keyword raises the question as to how frequent this keyword is in the *sci corpus* compared to the *soc corpus.* Since this keyword list is retrieved from the entire English corpus, the next step was to generate two English keyword lists according to the author's background: one for the *sci* and one for the *soc corpus.* It is a pragmatic criterion in order to carry out an intralinguistic comparison of the two English corpora as to see how different the corpus written by scientists is from the *soc corpus*. Interestingly, the name of the company does not show up within the first 50 occurrences of the list of the most frequent keywords extracted from the *sci corpus* as shown below (table 5.9).

As in the previous table (5.8), it was expected that the terms *genes, gene* and *DNA* occupy the first positions in table 5.9. Unlike table 5.8, technical terms in table 5.9 were broken down into two categories: The terms in yellow belong to biology (e.g. *genes, DNA*), whereas the terms in green (e.g. *genetic, transgenic*) are proper of the discipline of genetic engineering. To put it differently, both the yellow and the green terms indicate technical vocabulary. The words in green represent the terms coined with the birth of the technology (*transgenic, genetically, biotechnology, engineering* and *engineered*), but now they do not represent neologisms any more.

Apart from the third person forms of the verb *to be* in the present simple that are again prominent in table 5.9, we can also observe as above (table 5.8) that the words in blue have become specialized –that is, subtechnical terms– within the discourse of GE (*plants, crops, modified, food, resistant*, etc). The rest of the words that are not highlighted belong to the general language (e.g. *human, chapter*), none of which have shown evaluative in the 50-top keywords in the *sci corpus*.

N	Key word	Freq.	%	RC. Freq.	RC. %	Keyness
1	GENES	1801	0,4559	187	0,0153	3950,6
2	GENE	1844	0,4668	221	0,0181	3925,9
3	DNA	1568	0,3969	105		3701,5
4	GENETIC	1425	0,3607	142	0,0116	3150
5	TRANSGENIC	791	0,2002	1		2217,6
6	CELLS	1102	0,279	181	0,0148	2167,6
7	CELL	774	0,1959	115		1563,8
8	PLANTS	814	0,2061	161	0,0132	1513,5
9	CROPS	612	0,1549	34		1479,6
10	BACTERIA	673	0,1704	80		1434
11	GENETICALLY	535	0,1354	19		1354,7
12	ARE	3701	0,9369	5199	0,4249	1271,9
13	ENGINEERING	536	0,1357	35		1268,8
14	BIOTECHNOLOGY	456	0,1154	6		1225,9
15	PROTEIN	551	0,1395	56		1212,5
16	PLANT	613	0,1552	103		1197,5
17	MODIFIED	442	0,1119	10		1156,7
18	IS	6002	1,5194	10846	0,8864	1067,4
19	PROTEINS	443	0,1121	29		1048,2
20	FOOD	646	0,1635	270	0,0221	863,01
21	VIRUSES	345	0,0873	17		845,7
22	HUMAN	887	0,2245	623	0,0509	804,57
23	ENGINEERED	296	0,0749	4		794,84
24	RESISTANCE	497	0,1258	148	0,0121	790,27
25	ENZYMES	321	0,0813	17		780,36
26	ENZYME	282	0,0714	8		726,84
27	ORGANISMS	442	0,1119	123	0,0101	723,79
28	VIRUS	291	0,0737	13		720,87
29	GENOME	337	0,0853	43		706,51
30	ANTIBIOTIC	249	0,063	0		702,47
31	SPECIES	532	0,1347	239	0,0195	680,11
32	CANCER	343	0,0868	57		672,02
33	RESISTANT	303	0,0767	31		665,77
34	AMINO	259	0,0656	8		663,28
35	CROP	301	0,0762	38		632,56
36	FOODS	266	0,0673	18		626,36
37	HERBICIDE	227	0,0575	2		618,57
38	SEQUENCE	308	0,078	48		614,22
39	TRANSFER	272	0,0689	30		588,68
40	DIFFERENT	669	0,1694	491	0,0401	581,62
41	DISEASES	306	0,0775	60		570,29
42	RNA	228	0,0577	10		565,84
43	PATENT	221	0,0559	9		552,52
44	WHICH	1834	0,4643	2734	0,2234	550,69
45	ORGANISM	274	0,0694	42		548,83
46	ENVIRONMENT	375	0,0949	133	0,0109	548,26
47	CHAPTER	409	0,1035	170	0,0139	548,04
48	USED	669	0,1694	529	0,0432	539,16
49	VARIETIES	213	0,0539	9		530,6
50	PRODUCTION	319	0,0808	88		524,24

Table 5.9: *English 50-top keywords extracted from the sci corpus.*

Unlike the *sci corpus,* a group of GL words that may signal social debate have been highlighted in fuchsia in the next table (5.10), which lists the up-to-50 most frequent keywords in the *soc corpus*:

N	Key word	Freq.	%	RC. Freq.	RC. %	Keyness
1	MONSANTO	1093	0,2625	0		2998,7
2	GENETIC	1207	0,2899	142	0,0116	2486,8
3	FOOD	1315	0,3158	270	0,0221	2319,1
4	GENETICALLY	843	0,2025	19		2141
5	BIOTECHNOLOGY	693	0,1664	6		1835,2
6	ENGINEERED	666	0,1599	4		1780,1
7	FOODS	621	0,1491	18		1549,7
8	GM	586	0,1407	9		1519,1
9	BIOTECH	565	0,1357	9		1462,2
10	INDUSTRY	668	0,1604	97		1307,1
11	CROPS	561	0,1347	34		1297,8
12	FDA	473	0,1136	6		1236,2
13	ENGINEERING	531	0,1275	35		1214,1
14	MODIFIED	476	0,1143	10		1213,8
15	FARMERS	569	0,1366	58		1207,9
16	GENE	720	0,1729	221	0,0181	1078,3
17	SCIENTISTS	627	0,1506	139	0,0114	1075,4
18	NEW	1506	0,3617	1304	0,1066	1013,8
19	RESEARCH	630	0,1513	173	0,0141	992,26
20	TECHNOLOGY	494	0,1186	120		818,35
21	COMPANY	551	0,1323	183	0,015	793,83
22	GENES	555	0,1333	187	0,0153	793,76
23	COMPANIES	497	0,1194	136	0,0111	783,88
24	AGRICULTURE	320	0,0768	26		708,12
25	SCIENCE	467	0,1122	147	0,012	690,84
26	HEALTH	439	0,1054	125	0,0102	680,38
27	PLANT	403	0,0968	103		654,07
28	BT	220	0,0528	0		603,23
29	CORN	447	0,1073	170	0,0139	598,91
30	MILK	291	0,0699	41		573,73
31	PUSZTAI	205	0,0492	0		562,1
32	SEEDS	237	0,0569	15		544,9
33	SOYBEANS	203	0,0488	1		544,57
34	TRANSGENIC	203	0,0488	1		544,57
35	PLANTS	412	0,0989	161	0,0132	543,49
36	PRODUCTS	344	0,0826	94		542,82
37	RESEARCHERS	265	0,0636	40		513,04
38	COWS	227	0,0545	21		490,86
39	HUMAN	711	0,1708	623	0,0509	471,15
40	HERBICIDE	179	0,043	2		469,97
41	DNA	317	0,0761	105		457,22
42	SCIENTIFIC	301	0,0723	93		449,2
43	CANADA	233	0,056	39		438,1
44	AGRICULTURAL	208	0,05	23		434,04
45	CONSUMERS	206	0,0495	22		433,03
46	PATENT	177	0,0425	9		418,51
47	THAT	6247	1,5002	13363	1,0921	416,9
48	ORGANIC	216	0,0519	34		413,35
49	BST	150	0,036	0		411,28
50	FARM	244	0,0586	57		410,27

Table 5.10: *English 50-top keywords extracted from the soc corpus***.**

The fuchsia group may indicate that the semantic preference in the *soc corpus* is focused not only on scientific advances but also on social biotechnology issues with the same strength at least within the range of the 50-top keywords. Even the word *patent,* which was included into the technical terms (science) category in the *sci corpus*, is now part of this fuchsia group in the *soc corpus* after examining the concordance lines in which it appears. The collocational behavior of *patent* shows that this term has lost its specificity, owing mainly to the co-occurrence of unspecialized lexical items it accompanies. Widening the collocational window of *patent,* it may be argued that the treatment of this lexical item is less specialized in the *soc corpus,* as it is used in passages close to general language (although intertwined with those of containing the informative and referential function of transmitting knowledge) and, therefore, it has undergone a process of banalization.

It is from this very same group that a keyword from the fuchsia category occupies the first position of the list in table 5.10. It may be striking that the company *Monsanto* appears at the top of the table, instead of the expected *genes* and *DNA,* as in table 5.9. Apart from proper names, there are other words from the GL that are likely to signal excerpts where the topic of genetic engineering was given a social dimension. These words are *industry* (655), *company* (550), *companies* (497), *Pusztai* (204), *Canada* (230) [famous case of a Canadian farmer, Percy Schmeiser] and *consumers* (206). This does not mean that *Monsanto* or *company* do not appear in the *sci corpus,* but their frequency of occurrence in the *soc corpus* confirms the semantic preference to focus on social issues apart from scientific facts within the 50-top keyword list in the *soc corpus*.

As well as in the *sci corpus,* in the *soc corpus* there are terms highlighted in yellow that are part of general biology and agriculture. The terms in green are considered specific to the discipline, such as *genetic, genetically, biotechnology, engineered, GM, biotech, engineered, Bt, transgenic* and *BST*. The abbreviated form *biotech* and the acronym *GM* exemplify cases of lexical creativity and this contributes to a more informal language. This does not mean that *biotech* and *GM* are non-existent in the *sci corpus,* but they do not show in the 50 top positions.

There is also a group of subtechnical terms in blue (*food, foods, modified*) similar to the one in the *sci corpus* and also a group of GL words (*scientists, science*). Within the latter group, the comparison between *which* from the *sci corpus* keyword list and *that* from the *soc corpus* may imply that the former has a tendency for explicative sentences, proper of scientific discourse, whereas *that* could also introduce relative sentences, apart from functioning as a demonstrative or pronoun. However, these observations need further research. As for *organic,* the reason to include it in the category of subtechnical terms was that the term is used in the *GE_P-ACTRES corpus* to signify a new concept that is non-genetically modified products, making this way a transparent distinction between genetically modified organisms and those that are not.

So far the lexical categories studied in the two English 50-top keyword lists are 4 in the *sci corpus* and 5 in the *soc corpus* as follows:

English keywords	Sci corpus	%	Soc corpus	%	Total Freq.	Total %
Technical terms (science)	13391	**53,6**	2476	10,2	15867	32,2
Technical terms (GE)	4039	16,2	6374	26,5	10413	21,2
Subtechnical terms	6003	24	7673	31,9	13676	27,9
General language words	1556	6,2	2615	10,9	4171	8,5
Social debate	0	0	4934	20,5	4934	10,1
Total	**24989**	100	**24072**	100	**49061**	100

Table 5.11: *Lexical distribution of the 50-top keywords in the English sci and soc corpora.*

The conclusions extracted from comparing the English keyword lists for the *sci* and the *soc* corpora are provided here and are based on table 5.11. As previously observed, technical terms include terms related to biology (*genes, cell, DNA*) and to general science and agriculture (*agriculture, herbicide*), and, therefore, the former has been called *technical terms (science)* in this dissertation and the latter has been labeled *technical terms (GE)*. Out of these two categories, technical terms (science) are more prolific in the 50-top keyword list in the *sci corpus* (53,6%) than in the *soc corpus* (10,2%), whereas technical terms of the specialized subject field (GE) are slightly more abundant in the *soc corpus* (26,5%), as compared with the *sci corpus* (16,2%). This fact may imply that the *sci corpus* devotes a greater deal of discourse to explain the mechanisms of molecular biology in comparison with the *soc corpus*. Technical terms –both yellow and green terms– comprise 69,8% out of the 50-top keywords in the *sci corpus* and, 36,7% in the case of the *soc corpus*, almost half of those in the *sci corpus*.

With regard to subtechnical terms, they are a slightly larger group (31,9%) in the *soc corpus* than the one in the *sci corpus* (24%). The technical and subtechnical terms represent 93,8% of the 50-top keywords in the *sci corpus* and 68,6% of those in the *soc corpus*. These figures account for the lexical distribution of the most frequent keywords up to 50 in both English corpora – the *sci* and the *soc*– and, therefore, shed light on the level of specialization in two different corpora classified by authorship within the same genre of popular science on the topic of genetic engineering.

Delving into the keyword results, several tables of the five first most frequent technical (science and GE) and subtechnical terms are provided below in order to compare yellow, green and blue terms from the *sci* with the *soc corpus*. In table 5.12, the lexical preference over technical terms pertaining to science, particularly biology, is higher in the *sci corpus* (7089 over 2091 from the *soc corpus*). The most frequent five terms (*genes, gene, DNA, cells, cell*) take the top positions, whereas *gene, genes* and *DNA* rank 16th, 22nd and 41st positions in the *soc corpus*. The occurrences of *agriculture* and *herbicide* appear in the mid position of the *soc corpus* keyword list onwards and reveal the focus on food and plant biotechnology over other biotechnology branches.

In this study, the lexical behavior for *agriculture* and *agricultural* disclose that the use of these terms make them belong to the group of technical terms, whereas *science* and *scientists* (table 5.10) are considered within GL provided that they lack semantic specificity as it was observed in the examination of concordance lines (the same was true for *patent* in the *soc corpus,* see table 5.10 above) (cf. *biotechnology* and *biotechnologists* are technical terms). The total occurrences of the five most frequent keywords in the *sci corpus* (7089) represent 52,9% (table 5.12) within the category of technical terms (science), which, in turn, technical terms represent 53,6% of the total 50-top keywords in the English *sci* corpus (table 5.11). In the *soc corpus,* the total frequency of the five-top technical terms (2091) account for 84,4% of the total occurrences of technical terms (science) (10,2% is the percentage from the 50-top keyword technical terms in the English *soc* corpus).

	Ranked in sci corpus	***Sci corpus***	**Freq.**	***Soc corpus***	**Freq.**	***Ranked in soc corpus***
1	**1**	GENES	1801	GENE	720	**16**
2	**2**	GENE	1844	GENES	555	**22**
3	**3**	DNA	1568	AGRICULTURE	320	**24**
4	**6**	CELLS	1102	HERBICIDE	179	**40**
5	**7**	CELL	774	DNA	317	**41**
		Total	**7089**	**Total**	**2091**	

Table 5.12: *English 5-top technical terms (science) in the sci and the soc corpora.*

From the 50-top keyword list, we can also observe that the frequency of the top technical terms regarding the specialized subject field –genetic engineering– is similar in both English *sci* and *soc corpora*:

N	***Ranked in sci corpus***	***Sci corpus***	**Freq.**	***Soc corpus***	**Freq.**	***Ranked in soc corpus***
1	**4**	GENETIC	1425	GENETIC	1207	**2**
2	**5**	TRANSGENIC	791	GENETICALLY	843	**4**
3	**11**	GENETICALLY	535	BIOTECHNOLOGY	693	**5**
4	**13**	ENGINEERING	536	ENGINEERED	666	**6**
5	**14**	BIOTECHNOLOGY	456	GM	586	**8**
		Total	**3743**	**Total**	**3995**	

Table 5.13: *English 5-top technical tems (specialized subject field) in the sci and the soc corpora***.**

The five most frequent keywords (specialized field) in the *sci corpus* (3743) represent 92,6% within their category (the technical terms of the specialized field are 16,2% of the 50-top keyword list) and, in the *soc corpus,* 62,6% account for the totality of terms (3995) in the same group (26,5%).

Regarding subtechnical terms, the following lexical items become subtechnical when they are accompanied by technical collocates in the majority of the cases examined through WST5:

N	*Ranked in sci corpus*	*Sci corpus*	Freq.	*Soc corpus*	Freq.	*Ranked in soc corpus*
1	8	PLANTS	814	FOOD	1315	3
2	9	CROPS	612	FOODS	621	7
3	16	PLANT	613	CROPS	561	11
4	17	MODIFIED	442	MODIFIED	476	14
5	20	FOOD	646	NEW	1506	18
		Total	3127	Total	4479	

Table 5.14: *English 5-top subtechnical keywords in the sci and the soc corpora.*

The five most frequent subtechnical keywords in the *sci corpus* (3127) represent 52,1% within their category (24%) and in the *soc corpus,* 58,3% account for the totality of terms (4479) in the same group (31,9%). *Food* and *foods* are particularly salient in the *soc corpus.* The lexical variation of subtechnical terms is similar in both English corpora.

Likewise, the Spanish keywords were examined as to whether terms behave in a similar way to their English counterparts. After examining Spanish keywords, some will be considered for the study of denominative variation and some others for the examination of semantic prosody.

5.3.3.2. Semantic preference in the Spanish corpus

With regard to the Spanish keywords, below (table 5.15) is the list generated for both corpora and enhanced with the colors of the five lexical categories previously studied.

The results we obtained for the English keyword list (table 5.8) are repeated here (table 5.15). In the majority of corpus studies about keywords, nouns are more likely to be key than any other grammatical category. This study is not an exception. Thus, the results are divided into five lexical categories again: words from the GL (*alimentos, cultivos, plantas, productos, soja, semillas,* etc.), GL words that are keywords in social debate (*Monsanto, industria, consumidores,* etc.), subtechnical terms that have taken on a specialized meaning (*organisms*), technical words from biology (*genes, genetic, ADN,* etc.) and technical terms specific to GE (*biotecnología, trangénicos, genéticamente, GM* and *transgénicas*):

N	Key Word	Freq.	%	RC. Freq.	RC. %	Keyness
1	GENES	2605	0,2869	209	0,0157	3436,5
2	GENÉTICA	2278	0,2509	94		3423,4
3	ALIMENTOS	1810	0,1993	67		2762
4	ADN	1821	0,2005	103		2594
5	MONSANTO	1218	0,1341	0		2200,4
6	INGENIERÍA	1284	0,1414	26		2091,4
7	BIOTECNOLOGÍA	1192	0,1313	9		2056,8
8	CULTIVOS	1180	0,1299	27		1901,2
9	GEN	1569	0,1728	208	0,0156	1767,9
10	TRANSGÉNICOS	889	0,0979	1		1591,3
11	PLANTAS	1354	0,1491	171	0,0128	1553,4
12	CÉLULAS	1284	0,1414	164	0,0123	1467
13	GENÉTICAMENTE	823	0,0906	15		1351,8
14	CIENTÍFICOS	1090	0,12	147	0,011	1219,8
15	VIRUS	779	0,0858	36		1149,5
16	PRODUCTOS	979	0,1078	131		1098,8
17	INDUSTRIA	793	0,0873	65		1039,6
18	SOJA	598	0,0659	8		1003,3
19	PROTEÍNAS	661	0,0728	40		928,71
20	SEMILLAS	751	0,0827	76		927,86
21	GM	525	0,0578	3		914,33
22	MODIFICADOS	524	0,0577	3		912,54
23	BACTERIAS	707	0,0779	78		849,89
24	AGRICULTURA	590	0,065	34		837
25	FDA	481	0,053	4		826,54
26	TECNOLOGÍA	709	0,0781	100		779,32
27	HERBICIDAS	395	0,0435	3		681,2
28	PROTEÍNA	506	0,0557	39		673,58
29	CÉLULA	511	0,0563	45		657,17
30	ANTIBIÓTICOS	392	0,0432	6		651,96
31	GENÉTICO	474	0,0522	35		637,53
32	PRODUCCIÓN	640	0,0705	116		628,43
33	ANIMALES	994	0,1095	352	0,0264	614,38
34	VARIEDADES	362	0,0399	5		606,09
35	LECHE	463	0,051	39		602,57
36	SALUD	573	0,0631	90		601,82
37	CULTIVO	468	0,0515	43		594,8
38	GENOMA	445	0,049	37		581,12
39	ENFERMEDADES	617	0,0679	123		576,49
40	CIENCIA	631	0,0695	131		576,47
41	TRANSGÉNICAS	319	0,0351	0		576,11
42	MAÍZ	706	0,0777	179	0,0134	569,99
43	AGRICULTORES	439	0,0483	39		563,2
44	PATENTES	366	0,0403	13		561,28
45	CONSUMIDORES	416	0,0458	32		554,02
46	COMPAÑÍAS	483	0,0532	62		550,59
47	(MEDIO) AMBIENTE	558	0,0614	102		545,56
48	VACAS	369	0,0406	19		534,49
49	ENZIMAS	354	0,039	16		524,15
50	ORGANISMOS	610	0,0672	146	0,011	511,53

Table 5.15: *Spanish 50-top keywords.*

A more restricted keyword list of the Spanish *sci corpus* will show the preference for these five groups of lexical entities:

N	Key word	Freq.	%	RC. Freq.	RC. %	Keyness
1	GENES	1953	0,4495	209	0,0157	4228,9
2	ADN	1510	0,3475	103		3531,7
3	GENÉTICA	1263	0,2907	94		2915,3
4	GEN	1187	0,2732	208	0,0156	2274,3
5	CÉLULAS	1106	0,2546	164	0,0123	2219,8
6	TRANSGÉNICOS	576	0,1326	1		1602,2
7	PLANTAS	840	0,1933	171	0,0128	1534,9
8	INGENIERÍA	609	0,1402	26		1506,5
9	VIRUS	623	0,1434	36		1489,3
10	CULTIVOS	601	0,1383	27		1479
11	BACTERIAS	610	0,1404	78		1269,3
12	PROTEÍNAS	539	0,1241	40		1244,1
13	ALIMENTOS	552	0,127	67		1162,3
14	BIOTECNOLOGÍA	407	0,0937	9		1060,2
15	CÉLULA	448	0,1031	45		981,22
16	PROTEÍNA	377	0,0868	39		820,93
17	ANTIBIÓTICOS	304	0,07	6		797,08
18	ENZIMAS	322	0,0741	16		783,62
19	GENOMA	357	0,0822	37		777,08
20	ENFERMEDADES	455	0,1047	123		747,68
21	GENÉTICAMENTE	286	0,0658	15		691,66
22	GENÉTICO	311	0,0716	35		665,6
23	PRODUCCIÓN	401	0,0923	116		640,1
24	CAPÍTULO	415	0,0955	130		638,95
25	ENZIMA	247	0,0568	8		626,35
26	VÉASE	345	0,0794	72		624,89
27	RESISTENCIA	491	0,113	227	0,017	609,82
28	CULTIVO	301	0,0693	43		609,55
29	HERBICIDAS	228	0,0525	3		609,33
30	TRANSGÉNICAS	214	0,0493	0		600,38
31	SECUENCIA	289	0,0665	39		593,57
32	ARN	233	0,0536	10		575,94
33	VARIEDADES	216	0,0497	5		561,04
34	ORGANISMOS	395	0,0909	146	0,011	559,73
35	TRANSFERENCIA	240	0,0552	18		552,92
36	(MEDIO) AMBIENTE	347	0,0799	102		549,96
37	MODIFICADOS	206	0,0474	3		548,2
38	PUEDEN	809	0,1862	739	0,0555	544,36
39	CIENTÍFICOS	388	0,0893	147	0,011	542,49
40	CROMOSOMAS	238	0,0548	20		538,31
41	CÁNCER	287	0,0661	54		537,7
42	PRODUCTOS	367	0,0845	131		529,71
43	ESPECIES	393	0,0905	162	0,0122	523,83
44	BASES	278	0,064	54		515,59
45	ANIMALES	537	0,1236	352	0,0264	511,78
46	RESISTENTES	240	0,0552	28		509,67
47	ORGANISMO	308	0,0709	84		504,2
48	SEMILLAS	289	0,0665	76		480,26
49	SOJA	190	0,0437	8		470,54
50	PATENTES	197	0,0453	13		462,5

Table 5.16: *Spanish keywords extracted from the sci corpus.*

In the Spanish keyword list corresponding to the *sci corpus* (table 5.16), we observe that the category that is absent from the five mentioned above is the *social* keywords, as was seen in the English counterpart in table 5.9. Again, this does not mean that *social* keywords are not present in the whole *sci* corpus, but the preference for using these keywords does not show in the first positions of the keyword list.

Apart from GL and technical vocabulary, there is a significant number of semitechnical words (*resistencia, secuencia, transferencia*) that are interesting to investigate, say, how they collocate with and how their meaning has changed from their general-language sense.

The intralinguistic comparison will also take place in the Spanish corpora. Thus, the *soc corpus* outputs the following items as clearly outstanding and, therefore, as key lexical items:

N	Key word	Freq.	%	RC. Freq.	RC. %	Keyness
1	ALIMENTOS	1258	0,2656	67		2879,6
2	MONSANTO	1075	0,227	0		2879
3	GENÉTICA	1015	0,2143	94		2131,5
4	BIOTECNOLOGÍA	785	0,1657	9		2008,9
5	INGENIERÍA	675	0,1425	26		1600,8
6	GM	524	0,1106	3		1367,7
7	CULTIVOS	579	0,1222	27		1345,8
8	GENÉTICAMENTE	537	0,1134	15		1309,1
9	INDUSTRIA	615	0,1298	65		1257,3
10	CIENTÍFICOS	702	0,1482	147	0,011	1186,5
11	FDA	453	0,0956	4		1169,3
12	PRODUCTOS	612	0,1292	131		1026,1
13	SOJA	408	0,0861	8		1018
14	GENES	652	0,1377	209	0,0157	918,36
15	AGRICULTURA	406	0,0857	34		868,15
16	SEMILLAS	462	0,0975	76		844,85
17	TRANSGÉNICOS	313	0,0661	1		824,99
18	MODIFICADOS	318	0,0671	3		819,08
19	TECNOLOGÍA	447	0,0944	100		737,13
20	PLANTAS	514	0,1085	171	0,0128	710,2
21	MAÍZ	474	0,1001	179	0,0134	610,78
22	CONSUMIDORES	292	0,0617	32		592,22
23	VACAS	269	0,0568	19		591,61
24	BIOTECNOLÓGICA	212	0,0448	0		567,47
25	AGRICULTORES	288	0,0608	39		555,65
26	INVESTIGACIÓN	419	0,0885	160	0,012	536,39
27	PUSZTAI	200	0,0422	0		535,35
28	LECHE	279	0,0589	39		533,87
29	COMPAÑÍAS	304	0,0642	62		518,47
30	SALUD	335	0,0707	90		512,67
31	BT	190	0,0401	0		508,58
32	INVESTIGADORES	255	0,0538	52		434,91
33	COLZA	162	0,0342	0		433,62
34	ADN	311	0,0657	103		430,65
35	HERBICIDAS	167	0,0353	3		418,66
36	INVESTIGACIONES	230	0,0486	43		404,02
37	CIENCIA	325	0,0686	131		402,74
38	ROUNDUP	150	0,0317	0		401,5
39	EMPRESA	327	0,069	140	0,0105	390,12

40	GRANJEROS	174	0,0367	12		384,06
41	GEN	382	0,0807	208	0,0156	383,28
42	PATENTES	169	0,0357	13		366,6
43	HORMONA	161	0,034	12		351,06
44	VARIEDADES	146	0,0308	5		349,92
45	COMPAÑÍA	278	0,0587	111		346,48
46	RBGH	125	0,0264	0		334,58
47	ANIMALES	457	0,0965	352	0,0264	329,64
48	NUEVA	557	0,1176	511	0,0384	323,34
49	QUE	16741	3,5346	39929	2,9978	323,15
50	OMG	115	0,0243	0		307,81

Table 5.17: *Spanish keywords extracted from the soc corpus.*

In table 5.17 the top keyword is *alimentos* (food), unlike the expected *Monsanto*. As in the English case, the Spanish keyword lists show significant differences between the *sci* and the *soc* corpora. There are 24 terms related to biology in the *sci corpus* and 12 in the *soc corpus*. There are 10 words related to pro-GM agents (*Monsanto, industria, FDA, companies*, *empresas*) in the *soc corpus,* while there is none in the *sci corpus* (table 5.17). There are also *consumidores* and *Putzai* that promote debate.

In order to draw up different categories in the Spanish corpus, we first relied on statistical results facilitated in WST5 and then we checked each one of the hits shown in the concordance lines as it was done with the English corpora. For example, *patentes* were first placed under the yellow category of technical terms but, after studying its use in context within the *soc corpus*, it was located in the fuchsia group of social debate. In order to classify keywords into categories, the extraction of results was based on the lexical and semantic specificity of keywords within their collocational profile of both English and Spanish *sci* corpora. The total hits for each semantic category are provided below in table 5.18:

Spanish keywords	***Sci corpus***	**%**	***Soc corpus***	**%**	**Total Freq.**	**Total %**
Technical terms (science)	12640	55,6	2079	10,3	14719	34,3
Technical terms (GE)	3666	16,1	4938	24,6	8604	20,1
Subtechnical terms	6062	26,6	7144	35,5	13206	30,8
General language words	388	1,7	1282	6,4	1670	3,9
Social debate	0	0	4660	23,2	4660	10,9
Total	**22756**	100	**20103**	100	**42859**	100

Table 5.18: *Lexical distribution of the 50-top keywords in Spanish sci and soc corpora.*

As in table 5.11, the lexical preference for terms in yellow is more prominent in the *sci corpus* than in the *soc corpus,* whereas the green group is slightly more salient in the *soc corpus,* as it was observed in both *soc corpora.* As in the English corpora, the peak frequencies of occurrence in *genes* and *ADN* in the Spanish *sci corpus* (3463) outrank those in the *soc corpus* (963), but still they are the two most frequent terms that are shared by both the Spanish *sci* and the *soc* corpora within the category of technical keywords (science), as illustrated in table 5.19:

N	*Ranked in sci corpus*	*Sci corpus*	Freq.	*Soc corpus*	Freq.	*Ranked in soc corpus*
1	1	GENES	1953	GENES	652	14
2	2	ADN	1510	AGRICULTURA	406	15
3	4	GEN	1187	ADN	311	34
4	5	CÉLULAS	1106	HERBICIDAS	167	35
5	9	VIRUS	623	GEN	382	41
		Total	6379	Total	1918	

Table 5.19: *Spanish 5-top technical keywords (science) in the sci and the soc corpora.*

Hence, these two terms –*gene/s* and *DNA* (*gen/es* and *ADN*)–, selected by frequency and their collocational profile, will be studied within the section of denominative variation, as they are part of the four pieces of the entire *GE_P-ACTRES corpus*: the English and Spanish *sci* and *soc* subcorpora.

As previously observed, the five most frequent terms (science) in table 5.19 represent 50,5% (6379) of the 50-top keywords in the *sci corpus* (55,6%). In the *soc corpus,* the total frequency of the five-top technical terms (1918) account for 92,25% of the total occurrences of technical terms (science) (10,3%). A similar result was obtained in the English corpora meaning that there may be a greater interest on the part of the scientists in making explicit the methods of molecular biology.

In table 5.20, within the technical words (specialized field), the noun *ingeniería* occupies the place of *engineering* and *engineered* observed in the English corpora (table 5.13).

N	*Ranked in sci corpus*	*Sci corpus*	Freq.	*Soc corpus*	Freq.	*Ranked in soc corpus*
1	3	GENÉTICA	1263	BIOTECNOLOGÍA	785	4
2	6	TRANSGÉNICOS	576	INGENIERÍA	675	5
3	8	INGENIERÍA	609	GM	524	6
4	14	BIOTECNOLOGÍA	407	GENÉTICAMENTE	537	8
5	21	GENÉTICAMENTE	286	TRANSGÉNICOS	313	17
		Total	3141	Total	2834	

Table 5.20: *Spanish 5-top technical keywords (specialized field) in the sci and the soc corpora.*

Another remark we can make is that the Spanish acronym *GM* is preserved in the target text without altering the order of its elements (as they appear in English). The five most frequent technical terms (specialized field) in the *sci corpus* represent 85,67% (3141) within their category (16,1%) and in the *soc corpus,* 57,39% account for the totality of terms (2834) in the same group (24,6%). Again, the findings from tables 5.12 and 5.13 are repeated in tables 5.19 and 5.20. One of these findings is that the lexical range of technical terms (science) is higher in the *sci corpus,* and the lexical variation of keywords (specialized field) is higher in the *soc corpus*. That is, technical terms –both yellow and green terms– comprise 71,65% of the 50-top keywords in the *sci corpus* and 34,9% in the case of the *soc corpus*, almost half of those in the *sci corpus,* as happened with the English corpora.

Both technical and subtechnical terms represent 98,2% of the *sci corpus* and 70,4% of the *soc corpus,* a similar result to those in the English corpora.

N	*Ranked in sci corpus*	*Sci corpus*	Freq.	*Soc corpus*	Freq.	*Ranked in soc corpus*
1	7	PLANTAS	840	ALIMENTOS	1258	1
2	10	CULTIVOS	601	CULTIVOS	579	7
3	13	ALIMENTOS	552	PRODUCTOS	612	12
4	27	RESISTENCIA	491	SOJA	408	13
5	28	CULTIVO	301	SEMILLAS	462	16
		Total	**2785**	**Total**	**3319**	

Table 5.21: *Spanish 5-top subtechnical keywords in the sci and the soc corpora.*

In table 5.21, *alimentos* (food/s) is particularly salient in the *soc corpus*. As with *gene/s* and *DNA, alimento/s* and *cultivo/s* (food/s *and* crop/s) are common to the four subcorpora (English and Spanish *sci* and *soc* subcorpora), and, therefore, these two subtechnical terms are eligible for the study of denominative variation. In this way, two technical terms (*ADN, gen*) can be compared with two subtechnical terms (*alimento/s, cultivo/s*).

Another observation is the presence of *resistencia* (e.g. *resistance to herbicides*) in the Spanish *sci corpus,* and of *alimentos* in the *soc corpus,* that may imply that genetic engineering is focalized from the point of view of the process (*resistencia*), whereas it is conceptualized as a product in the *soc corpus*. But this finding needs further research.

In overall terms, the five most frequent subtechnical keywords in the *sci corpus* (2785) represent 45,9% within its category (26,6%) and, in the *soc corpus,* 54,75% account for the totality of terms (3319) in the same group (35,5%). In other words, the lexical variation of subtechnical terms is similar in both Spanish corpora, as it was observed in the English ones.

From these three tables (5.19, 5.20 and 5.21), technical terms (science) and subtechnical terms are used to study denominative variation whereas technical terms (specialized field) are analyzed through semantic prosody. In other words, *gene* and *DNA* will be examined in the section of denominative variation, along with the most frequent subtechnical terms *food/s* and *crop/s*, all common to the English and Spanish *sci* and *soc* corpora. Technical terms (specialized field), such as *genetic* and *genetically,* also shared by the four subcorpora, are analyzed through the lens of semantic prosody.

KEYWORDS	LINGUISTIC PHENOMENA
Technical terms (science): DNA, gene/s	Denominative variation
Technical terms (GE): genetic, genetically	Semantic prosody
Subtechnical terms: food/s, crop/s	Denominative variation
General language words	-
Social debate	Translation strategies (ideological aspects)

Table 5.22: *The linguistic phenomena studied in this dissertation paired up with keywords.*

This table facilitates the researcher the criterion for which certain terms were considered to be analyzed through denominative variation and not semantic prosody or vice versa. Based on these groups and after examining the keyword lists, the following questions were raised:

a) DENOMINATIVE VARIATION:

   i. Where is the most significant group where DV takes places: technical or subtechnical?

   ii. What does denominative variation depend on?

      - the level of specialization (what group of terms),
      - the type of corpus (*sci* or *soc* corpus),
      - the topic (GM plants and food may be more prone to DV because there seems to be more public awareness and therefore more controversy, than GM animals or GM bacteria) or,
      - the language used (English or Spanish).

b) SEMANTIC PROSODY:

   i. Is there any correlation between semantic prosody and the type of group (technical or subtechnical) the term belongs to?

5.3.4. Denominative variation

The study of denominative variation is carried out at the levels of technical (science) and subtechnical terms. The former, technical terms, examines terms pertaining to the realm of microorganisms, being *DNA* and *gene/s* the head of the *Adj + N* pattern to be analyzed. The latter, semitechnical terms, looks into *food/s* and *crop/s.* The criteria for studying the selected terms were based on the frequency of occurrence registered for the lexical categories –technical and subtechnical– already classified in the previous section.

5.3.4.1. Technical terms (biology): *DNA* and *gene/s*

As for technical terms, the searchwords used to study denominative variation at the microorganism level are *DNA* and *gene/s,* due to their outstanding frequency. The raw frequency of *DNA* is 1885 in the entire corpus:

Corpus	**English *sci* corpus**					**English *soc* corpus**				
Books	1-ER	2-SA	3-EG	5-MH	9-SN	4-JR	6-LA	7-IB	8-BL	10-JS
Tokens	75515	82628	56001	95278	76284	92068	29505	79107	124821	83215
DNA	1568					317				
	1885									
Freq.	343	556	191	328	150	98	29	39	42	109
Rel.	4542	6729	3411	3443	1717	1064	983	493	336	1274

Table 5.23: *Number of tokens, frequency and relative frequencies of 'DNA' in the English sci and soc corpora.*

In the English *sci corpus* from the 1568 occurrences of the term *DNA* less than half (688) showed *DNA* in a complex noun phrase (NP):

- 281 occurrences as a premodifier (e.g. *DNA* molecule)
- 203 as the head of a NP (e.g. recombinant *DNA*)
- 182 as the complement of a NP (e.g. composition of *DNA*)
- 22 as the head of a Prepositional Phrase (e.g. *DNA* of interest).

Since the objective of this study is to examine the collocations of *DNA* whenever *genetic modification* is conveyed, we focused entirely on the group in which *DNA* is the head of the NP. Only 79 collocations out of the 203, from the category named '*DNA* as the head of a NP', included a collocate holding the meaning of *genetic modification.* The retrieved collocates for the combinatorial pattern *Adj + DNA* have been considered terms as illustrated in the graph below.

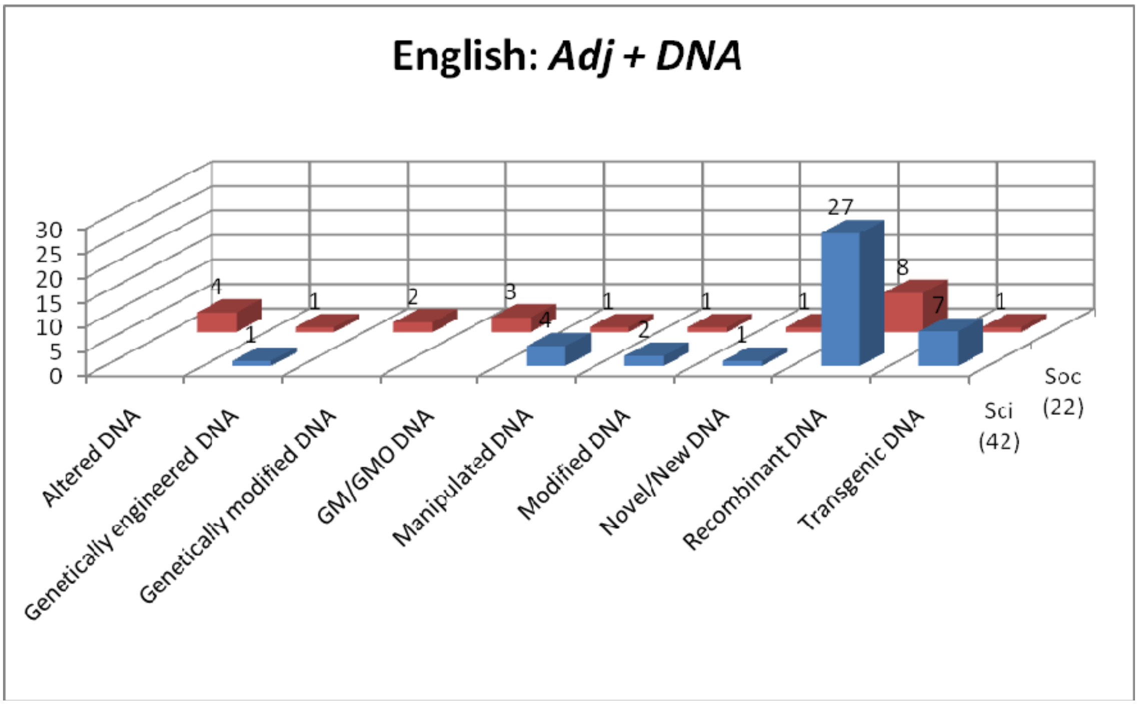


Fig. 5.24: *English collocates for 'Adj + DNA' in the sci and the soc corpora.*

Figure 5.24 compares the English *DNA* collocates in the *sci* and *soc corpus* intralinguistically. It can be noticed that there are 6 variants in the *sci corpus* and 9 in the case of the *soc corpus*. In both subcorpora, the most prominent option is *recombinant DNA* (27 occurrences in the *sci corpus* and 8 in the *soc corpus*).

In the *sci corpus*, the second most frequent, although not very prominent, is *transgenic DNA* (7), followed by *manipulated DNA* (4)*;* whereas in the *soc corpus*, *altered DNA* (4) is not very frequent, even though it is the second most used collocate.

The rest of the collocates (6) appears either in one corpus or the other, that is, either in the *sci* or the *soc corpus*. These are *rDNA* and *novel* in the *sci corpus,* and, on the other hand, *altered DNA, genetically modified DNA, GM/GMO DNA* and *new DNA* in the *soc corpus.* The acronym *rDNA* is widely accepted among scientists and it goes without saying that it is the short form for *recombinant DNA.*

In the group '*DNA* as the head of a NP' within the *sci corpus*, it was noticed that *recombinant DNA* was employed in the 5 books comprising the *sci corpus.* This collocation is usually introduced by verbs of the type: *for making / to make recombinant DNA, to smuggle recombinant DNA into cells, to get the recombinant DNA into cells, to release recombinant DNA, to put recombinant DNA into bacteria* and *to attach recombinant DNA,* as shown below:

1	(US) and H. Boyer (US) made the first	recombinant DNA.	1977 A. M. Maxam (US) and W. Gilb	1ER
2	heir phosphate backbones. This forms	recombinant DNA:	the plasmid now contains the calf ch	2SA
3	man protein produced by bacteria with	recombinant DNA,	however, has no such effect. To take	3EG
4	re produced by engineering cells with	recombinant DNA.	Microbes in medicine. The pharmac	3EG
5	ages as Trojan horses to smuggle the	recombinant DNA	into bacterial cells. The first require	3EG
6	we now know that the large amount of	recombinant DNA	released can still be readily transfer	5MH
7	ined. The second technique is making	recombinant DNA	(rDNA) in the test-tube, using enzym	5MH
8	ents from different organisms is called	recombinant DNA.	Cocktails of different restriction enz	9SN
9	tions in 1986 concerning the safety of	recombinant DNA.	The OECD saw the establishment o	9SN

Fig. 5.25: *Sample of concordance lines for 'Recombinant DNA' in the sci corpus.*

The concordance lines provide an explanation of *recombinant DNA* as a new technology but also as a matter of safety and as an analogy to the Trojan War by 'smuggling' it (meaning 'inserting it', informally expressed) into cells. When *recombinant DNA* was found followed by another noun (e.g. *technology* or *techniques*), the whole term (*recombinant DNA technology*) is used synonymously with *genetic engineering*.

1	s was boosted by the development of	recombinant DNA technology	— in particular the use o	03EG
2	varieties of pest-resistant cotton using	recombinant DNA techniques.	The Indian government	03EG
3	ss shown here can be used along with	recombinant DNA techniques	to quickly develop new s	03EG
4	s in large quantities would be by using	recombinant DNA techniques,	but far less research ha	03EG
5	the power of 'reverse genetics', which	recombinant DNA technique	enable geneticists to do.	05MH
6	ce to dissect eukaryotic genomes with	recombinant DNA techniques.	First of all, there is far m	05MH
7	t influenced by environmental factors.	Recombinant DNA techniques	now provide the means t	05MH
8	nucleic acid). Genetic engineering, or	recombinant DNA technology,	usually involves the inse	09SN

Fig. 5.26: *Sample of concordance lines for 'Recombinant DNA + N' in the sci corpus.*

Back to figure 5.24, the case of the second most frequent collocate, *transgenic*, stands out for the reason that only one writer made use of this term (5MH). Within the collocational profile of the term, several words that are related to evaluative language (e.g. *dangerous, potential)* appear in three out of the seven occurrences.

1	enic and other dangerous GMMs and	transgenic DNA	may already be routinely discharged int	5MH
2	still allowing the release of dangerous	transgenic DNA	into the environment without any requir	5MH
3	l genes. I have already mentioned the	transgenic DNA	present in transgenic crops, all of which	5MH
4	even been considered. These include	transgenic DNA	from transgenic crops and genetically e	5MH
5	ld trials or releases until very recently.	Transgenic DNA	was found to have persisted two years	5MH
6	teria and viruses. (6) The potential for	transgenic DNA	to infect cells after the ingestion of trans	5MH
7	ce with viral genes. (10) The fact that	transgenic DNA,	unlike chemical pollution, can be perpe	5MH

Fig. 5.27: *Concordance of 'Transgenic DNA' in the sci corpus.*

The third most used collocate is *manipulated* (4). It is mainly found in 5MH. From the study of the concordance lines, its use denotes a specialized meaning equivalent to *the artificial production of desired characteristics carried out in the laboratory*:

1	manipulation. Indeed in 1973 the first	**manipulated** DNA was constructed. In 1990 the first gen	1ER
2	am and other cells. The uptake of the	**manipulated** DNA into cells can lead to the regeneration	5MH
3	tificial gene transfer vectors and other	**manipulated** DNA have recombined origins of replication	5MH
4	foolish to eat transgenic foods, as the	**manipulated** DNA may resist digestion. It may be taken	5MH
5	ards also arise in the proposed use of	**modified** viral DNA as vaccines and in the xenotransplan	5MH
6	sporters or carriers ; all synonyms) of	**genetically engineered** DNA into host cells. Some virus	1ER
7	for making recombinant DNA (that is,	**novel** DNA made by combining DNA fragments from diff	3EG

Fig. 5.28: *Concordance of 'Manipulated DNA' and the least frequent collocates in the sci corpus.*

Given the initial hypothesis that *manipulated DNA* is far from having a biased meaning in the *sci corpus,* the section of semantic prosody will serve to confirm or disregard this finding and whether it is still valid for the *soc corpus*.

The rest of the occurrences in figure 5.28 are the least frequent collocates in the *sci corpus.* These are: *modified viral DNA* (2), *genetically engineered DNA* (1) and *novel DNA* (1). In the latter, the linguistic signal *that is* makes the identification of *novel DNA* as *recombinant DNA* easy to spot. In appendix 7, the collocate *new* has been excluded from the list of denominative variants for the pattern *adj + N (DNA),* since it does not convey the meaning of *genetic modification* but the sense of signifiying *another strain of DNA* without having to be *genetically modified* (table 8.11).

As in the *sci corpus,* the author who has revealed a major tendency to denominative variation is 5MH (table 5.29). It is in 5MH where the studied collocation (*Adj + DNA*) amplifies its collocational window by inserting a denominal adjective, such as *viral* or *naked* (e.g. *recombinant viral / naked DNA*). This terminological extension of *recombinant DNA* (3 different denominative variants of one occurrence each) in 5MH is indicated by an asterisk (3*).

Book	Denominative variants of Adj + N (*DNA*)		Tokens	No. of variants
1ER	**1.**	***Recombinant DNA***	1	3
	2.	*Genetically engineered DNA*	1	
	3.	Manipulated DNA	1	
2SA	**4.**	***Recombinant DNA***	2	1
3EG	**5.**	***Recombinant DNA***	16	2
	6.	Novel DNA	1	
5MH	**7.**	***Recombinant DNA*** ***Recombinant DNA (rDNA)*** ***rDNA***	3* 2 1	4
	8.	***Transgenic DNA***	7	
	9.	Manipulated DNA	3	
	10.	*Modified DNA (modified viral DNA)*	2	
9SN	**11.**	***Recombinant DNA***	2	1
		T O T A L	**42**	**6**

Table 5.29: *Denominative variants of 'Adj + N (DNA)' in the English sci corpus.*

Moving on to the *soc corpus,* 200 out of the 314 occurrences of *DNA* were found in a complex NP:

- 86 occurrences as a premodifier (e.g. *DNA* transfer)
- 53 as the head of a NP (e.g. altered *DNA*)
- 52 as the complement of a NP (e.g. segment of *DNA*)
- 9 as the head of a Prepositional Phrase (e.g. *DNA* of a plant).

From the 53 occurrences of the group '*DNA* as the head of a NP', 23 were classified as ST-TT segments maintaining *DNA* as the head of the NP in the Spanish translation. As in the *sci corpus,* the most frequent collocate that accompanies *DNA* is *recombinant* (8) and it is present in the five books comprising the *soc corpus.* In the following concordance lines, the process of recombining DNA is explained and also carefully debated on the part of the FDA and the eugenics movement.

1	ition, eugenics instruments. Whenever	**recombinant** DNA, cell fusion, and other related techniq	4JR
2	ational Academy of Science forum on	**recombinant** DNA in 1977, Ethan Signer, a biologist at t	4JR
3	he most formidable of the new tools is	**recombinant** DNA. In 1973, biologists Stanley Cohen of	4JR
4	coveries in the late 1960s and 1970s,	**recombinant** DNA is a kind of biological sewing machin	4JR
5	nt of Defense (DOD) pointed out that	**recombinant** DNA and other genetic engineering techno	4JR
6	w form of life. The process was called	**recombinant** DNA or genetic engineering. The product	7IB
7	set in 1992 when the FDA determined	**recombinant** DNA was not a food additive. On that basis	7IB
8	an, all foods and crops produced with	**recombinant** DNA are carefully reviewed. Bioethicist Art	7IB

Fig. 5.30: *Sample of concordance lines for 'Recombinant DNA' in the soc corpus.*

As in the *sci corpus,* it also appears premodifying a noun (e.g. *recombinant DNA technologies*). This gives the idea that *DNA,* rather than being termed *genetically modified,* is primarily referred to as *recombinant DNA* because of the name of the technique. The subsequent most frequent collocates, which have very low frequencies, are *altered, GM/GMO DNA* and *genetically modified DNA* with 4, 3 and 2 occurrences, respectively. The next example illustrates these low frequency collocates found in the surrounding of words that foster debate (e.g. *remain intact, deny companies, risks*):

1	are released in the environment. Does	**altered** DNA break down? Does it remain intact? Reaso	8BL
2	prohibit the breeding of livestock with	**altered** DNA and deny companies rights to patents on n	8BL
3	by the consumer groups also showed	**altered** DNA in breakfast cereals; corn and tortilla chips	8BL
4	into anaphylactic shock from food with	**altered** DNA. The biotech and food industries should ha	8BL
5	ou can never be certified organic. The	GMO DNA will always be in the soil. Just like the DNA of	8BL
6	orse than initially reported. They found	GM DNA in up to 95 percent of corn plots tested. On ave	10JS
7	od Standards Agency, " confirmed that	GM DNA did, in fact, transfer to bacteria in the human gut.	10JS
8	themselves." 13. Risks from Breathing	**Genetically Modified** DNA. In the summer of 2003, thirty	10JS
9	aterial, "a relatively large proportion of	**genetically modified** DNA survived the passage through	10JS

Fig. 5.31: *Concordance of 'altered/GM/GMO/genetically modified + DNA' in the soc corpus.*

The rest of the samples are considered *hapax legomena*:

1	e the industry argued that most of the	**genetically engineered** DNA would be destroyed when f	6LA
2	ver, showing no outward sign of their	**manipulated** DNA. These mutant cattle manifest only the	7IB
3	mstances ; there is no possibility that	**modified** DNA could gain access to the body of the consu	6LA
4	after a routine analysis revealed that	**transgenic** DNA was present in the product. The maize u	6LA
5	of the foetuses have incorporated the	**new** DNA. Other animals are being genetically engineered	6LA

Fig. 5.32: *Concordance of 'altered/GM/GMO/genetically modified + DNA' in the soc corpus.*

Although examples are not abundant, every book in the *soc corpus* presents more than one denominative variant of *DNA* expressing *genetic modification* in the *Adj + N* pattern, except for 4JR, which offers only one –the predominant– denomination (*recombinant DNA*):

Book	Denominative variants of Adj + N (*DNA*)		Tokens	No. of variants
4JR	**1.**	***Recombinant DNA***	5	1
6LA	**2.**	*Genetically engineered DNA*	1	4
	3.	*Modified DNA*	1	
	4.	***Transgenic DNA***	1	
	5.	New DNA	1	
7IB	**6.**	**Recombinant DNA**	3	2
	7.	Manipulated DNA	1	
8BL	**8.**	*Altered DNA*	4	2
	9.	*GM/GMO DNA*	1	
10JS	**10.**	*Genetically modified DNA*	2	2
	11.	*GM/GMO DNA*	2	
T O T A L			**22**	**9**

Table 5.33: *Denominative variants of 'Adj + N (DNA)' in the English soc corpus.*

When comparing the two tables (5.29 and 5.33), the *sci corpus* tends to use the same denomination by registering 8 denominative variants from which 3 are orthographic variants (*recombinant DNA, recombinant DNA (rDNA)* and *rDNA*). Hence, these three similar denominations were grouped together under the same label of *recombinant DNA*. This category makes up for two thirds (27) of the total amount of occurrences (42) resulting into 6 lexically distinctive denominative variants, as shown below:

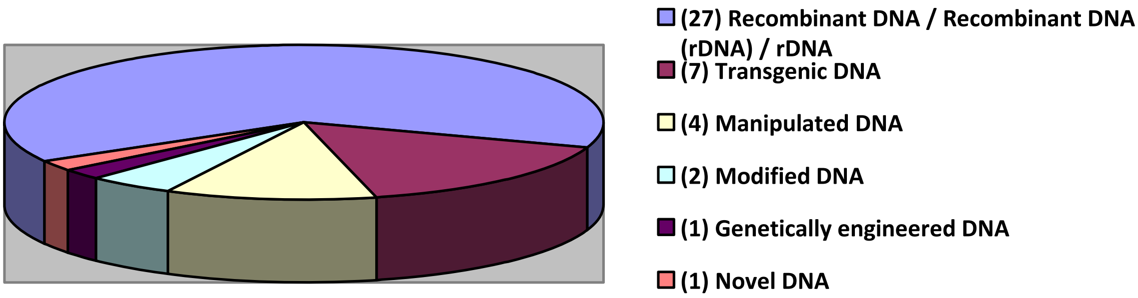


Fig. 5.34: *Pie chart of denominative variants of 'Adj + N (DNA)' in the English sci corpus.*

The *soc corpus* reveals 9 different denominative variants. Over a third (9 occurrences) comprises *recombinant DNA*. As examples are not profuse, the *GM / GMO* group was classified together (orthographic variants):

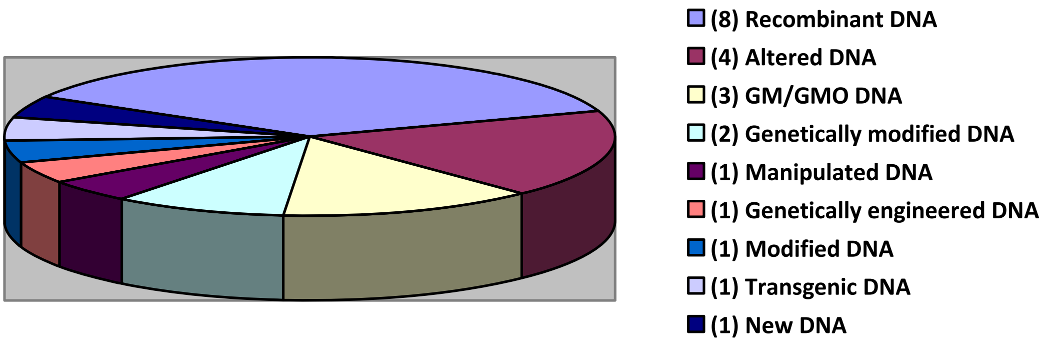


Fig. 5.35: *Pie chart of denominative variants of 'Adj + N (DNA)' in the English soc corpus.*

The pie charts are visually opposed when contrasting figures 5.34 and 5.35. The space occupied by *recombinant DNA* in the English *sci corpus* is similar to the one filled by the sectors corresponding to the least frequent denominative variants from the *soc corpus*. With this in mind, visual data representing *recombinant DNA* in the *sci* and *soc corpus* may not result in a matter of randonmness.

In the case of the Spanish corpora, the following graph is similar to its counterpart in English:

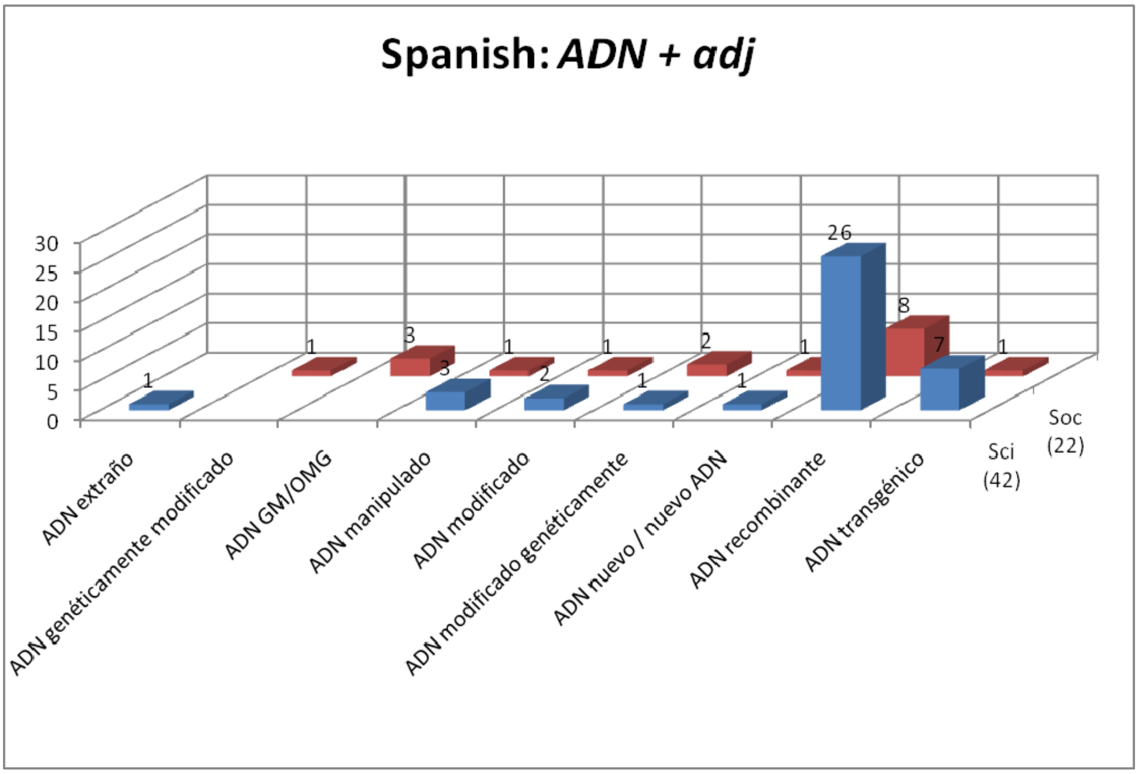


Fig. 5.36: *Spanish collocates for 'Adj + DNA' in the sci and the soc corpora.*

Graph 5.36 shows an intralinguistic comparison of the two Spanish subcorpora. A total amount of 6 and 8 denominative variants is displayed for the Spanish *sci* and *soc corpus,* respectively. As with the English, the most recurrent collocate is *recombinante* (27) in both corpora and it is also in both English and Spanish *sci corpus* greater than in the English and Spanish *soc corpora* (8):

Book	Denominative variants of N (*ADN*) + Adj		Tokens	No. of variants
1ER	**1.**	ADN manipulado	1	3
	2.	*ADN modificado genéticamente*	1	
	3.	***ADN recombinante:*** *(Moléculas recombinantes de ADN)*	1	
2SA	**4.**	***ADN recombinante***	2	1
3EG	**5.**	***ADN recombinante***	16	1
	6.	ADN nuevo	1	
5MH	**7.**	***ADN recombinante*** ***ADN recombinante (rADN)*** ***rADN***	3* 2 1	5
	8.	***ADN transgénico***	7	
	9.	*ADN modificado (ADN viral modificado)*	2	
	10.	ADN manipulado	2	
	11.	**ADN extraño**	1	
9SN	**12.**	***ADN recombinante***	2	1
		T O T A L	**42**	**7**

Table 5.37: *Denominative variants of 'N (ADN) + Adj' in the Spanish sci corpus.*

Apart from *recombinante* and *transgénico,* the rest of the collocates occurs less frequently. The asterisk in *ADN recombinante,* 3* (5MH), comprises *ADN viral recombinante* and *ADN desnudo recombinante.* Also, *moléculas recombinantes de ADN* is considered a lexical variation within the group of *ADN recombinante,* in which the variation preserves *recombinantes* as the adjective of the polilexical term, and, *moléculas* operates as the head of the NP whereas *ADN* occupies the position of the PP. As for the verbs that introduce *recombinant DNA,* these are, *inter alia*, *producir, obtener, colocar* (to place)*, elaborar, acoplar* (to adjust) and *formar.* The verb *smuggle* that appeared in the English *sci corpus* is rendered into *utilizar* (*to use*), so that the colloquialism has disappeared in the Spanish translation:

1	sus esqueletos de fosfato. Esto forma	ADN **recombinante**: el plásmido contiene ahora el gen d	2SA
2	a desarrollar un método para producir	ADN **recombinante** — es decir, ADN nuevo, hecho con l	3EG
3	manipulación genética de células con	ADN **recombinante**. Los microbios en la medicina. La in	3EG
4	médiico. El reto consiste en colocar el	ADN **recombinante** en el interior de las células receptor	3EG
5	terianas. El primer paso para obtener	ADN **recombinante** es obtener pequeños fragmentos de	3EG
6	te en acoplar un marcador genético al	ADN **recombinante**. Un gen para la resistencia a un det	3EG
7	nos de los primeros experimentos con	ADN **recombinante**, utilizando a fagos como caballos de	3EG
8	segunda técnica consiste en elaborar	ADN **recombinante** en el tubo de ensayo utilizando enzi	5MH
9	omendaciones sobre la seguridad del	ADN **recombinante**. La OCDE consideró la instauración	9SN

Fig. 5.38: *Sample of concordance lines for 'ADN recombinante' in the sci corpus.*

After *ADN recombinante* (27)*,* the second most used option is *ADN transgénico* (7), as it was the case in the English *sci corpus:*

1	inactivados y otros peligrosos GMM y	ADN **transgénico** podrían ya estar siendo descargados	5MH
2	vía permite la liberación del peligroso	ADN **transgénico** en el ambiente sin ningún requerimien	5MH
3	res de genes virales. Ya mencioné el	ADN **transgénico** presente en los cultivos transgénicos,	5MH
4	álisis de riesgo. Esta clase incluye el	ADN **transgénico** de cultivos transgénicos y microorgani	5MH
5	uy poco tiempo. Se descubrió que el	ADN **transgénico** persistía aun dos años después de su	5MH
6	virus patogénicos. 6. El potencial del	ADN **transgénico** para infectar las células luego de la in	5MH
7	s de los virus. 10. El hecho de que el	ADN **transgénico**, a diferencia de la contaminación quím	5MH

Fig. 5.39: *Concordance of 'ADN transgénico' in the sci corpus.*

The adjective *dangerous* is maintained in the Spanish translation. In line 4, *riesgo* (*risk*) already appeared in the English concordance lines although it was not showing in fig. 5.27. The third most salient choice is *ADN manipulado* (3)*:*

1	n una secuencia específica. El primer	ADN **manipulado** fue construido en 1973. En 1990 se int	1ER
2	nsferencia genética y otras clases de	ADN **manipulado** poseen orígenes de replicación y secu	5MH
3	en otras células. La incorporación del	ADN **manipulado** a las células puede llevar a la regener	5MH

Fig. 5.40: *Concordance of 'ADN manipulado' in the sci corpus.*

The remaining denominative variants are less recurrent and embrace *ADN modificado genéticamente* (1)*, ADN viral modificado* (2), *ADN nuevo* (1) and *ADN extraño* (1)*:*

1	cir, como transportadores) para llevar	ADN **modificado genéticamente** al interior las células. T	1ER
2	OYER (EE UU) fabrican las primeras	**moléculas recombinantes de** ADN. 1977 A. M. MAXAM	1ER
3	ambién de la utilización propuesta del	ADN **viral modificado** para vacunas y el xenotrasplante	5MH
4	erir alimentos transgénicos, ya que el	ADN **extraño** puede resistir la digestión. Puede ser asim	5MH
5	roducir ADN recombinante - es decir,	ADN **nuevo**, hecho con la combinación de fragmentos de	3EG

Fig. 5.41: *Concordance of the least frequent collocations of 'ADN + adj' in the sci corpus.*

Focusing on *ADN extraño,* there is only one occurrence of this term for the pattern *Adj + N* (from the ST)*;* that is, just one hit (number 4 in fig. 5.41) was found and classified as an elegible ST-TT pair segment (*ADN extraño puede resistir la digestion*), maintaining *DNA* as the head of the NP in the original English version (*manipulated DNA*) (although the total number of occurrences in the Spanish *sci corpus* is 10), as shown below:

1	triona encargadas de descomponer el	ADN **extraño**. Sin embargo, la homología no es necesar	5MH
2	estricción que rompen y «silencian» el	ADN **extraño**. La ingeniera genética podría, entonces, h	5MH
3	lares endósenos que descomponen el	ADN **extraño** o no lo replican, y extirpan o inactivan los	5MH
4	fensa de la célula para protegerse de	ADN **extraño**, como los virus, que pueden insertarse en	5MH
5	ares que descomponen o inactivan el	ADN **extraño**. Los vectores artificiales construidos por l	5MH
6	los organismos poseen en contra del	ADN **extraño** y no deseado. Desde hace bastante tiemp	5MH
7	ceptoras que destruyen o inactivan el	ADN **extraño**. La inserción de genes extraños en el gen	5MH
8	lares que descomponen o inactivan el	ADN **extraño**. (La transferencia genética horizonal será	5MH
9	ica exitosa. Luego de la absorción del	ADN **extraño**, operan importantes barreras que descom	5MH
10	erir alimentos transgénicos, ya que el	ADN **extraño** puede resistir la digestión. Puede ser asim	5MH

Fig. 5.42: *Concordance of 'ADN extraño' in the sci corpus.*

Already mentioned, the last line (number 10) is the only one pertaining to a ST-TT segment whose source text is *manipulated DNA.* The rest of the concordance lines of *ADN extraño* is the translation of *foreign DNA* (also translated as *ADN foráneo*). Also by studying concordance lines, a number of verbs introduce *ADN extraño,* such as *silenciar, descomponer* (*to break up*) and *inactivar.* Up to here, the results of denominative variation in the Spanish *soc corpus* are shown below:

Book	Denominative variants of N (*ADN*) + Adj		Tokens	No. of variants
4JR	**1.**	***ADN recombinante***	5	1
6LA	**2.**	*ADN modificado genéticamente*	1	4
	3.	*ADN modificado*	1	
	4.	***ADN transgénico***	1	
	5.	Nuevo ADN	1	
7IB	**6.**	**ADN recombinante**	3	2
	7.	ADN manipulado	1	
8BL	**8.**	*ADN alterado*	4	2
	9.	*ADN GM / OMG (de los OMG)*	1	
10JS	**10.**	*ADN GM / OMG (GM)*	2	3
	11.	*ADN modificado genéticamente*	1	
	12.	*ADN genéticamente modificado*	1	
		T O T A L	**22**	**8**

Table 5.43: *Denominative variants of 'N (ADN) + Adj' in the Spanish soc corpus.*

From the 30 occurrences of *ADN recombinante* found in the *soc corpus,* only 8 have *recombinant DNA* as the source text. After *recombinante* (8)*,* the second most repeated collocate is *modificado,* which appears as *modificado genéticamente* (2)*, genéticamente modificado* (1) or just *modificado* (1) from lines 6-9. Only the sixth and eighth lines in fig. 5.44 belong to a faithful translation of a qualified ST-TT pair in the *soc corpus*:

1	able de las nuevas herramientas es el	ADN **recombinante**. Los biólogos Stanley Cohen, de la u	4JR
2	s fragmentos de material genético. El	ADN **recombinante**, el fruto de casi treinta años de ives	4JR
3	es de Estados Unidos indicaba que el	ADN **recombinante** y demás técnicas de la ingeniería g	4JR
4	A ese proceso se le dio el nombre de	ADN **recombinante** o ingeniería genética. Al producto se	7IB
5	y todos los cultivos producidos con el	ADN **recombinante** son analizados exhaustivamente. El	7IB
6	; no hay ninguna posibilidad de que el	ADN **modificado** llegue al cuerpo del consumidor." Esta	6LA
7	ustria defendió que la mayor parte del	ADN **modificado genéticamente** se destruiría al procesa	6LA
8	roporción relativamente cuantiosa del	ADN **modificado genéticamente** sobrevivía al viaje a tra	10JS
9	ñaló Ewen. 13.Los riesgos de respirar	ADN **genéticamente modificado**. Durante el verano de	10JS

Fig. 5.44: *Sample of concordance lines for 'ADN recombinante' and 'ADN modificado/modificado genéticamente/genéticamente modificado' in the soc corpus.*

From figure 5.44, it seems there is no formal agreement as to whether *modificado* or *genéticamente* should be in the first place; however, this question is explored in the third part of results entitled *norm searching.*

With regard to the other denominative variants, *ADN alterado* (4) is slightly more frequent (and accompanied by *prohibir* [to ban]) than *ADN manipulado* (1), *nuevo ADN* (1) and *ADN transgénico* (1), as illustrated below:

1	er cual de los fetos ha incorporado el	**nuevo** ADN. Otros animales han sido modificados gen	6LA
2	n análisis rutinario revelara que había	ADN **transgénico** en el producto. El maíz empleado h	6LA
3	an ningún signo externo de poseer un	ADN **manipulado**. Esos terneros mutantes tenían sim	7IB
4	medio ambiente. ¿Se descompone el	ADN **alterado**? ¿Permanece intacto? Tal y como yo lo	8BL
5	iraba a prohibir la cría de ganado con	ADN **alterado** y a negar a las compañías los derechos	8BL
6	también demostraron la existencia de	ADN **alterado** en los cereales para el desayuno, patat	8BL
7	bido a la ingesta de alimentos con un	ADN **alterado**. Las compañías alimentarias y biotecno	8BL

Fig. 5.45: *Concordance of 'ADN transgénico/manipulado/alterado' in the Spanish soc corpus.*

The group of *nuevo ADN, ADN transgénico, ADN manipulado* and *ADN alterado* is used by the two journalists and the activist whereas, *ADN GM* (3)*,* not widely accepted among the community of scientists, is an acronymn mainly used in the latest book of the *soc corpus*:

1	ca podrá ser considerado orgánico. El	ADN **de los** OMG permanecerá siempre en el suelo. Igu	8BL
2	ncy del Reino Unido» confirmó que el	ADN **GM** sí transfería bacteria al intestino de los human	10JS
3	anunció en un principio». Encontraron	ADN **GM** en el 95 por ciento de los campos de maíz insp	10JS

Fig. 5.46: *Concordance of 'ADN GM/OMG' in the Spanish soc corpus.*

When comparing the two tables (5.37 and 5.43), results are repeated in the *sci corpus,* whose most frequent key term is *ADN recombinante* (27), along with its orthographic variants (*ADN recombinante (ADNr)* and *ADNr*):

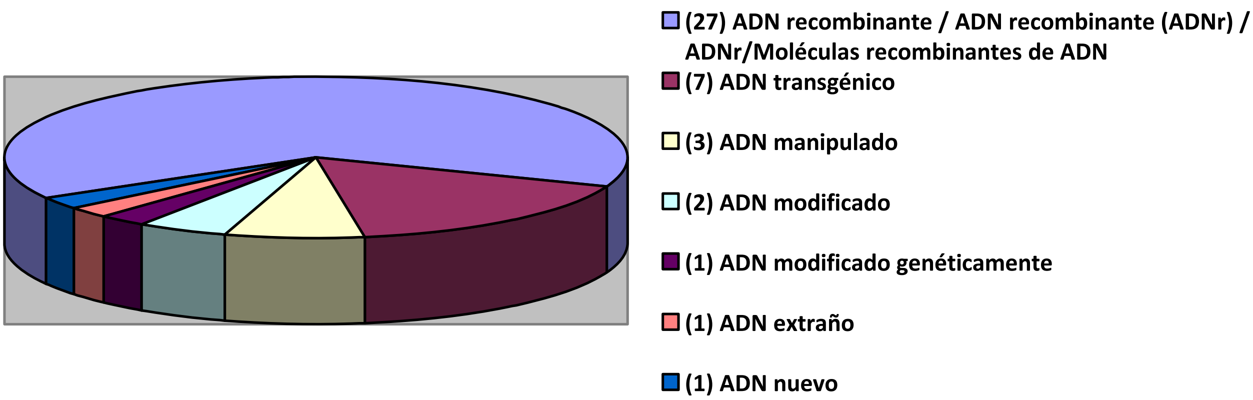


Fig. 5.47: *Pie chart of denominative variants of 'N (ADN) + Adj' in the Spanish sci corpus.*

The Spanish *soc corpus* reveals a similar number of denominative variants (9), as the Spanish *sci corpus* (7). The sum of the total occurrences of the least frequent variants in the *sci corpus* (table 5.47) is similar to the most frequent option from the Spanish *soc corpus,* that is *ADN recombinante* (27), being the graphs visually inverted as it was the case of the pie charts in the English corpus. The *ADN GM / de los OMG* group was again classified together in the Spanish version of the *soc corpus*:

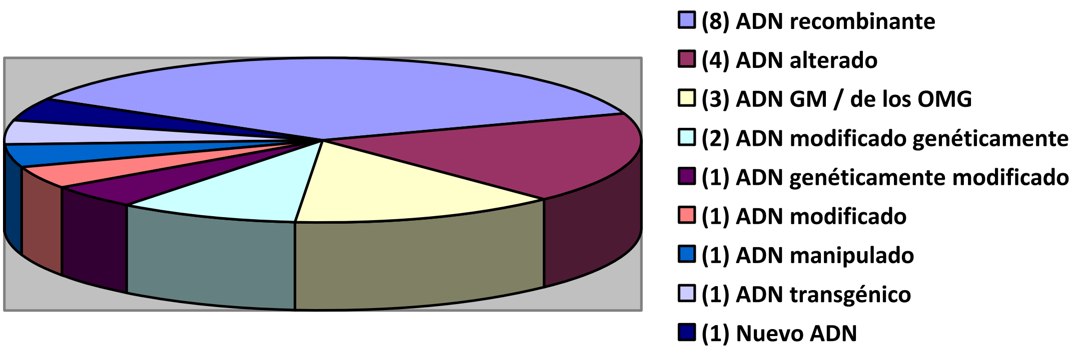


Fig 5.48: *Pie chart of denominative variants of 'N (ADN) + Adj' in the Spanish soc corpus.*

Making an interlinguistic comparison, raw results for the whole *sci corpus* are ordered by frequency below:

	English *sci corpus* DNA	Freq		Spanish *sci corpus* AND	Freq
1.	Recombinant DNA Recombinant DNA (rDNA) rDNA	24 2 1	1.	ADN recombinante ADN recombinant (rADN) rADN Moléculas recombinantes de ADN	23 2 1 1
2.	Transgenic DNA	7	2.	ADN transgénico	7
3.	Manipulated DNA	4	3.	ADN manipulado	3
4.	Modified viral DNA	2	4.	ADN viral modificado	2
5.	Genetically engineered DNA	1	5.	ADN modificado genéticamente	1
6.	Novel DNA	1	6.	ADN extraño	1
			7.	ADN nuevo	1
	Total: 42			Total: 42	

Table 5.49: *English and Spanish collocates for 'DNA' in the sci corpus.*

It should be noticed that most of the denominative variants (*recombinant DNA, transgenic DNA, modified viral DNA, recombinant DNA (rDNA), rDNA* and *genetically modified*) maintain a faithful translation into Spanish.

Although the number of total L1 collocates for *DNA* in the English *soc corpus* is almost half (22) of those in the *sci corpus* (42), *recombinant DNA* is still the preferred collocate in all the four subcorpora. Ordering collocates by frequency; we obtain a ranked list of results for the *soc corpus*:

	English *soc corpus* DNA	Freq		Spanish *soc corpus* ADN	Freq
1.	Recombinant DNA	8	1.	ADN recombinante	8
2.	Altered DNA	4	2.	ADN alterado	4
3.	GM/GMO DNA	3	3.	ADN GM/OMG	3
4.	Genetically modified DNA	2	4.	ADN modificado genéticamente	2
5.	Genetically engineered DNA	1	5.	ADN genéticamente modificado	1
6.	Manipulated DNA	1	6.	ADN modificado	1
7.	Modified DNA	1	7.	ADN manipulado	1
8.	Transgenic DNA	1	8.	ADN transgénico	1
9.	New DNA	1	9.	Nuevo AND	1
	Total: 22			Total: 22	

Table 5.50: *English and Spanish collocates for 'DNA' in the soc corpus.*

In table 5.50, the number of denominative variants remains the same in the English and Spanish *soc corpus* (9) holding their ST-TT pairs a faithful translation. Those variants in the *soc corpus* that do not show in the *sci corpus* are: *ADN alterado, ADN genéticamente modificado* and *ADN GM.* Regarding the last terminological unit from the table, the L1 collocate *novel* from the GL is a non-especialized adjective that has been preserved in the TT, and topicalized (premodification) in the Spanish translation *nuevo,* so that a new meaning is added to the Spanish term.

Once *DNA* was examined, the second term to be analyzed –*gene/s*– presents a higher frequency in the *sci* (3645) than in the *soc corpus* (1275):

Corpus	**Sci_corpus**					**Soc_corpus**				
Books	1-ER	2-SA	3-EG	5-MH	9-SN	4-JR	6-LA	7-IB	8-BL	10-JS
Tokens	75515	82628	56001	95278	76284	92068	29505	79107	124821	83215
Gene	1844					720				
	2564									
Freq.	377	426	176	497	368	215	44	122	93	246
Rel.	4992	5156	3143	5216	4208	2335	1491	1542	745	1827
Genes	1801					555				
	2356									
Freq.	271	323	235	610	362	211	67	75	80	122
Rel.	3589	3909	4196	6402	4745	2292	2271	948	641	1466

Table 5.51: *Number of tokens, frequency and relative frequencies of 'gene/s' in the English sci and soc corpora.*

From the 4920 occurrences of *gene* (2564) and *genes* (2356) in both English corpora, only a small number of hits are relevant to study denominative variation, as occurred in the case of *DNA*. Collocations such as *gene transfer* are thrown out of this section since the aim of the study is to examine the collocations of *gene/s* when the head of the NP co-occurs with adjectives that express *genetic modification*. From the 3645 occurrences of the *sci corpus,* 2038 were identified as such in a complex NP:

- 610 occurrences as a premodifier (e.g. *gene* silencing)
- 1157 as the head of a NP (e.g. herbicide resistance *gene*)
- 248 as the complement of a NP (e.g. sequence of the *gene*)
- 23 as the head of a Prepositional Phrase (e.g. *gene* of interest).

As a premodifier, all the occurrences were in the singular as expected. As the head of the NP, 1157 cases were spotted, from which the most frequent cases were: *marker gene/s* (72), *mutant gene/s* (71)*, foreign gene/s* (64), *antibiotic-resistance gene/s (or antibiotic resistance gene/s, or antibiotic-resistant)* (34)*, new genes* (29) and *Bt gene/s* (22). However, the most frequent cases do not express 'genetic modification'. The example of *antibiotic resistance gene/s* was not easy to classify, whether or not *antibiotic resistance* implied any type of *artificial genetic modification* in the laboratory. As it was not clear what examples were natural antibiotic resistance and which were genetically modified, *antibiotic resistance gene/s* was thrown out of this section. The same is true for *new gene/s,* that is, there was not enough evidence in the text to classify which ones signified *genetically modified gene/s* (subtechnical term) and which ones meant *other types of gene/s* without having to have undergone a recombinant DNA procedure. And for this reason, *new gene/s* is left out. Having stated this, those collocates denoting modification by genetic engineering techniques are illustrated in figure 5.52:

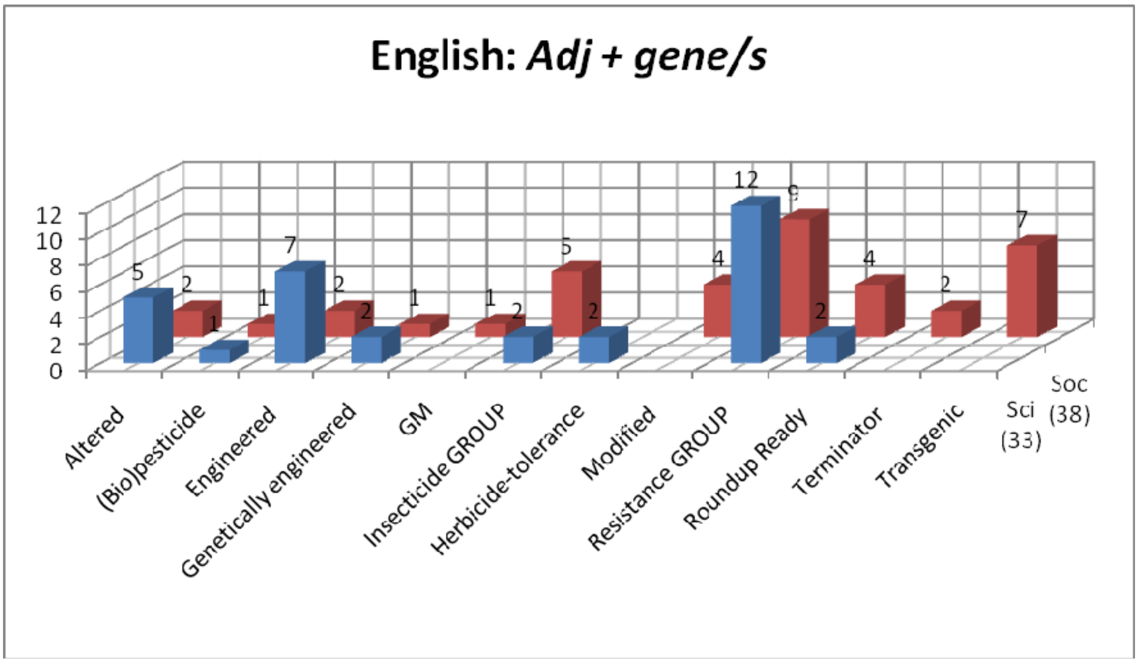


Fig. 5.52: *English collocates for 'Adj + gene/s' in the sci and soc corpora.*

Only 34 ST-TT segments were found relevant, that is, those in which the adjective conforming the L1 collocate of *gene/s* expresses a type of genetic modification performed in the laboratory. Those collocates that fulfill this pattern are 8 for the *sci corpus* and 11 for the *soc corpus* (fig.5.52). Some other collocates are only present in one corpus, but not in the other; for instance, two occurrences of *herbicide-tolerance genes* are exclusively contained in the *sci corpus,* whereas *GM genes, modified genes, Terminator genes* and *transgenic genes* are solely displayed in the *soc corpus.*

Both the *sci* and the *soc corpora* have the *resistance GROUP* as the most frequent collocate, with 12 and 9 occurrences each. The collocates – *resistance, resisting* and *resistant*– constitute the lexical denominative variants of this group, being *resistance* the most frequent collocate in the *sci corpus* and, *resistant* in the *soc corpus* (see 8.7., tables 8.14 and 8.16). Most of the retrieved examples in the *sci corpus* are *herbicide resistance gene/s* and some of them become more specific, such as *glyphosate-resistance gene* (*glyphosate* as a type of herbicide and the active ingredient of *Roundup Ready* herbicide), a brandname *BastaTM resistance gene* (from *BASTA* herbicide) and *B.t.-resistance genes* (an acronym that stands for the *Bacillus thuringiensis,* bacterium that has been engineered or inserted):

1	wers billions of dollars annually. New	**fungal-resisting genes** can now be inserted into corn us	3EG
2	e will survive a herbicide treatment. A	**herbicide resistance gene**, for example, was used in the	9SN
3	hese weeds without damaging crops.	**Herbicide resistance genes** can also be useful in transg	9SN
4	sgenic crops include the possibility of	**herbicide resistance genes** jumping to weed species. S	9SN
5	were those that had incorporated the	**herbicide resistance gene.** Some of these cells also car	9SN
6	smid, containing the B.t. toxin and the	**herbicide resistance genes**, were then fired simultaneo	9SN
7	de on the knowledge of herbicide and	**insect resistance genes** alone. It was the presence of t	9SN

8	ther insects in the population carrying	**B.t.-resistance genes**	, thereby diluting the effects of the	9SN
9	unaffected by the incorporation of the	**glyphosate-resistance gene**	, while the protein expresse	9SN
10	eed in the mid-1990s, claimed that the	**BastaTM resistance gene**	was being used only as a dev	9SN

Fig. 5.53: *Sample of concordance lines for'Resistance GROUP' in the sci corpus.*

Most of the occurrences in the *resistance GROUP* (12) appear in 9SN, as can be seen in figure 5.53. All the collocates refer to plant biotechnology, that is, not only do collocates convey the common feature of being *genetically modified,* but also the field in particular is, in addition, explicit. Unlike *resistance GROUP,* the second most frequent collocate *–engineered gene/s–* (7) is deprived of a specific gene function:

1	imal. The animal can now pass on the	**engineered gene**	to its descendants. Although the expe	1ER
2	— say, one that causes arthritis. The	**engineered gene**	produces RNA that complements the	3EG
3	n in which a human patient was given	**engineered genes**	from another species are worth sum	3EG
4	disease. Figure 3.2. Keeping track of	**engineered genes.**	Finding engineered cells among a cu	3EG
5	ural ecosystems to the introduction of	**engineered genes.**	But while genetically novel organism	3EG
6	mental front, there is the concern that	**engineered genes**	for herbicide resistance may spread f	3EG
7	ossible to literally watch the spread of	**engineered genes**	through the population as the microb	3EG

Fig. 5.54: *Concordance lines of 'Engineered GROUP' in the sci corpus.*

Related to gene functionality, when a particular gene function is not stated (as the co-text in *engineered gene/s* reveals), the verbs are key to analyze concordances. Thus, the verbs that collocate with *genes* are: *to map genes, to express genes, genes code for enzymes/proteins, genes confer properties,* among others. When genetic modification is expressed in the text, authors employ *add genes, introduce genes, silence genes.* Hence, genes can be *inserted, added, introduced, transferred* and *transformed.* When genes are genetically modified and are designated as *engineered,* it goes without saying that the fact that this procedure is carried out *genetically* is taken for granted in this study, and this way, *engineered* constitutes a simplified denominative variant of *genetically engineered* appearing, in 1ER and 3EG. Not simplified forms as *genetically engineered* (2) are also found in the corpus:

1	ong, for example the transmission of a	**genetically engineered gene**	from a crop plant to a wild	1ER
2	ble to cross with the crop plant and so	**genetically engineered genes**	might be transmitted fro	1ER

Fig. 5.55: *Concordance lines of 'Genetically engineered GROUP' in the sci corpus.*

The third most salient collocate is *altered* (5), mainly found in 3EG*:*

1	ngineer for the introduction of new or	**altered genes**	into a wide range of organisms. Some o	1ER
2	ork, quickly devised a scheme to use	**altered genes**	for tracking TILs. The plan was to splice a	3EG
3	would tell genetic engineers whether	**altered genes**	could continue functioning and r eproduc	3EG
4	and other food products made using	**altered genes**	, the great majority of people want to be in	3EG
5	Will modified organisms transfer their	**altered genes**	to wild relatives or reduce biodiversity?	3EG

Fig. 5.56: *Concordance lines of 'Altered gene/s' in the sci corpus.*

As observed above, the frequency of collocates for *gene/s* is low, thus, the less prominent cases are grouped together in the following concordance lines:

1	generations of transgenic plants with	**biopesticide genes** may be destroying the last stron	5MH
2	ny species. There is evidence that a	**herbicide-tolerance gene** introduced into Arabidopsis	5MH
3	enic crops with insecticidal genes or	**herbicide-tolerance genes** actually favour the evoluti	5MH
4	de-resistance. Transgenic crops with	**insecticidal genes** or herbicide-tolerance genes actu	5MH
5	for rights to any method of modifying	**B.t. insecticidal** protein **genes** to make them resembl	9SN
6	times the then applicable fee for the	**Roundup ReadyTM gene**, times the number of units	9SN
7	pplied to other crops engineered with	**Roundup ReadyTM genes**, including canola, maize a	9SN

Fig. 5.57: *Concordance lines of 'biopesticide/herbicide-tolerance/insecticidal/Roundup Ready gene/s' in the sci corpus.*

In other words, apart from *resistance GROUP* (12) and *engineered gene/s* (8), the rest of collocates occur less frequently. For the purposes of comparison within the English *sci corpus*, the books that show a higher tendency for a variety of denominative variants are 3EG, 5MH and 9SN; however, *resistance GROUP* is more prominent in 9SN whereas *engineered* and *altered* are more prominent in 3EG according to the table below:

Book	Denominative variants of Adj + N (*gene/s*)		Tokens	No. of variants
1ER	**1.**	Genetically engineered gene/s	2	4
	2.	Engineered gene/s	1	
	3.	**Resistance GROUP**	1	
	4.	Altered gene/s	1	
2SA	**5.**	**Resistance GROUP**	1	1
3EG	**6.**	Engineered gene/s	6	2
	7.	Altered gene/s	4	
5MH	**8.**	Herbicide-tolerance gene/s	2	3
	9.	Insecticide GROUP	1	
	10.	Biopesticide genes	1	
9SN	**11.**	**Resistance GROUP**	10	3
	12.	Roundup Ready genes	2	
	13.	Insecticide GROUP: Insecticidal gene/s	1	
T O T A L			**33**	**8**

Table 5.58: *Denominative variants of 'Adj + N (gene/s)' in the English sci corpus.*

As for the *soc corpus,* from its 1275 occurrences*,* 713 occurrences were identified, as in a complex NP:

- 223 occurrences as a premodifier (e.g. *gene* splicing)
- 412 as the head of a NP (e.g. Bt *gene*)
- 58 as the complement of a NP (e.g. expression of the *gene*)
- 20 as the head of a Prepositional Phrase (e.g. *genes* of food).

From the 412 hits of the second category, 38 refer to *genetically modified genes* whose most frequent collocate is again the *resistance GROUP* (9) closely followed by *transgenic* (7)*:*

1	their digestive bacteria contained the	**herbicide-resistant gene** used in soybeans. Since no	10JS
2	genic oilseed rape plant containing a	**herbicide-resistant gene** in a field near a dose weed	4JR
3	pest-, virus-, bacteria-, fungus-, and	**stress-resistant genes.** Millions of acres of agricultur	4JR
4	pest-, virus-, bacteria-, fungus-, and	**stress-resistant genes** into the biosphere? Most mol	4JR
5	in the future, in the form of additional	**resistant genes**, to continue to provide defenses agai	4JR
6	duce a small population of bugs with	**resistant genes** that will then spread throughout the p	7IB
7	d other leafy crops, acquired a single	**Bt resistance gene**, they developed resistance to four	7IB
8	gi, worked on methods of introducing	**virus-resistance genes** into sweet potatoes and rege	8BL
9	p resistance to herbicide-, pest-, and	**virus-resistant genes**, cannot be adequately address	4JR

Fig. 5.59: *Concordance lines of 'Resistant GROUP' in the soc corpus.*

All the concordances refer to agricultural biotechnology (*herbicide-resistant, stress-resistant, Bt resistance, virus-resistance*), as happens with *transgenic genes:*

1	tions for the reason that many of the	**transgenic genes** inserted into their genomes confer	4JR
2	called " gene flow " - the transfer of	**transgenic genes** from crops to weedy relative by way	4JR
3	ss. Researchers are concerned that	**transgenic genes** for herbicide tolerance, and pest an	4JR
4	viruses. Fears over the possibility of	**transgenic genes** jumping to wild weedy relatives heig	4JR
5	lative. The Danish study showed that	**transgenic genes** inserted into crops could flow easily	4JR
6	l habitats is worrysome. Many of the	**transgenic genes** being inserted into crops and readie	4JR
7	ers are experimenting on inserting a	**transgenic** growth hormone **gene** directly into the gen	4JR

Fig. 5.60: *Concordance lines of 'Transgenic gene/s' in the soc corpus.*

The majority of collocations are found in plural form, except for the last line (*transgenic growth hormone gene*). All of them belong to the book by the economist Jeremy Rifkin (4JR), as the majority of samples in the previous figure 5.59.

The rest of concordance lines are less frequent: *insecticide GROUP* (5), *Roundup Ready gene/s* and *modified gene/s* (4 each); *engineered GROUP* (3), *altered genes* and *Terminator gene/s* (2 each); and, finally, *GM gene/s* and *pesticide gene* (1 each):

1	, which covers the insertion of " any	**insecticidal gene** in any plant ". A patent has been iss	6LA
2	own in Canada were outfitted with a	**bug-proof gene.** Corporate biotechnology likes to say	7IB
3	eds. When genetic engineers put an	**insecticide gene** into the DNA of corn, however, the c	10JS
4	enetic material that is attached to the	**insecticide gene** prior to insertion. The selection of thi	10JS
5	rmant virus. Instead of promoting an	**insecticide gene** as was intended, it may now be switc	10JS

Fig. 5.61: *Concordance lines of 'Insecticide GROUP' in the soc corpus.*

A denominal adjective (*insecticidal*), a noun (*insecticide*) and a polilexical informal term (*bug-proof*) (due to the insertion of *outfitted*) conform the concordance of *gene,* when genetic modification concerning 'insecticide resistance' is expressed. The lexical variants *insecticidal gene* and *insecticide gene* are an abbreviated form of the proper denomination *insecticide resistance gene.* The same is true for *Roundup gene,* which is an abridged variant of *Roundup Ready genes,* the brand name of the most famous Monsanto's pesticide:

1	he label on my ill-gotten beans says:	**Roundup Ready Gene.** That means that a gene was	8BL
2	r Monsanto to insert the company 's	**Roundup Ready gene** into several varieties of soybe	7IB
3	- 534 bases - that was not part of the	**Roundup gene** and was not natural soybean DNA ei	10JS
4	genetically modified variety also had	**Roundup Ready genes.** The team discovered that	10JS

Fig. 5.62: *Concordance lines of 'Roundup Ready gene/s' in the soc corpus.*

Up to here, all the concordances refer to plant biotechnology, as previously mentioned. However, *modified gene/s* (4) makes reference to genetic modification regarding microbiology principles in general, except for line 4, a sentence that is embedded in a context of plant biotechnology:

1	predict where on a chromosome the	**modified gene** might land, raising the possibility of ina	4JR
2	ing other cellular functions. Even if a	**modified gene** makes it to the desired location, there i	4JR
3	site. As in other animals, insertion of	**modified genes** into a patient 's chromosomes is rand	4JR
4	ps, there could be a rapid transfer of	**modified genes** between the two. This is likely to occu	6LA

Fig. 5.63: *Concordance lines of 'Modified gene/s' in the soc corpus.*

The next case classified by frequency *–engineered gene/s* (2) – points out to the genetic modification of plants, except for line 2, which alludes to a more general use of genetic modification in microbiology:

1	tentability is the question of whether	**engineered genes**, cells, tissues, organs, and whole o	4JR
2	resistance built in to tell if the newly	**engineered genes** take hold. The group wants marker	8BL

Fig. 5.64: *Concordance lines of 'Engineered genes' in the soc corpus.*

With regard to *altered genes* (2), the first hit introduces an example of plant biotechnology and the second indicates the use of genetic modification for medical uses. The rest of least frequent collocates *–Terminator* (2)*, genetically engineered* (1), *pesticide* (1)*,* and *GM* (1)– exclusively refer to plant biotechnology:

1	n on somatic gene surgery, pumping	**altered genes** into the patient to " correct " disorders	4JR
2	e of containing beans with the newly	**altered genes.** In February 1997, the European Com	8BL
3	. Even in field tests, the **genetically**	**engineered gene** had killed only 80 percent of the boll	4JR
4	ons might be more at risk from intact	**GM genes** and would be vulnerable to the CaMV prom	10JS
5	the cotton plants did not express the	**pesticide gene** as effectively as had been hoped. Up t	7IB
6	to bought Delta & ; Pine Land and its	**Terminator gene.** By the end of 1998, it was moving t	7IB
7	s " in big, bold type over this teaser: "	**Terminator genes** could mean big biotech bucks -but	8BL

Fig. 5.65: *Concordance lines of 'Altered/engineered/Terminator/pesticide/GM gene/s' in the soc corpus.*

Once the DVs for *Adj + gene/s* in the English *soc corpus* have been described, they can now be classified according to their frequency of occurrence in each book. The books that present a major tendency for DV are 4JR, 7IB and 8BL. Nevertheless, out of the three mentioned books, 4JR reveals a more significant result, since the occurrences of the studied collocations are slightly more abundant than the hapax legomena appeared in 7IB and 8BL:

Book	Denominative variants of Adj + N (*gene/s*)		Tokens	No. of variants
4JR	**1.**	*Transgenic gene/s*	7	5
	2.	**Resistance GROUP**	5	
	3.	*Modified gene/s*	3	
	4.	*Engineered gene/s*	2	
	5.	*Altered genes*	1	
6LA	**6.**	*Insecticide GROUP: Insecticidal gene/s*	1	2
	7.	*Modified gene/s*	1	
7IB	**8.**	**Resistance GROUP**	2	5
	9.	*Insecticide GROUP: bug-proof*	1	
	10.	*Roundup Ready gene/s*	1	
	11.	***Terminator gene/s***	1	
	12.	*Pesticide gene*	1	
8BL	**13.**	**Resistance GROUP**	1	5
	14.	*Roundup Ready gene/s*	1	
	15.	*Engineered gene/s*	1	
	16.	*Altered genes*	1	
	17.	***Terminator gene/s***	1	
10JS	**18.**	*Insecticide GROUP*	3	4
	19.	*Roundup Ready gene/s*	2	
	20.	**Resistance GROUP**	1	
	21.	*GM genes*	1	
		T O T A L	**38**	**11**

Table 5.66: *Denominative variants of 'Adj + N (gene/s)' in the English soc corpus.*

In consideration of the above, the data extracted from the English *sci* and *soc* corpora (tables 5.58 and 5.66) were turned into the following pie chart. In figure 5.67, over half of the occurrences (19) (57.6%) are occupied by the most prominent terms in the *sci corpus*: *resistance* (12) and *engineered* (7).

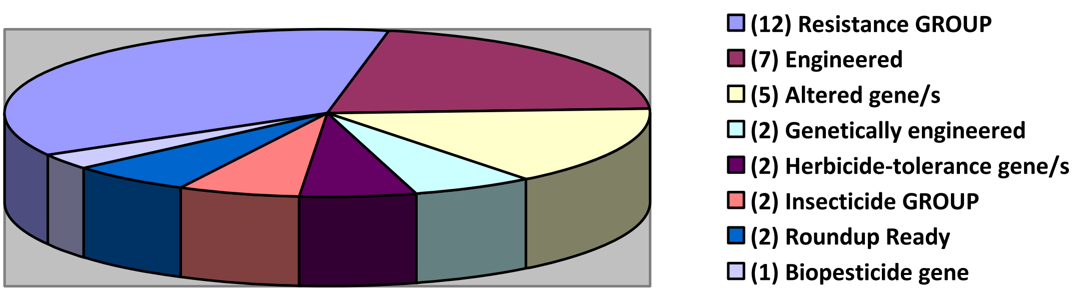


Fig. 5.67: *Pie chart of denominative variants of 'Adj + N (gene/s)' in the English sci corpus.*

Figure 5.68 reveals that the three most recurrent denominative variants – *resistance GROUP* (9), *transgenic gene/s* (7), *insecticide GROUP* (5)– sum 21 occurrences from the 38 hits in the *soc corpus*, resulting in a bit over half (55.3%) of the tokens (38) instead of the two prominent denominative variants found in the case of the English *sci corpus*. This fact implies that the pre-eminence of a term such as *gene,* in combination with a L1 collocate, is shared by more denominative variants in the *soc corpus* in comparison with the *sci*. Whereas 8 denominative variants were found in the *sci corpus*, 11 were encountered in the *soc corpus*:

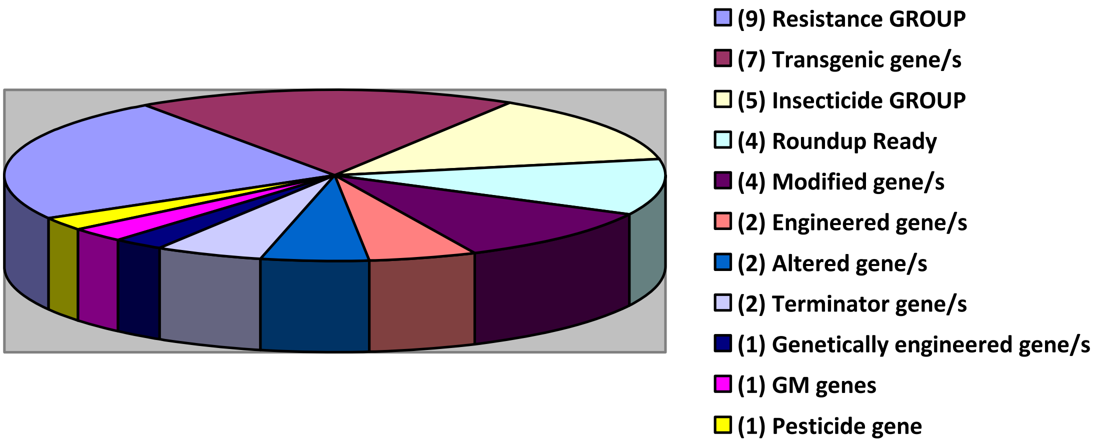


Fig. 5.68: *Pie chart of denominative variants of 'Adj + N (DNA)' in the English soc corpus.*

Likewise, results in the Spanish corpora are also offered below. The outcome is similar to that of the English corpora. In this case, 9 occurrences were registered for the *sci corpus,* and 10 for the *soc corpus:*

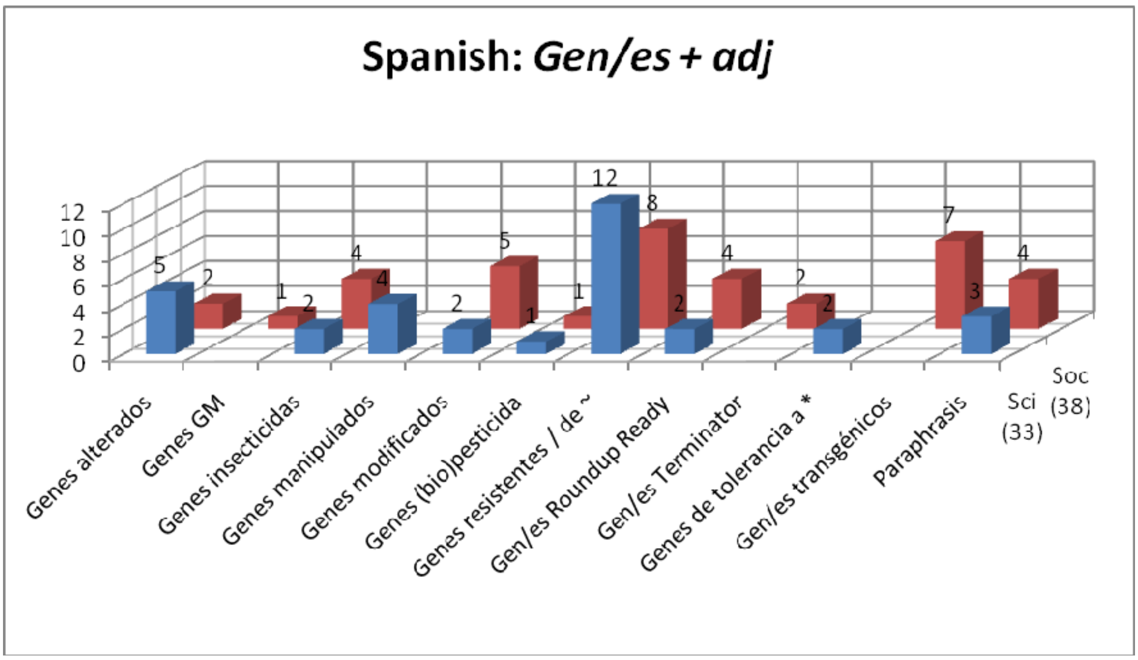


Fig. 5.69: *Spanish collocates for 'Adj + gene/s' in the sci and soc corpora.*

After the most frequent polilexical terms (*gen/es mutantes, gene/s marcadores, gen/es Bt*), the top collocate for *gene/s* –expressing ‘genetic modification in the laboratory’– in the Spanish corpora is *gen/es de resistencia* (12), as it was the case in the ST:

1	ueden insertarse hoy en día nuevos	**genes para la resistencia a los hongos** en el maíz	3EG
2	herbicidas. Por ejemplo, se utilizó un	**gen de resistencia a los herbicidas** en la elaboraci	9SN
3	as hierbas sin dañar los cultivos. Los	**genes de resistencia a los herbicidas** también pue	9SN
4	s se incluye la posibilidad de que los	**genes de resistencia a los herbicidas** salten a esp	9SN
5	eron fueron las que incorporaban el	**gen de la resistencia al herbicida**. Algunas de ellas	9SN
6	os, que contenían la toxina B. t. y los	**genes de resistencia a los herbicidas**, se bombard	9SN
7	to únicamente de la existencia de los	**genes de resistencia a los** herbicidas y a los **insecticidas**.	9SN
8	ctos de la población portadora de la	**resistencia a la B. t.** y, de ese modo, se incluyen los	9SN
9	ve afectado por la incorporación del	**gen de la resistencia al glifosato**, mientras que los	9SN
10	e la década de 1990, aseguró que el	**gen de resistencia al Basta**TM sólo se estaba utiliza	9SN

Fig. 5.70: *Sample of concordance lines for ‘Gen/es de resistencia’ in the sci corpus.*

In line 8, the denominative variant has been simplified to *resistencia a la B.t.* by ommitting *genes* and *bacteria* (genes *de resistencia a la* bacteria *Bt*). The adjective *alterados* is the second most frequent collocate (5), different from *engineered,* which was the second most salient option (8) in the *sci corpus*.

1	ería genética para la introducción de	**genes** nuevos o **alterados** en una amplia gama de or	1ER
2	idamente una estrategia para utilizar	**genes alterados** en el seguimiento de los LIT. En el pl	3EG
3	bién a los ingenieros genéticos si los	**genes alterados** podían seguir funcionando y reprodu	3EG
4	rán los organismos transgénicos su	**genes alterados** a parientes salvajes o silvestres, o re	3EG
5	la que un paciente humano recibió	**genes alterados** de otra especie, como ejemplo de có	3EG

Fig. 5.71: *Concordance lines of ‘Altered gene/s’ in the sci corpus.*

The four cases of *altered gene/s* were rendered as *gen/es alterado/s* and one sample of *engineered genes* was translated into *genes alterados* (3EG), since there is no direct translation of *engineered* into Spanish. This raises the question whether this example refers to genetic manipulation *per se* or the prejudiced alteration of genes.

As in the English *sci corpus,* the less prominent cases in the Spanish translation are listed together down below:

1	aciones de plantas transgénicas con	**genes biopesticidas** podrían estar destruyendo el últi	5MH
2	e a ellos. Existe evidencia de que un	**gen de tolerancia a herbicidas** introducido en la Arab	5MH
3	ansgénicos con genes insecticidas o	**genes de tolerancia a los herbicidas** en realidad fa	5MH
4	ticidas. Los cultivos transgénicos con	**genes insecticidas** o genes de tolerancia a los herbic	5MH
5	método para modificar las proteínas	**insecticidas B. t.** y hacer que se parezcan a los gene	9SN
6	arifa aplicable en su momento por el	**gen Roundup Ready**TM, multiplicado por el número d	9SN
7	plica a otros cultivos modificados con	**genes Roundup Ready**TM, como la canola, el maíz y	9SN

Fig. 5.72: *Concordance lines of ‘biopesticide/herbicide-tolerance/insecticidal/Roundup Ready/ gene/s’ in the sci corpus.*

In the English ST, *protein genes* has been translated into *proteínas,* as happens with similar phenomena in Spanish (e.g. *abdominal muscles* is *abdominales* in Spanish; *parking lot* is *parking* or *aparcamiento*).

As previously seen, *genes resistentes / de resistencia* (12) is the most common collocate for *gene/s,* when it conveys *artificial genetic modification*, and is mostly found in 9SN; however, *gen/es de resistencia* is not the most recurrent option by the majority of authors, as shown in table 5.73. The books that comprise a larger number of denominative variants (4) are 1ER and 3EG:

Book	Denominative variants of N (*gen/es*) + Adj		Tokens	No. of variants
1ER	**1.**	*Paraphrasis*	2	4
	2.	***Gen/es de Resistencia***	2	
	3.	*Gen/es modificado/s*	1	
	4.	*Gen/es alterado/s*	1	
2SA	**5.**	***Gen/es de Resistencia***	1	1
3EG	**6.**	Gen/es manipulado/s	4	4
	7.	*Gen/es alterado/s*	4	
	8.	*Gen/es modificado/s*	1	
	9.	*Paraphrasis*	1	
5MH	**10.**	*Gen/es de tolerancia a herbicidas*	2	3
	11.	*Gen/es insecticida/s*	1	
	12.	*Genes biopesticidas*	1	
9SN	**13.**	***Gen/es de Resistencia***	10	3
	14.	*Gen/es Roundup Ready*	2	
	15.	*Gen/es insecticida/s*	1	
		T O T A L	**33**	**9**

Table 5.73: *Denominative variants of 'N (gen/es) + Adj' in the Spanish sci corpus.*

The number of collocates in the Spanish *sci corpus* (34) is similar to that of the *soc corpus* (38), as well as the range of lexical variation (9 collocates in the Spanish *sci,* 10 collocates in the Spanish *soc corpus*). The most salient collocate in the Spanish *soc corpus* is again *gen/es de resistencia* (8):

1	bacterias intestinales contenían un	**gen resistente a herbicidas** utilizado en las semillas	10JS
2	na planta de colza que contenía un	**gen resistente a los herbicidas** cerca de una hierba	4JR
3	niería genética a fin de que incluya	**genes de resistencia a los herbicidas**, plagas, virus,	4JR
4	s de la emisión a la biosfera de los	**genes de resistencia a los herbicidas**, las plagas, lo	4JR
5	nte munición genética, en forma de	**genes resistentes** de reserva que sigan proporcionan	4JR
6	pequeña población de bichos con	**genes resistentes**, que luego contaminará a otras po	7IB
7	ortalizas de hoja, adquiere un solo	**gen resistente al Bt**, desarrolla inmunidad frente a cu	7IB
8	aron en un método para introducir	**genes que indujesen la resistencia al virus** en las b	8BL
9	ismos desarrollen resistencia a los	**genes resistentes a los herbicidas**, plagas y virus, n	4JR

Fig. 5.74: *Concordance lines of 'Gen/es resistente/s' in the soc corpus.*

But the *soc corpus* has another top frequent collocate, *transgenic* (7), which also appeared in the English ST*:*

1	autóctonas porque mu¬chos de los	**genes transgénicos** insertados en sus genomas les	4JR
2	o " flujo génico ", la transferencia de	**genes transgénicos** de los cultivos a las hierbas ma	4JR
3	investigadores les preocupa que los	**genes transgénicos** que confie¬ren tolerancia a los	4JR
4	plagas y los virus. El miedo a que los	**genes transgénicos** salten a las malas hierbas silve	4JR
5	ella. El estudio danés mostró que los	**genes transgénicos** insertados en los cultivos podr	4JR
6	imático es pavorosa. Muchos de los	**genes transgénicos** que se están insertando en los	4JR
7	án experimentando para insertar un	**gen** de la hormona del crecimiento **transgénico** dire	4JR

Fig. 5.75: *Concordance lines of 'Gen/es transgénico/s' in the soc corpus.*

As we saw in the English texts, the rest of concordance lines are less frequent: *gen/es modificado/s* (5), *gen/es insecticida/s* (4), *gen/es Roundup Ready* (4) and, paraphrasis (3), *gen/es alterado/s* (2)*, gen/es Terminator* (2), *genes GM* (1) and *gen pesticida* (1). There is a transparent faithful translation strategy, except for the first concordance in fig. 5.76, that the translated sentence is clearly a paraphrasis of the term *insecticide gene.*

1	ue cubre la inserción de " cualquier	**gen con propiedades insecticidas** en cualquier g	6LA
2	dá habían sido manipuladas con un	**gen insecticida**. La biotecnología empresarial se c	7IB
3	cuando los científicos introducen un	**gen insecticida** en el ADN del maíz, las células del	10JS
4	material genético que se adhiere al	**gen insecticida** antes de que éste sea introducido.	10JS
5	aletargado. En lugar de promover el	**gen insecticida** como se pretende puede llegar a	10JS

Fig. 5.76: *Concordance lines of 'Gen/es insecticida/s' in the soc corpus.*

In the following concordance lines, the first line of *Roundup* has been preserved as in the original ST and the third line is an abbreviated form or simplified denominative variation of the two-word brand name:

1	de mis semillas mal adquiridas dice:	**Roundup Ready Gene**. Eso quiere decir que en una	7BL
2	ente para Monsanto, insertando los	**genes Roundup Ready** de la compañía en distintas va	7BL
3	34 bases- que no formaba parte del	**gen Roundup** y que tampoco era ADN de soja natural.	10JS
4	amente modificada tuviese también	**genes Roundup Ready**. Descubrieron, que en compa	10JS

Fig. 5.77: *Concordance lines of 'Gen/es Roundup Ready' in the soc corpus.*

Some other collocates, as *modified gene/s,* have also been preserved in the Spanish translation as *gen/es modificado/s:*

1	cir dónde caerá en un cromosoma el	**gen modificado** ; es posible por eso que se alteren	4JR
2	ciones celulares. Incluso aunque un	**gen modificado** se situase donde se deseaba, no e	4JR
3	los demás animales, la inserción de	**genes modificados** en los cromosomas de un paci	4JR
4	e haber una rápida transferencia de	**genes modificados** entre las dos especies. Es prob	6LA
5	ótica incorporados para saber si los	**genes** recién **modificados** son viables. El grupo de	7BL

Fig. 5.78: *Concordance lines of 'Gen/es modificado/s' in the soc corpus.*

The collocate *–engineered–* does not have a direct translation into Spanish and has been rendered into *modificado/s* (4JR), whereas *genetically engineered*

4JR (2 occurrences) has been translated into a paraphrasis (from the ST *subdued to GE* [back translation]) being *sometidos* an indication of an unpleasant state of affairs:

1	ta en las pruebas de campo, el **gen sometido a la ingeniería genética** había matado sólo el 80	4JR
2	los **genes**, células, tejidos, órganos y organismos enteros **sometidos a ingeniería genética**	4JR

Fig. 5.79: *Concordance lines of 'Gen/es sometido/s a la IG' in the soc corpus***.**

The last concordance lines comprise the *happax legomena* of the Spanish *soc corpus* in figure 5.80. As it is a brand name, *Terminator* is preserved as a proper name and does not make the agreement with the noun is accompanying. The last line includes *genes GM* (*genetically modified*), as in the original, instead of the option *MG,* in which the translator would have followed the usual Spanish word order for adverbs following adjectives (*modificados genéticamente*):

1	ugía genética somática, e introducen	**genes alterados** en el paciente para " corregir " las	4JR
2	lidades de contener semillas con los	**genes** recién **alterados.** En febrero de 1997, la Co	8BL
3	nto compró Delta & ; Pine Land y su	**gen Terminator**. Para fines de 1998 estaba tratando	7IB
4	das ", justo encima de la frase: " Los	**genes Terminator** podrían suponer grandes benefici	8BL
5	ullo del algodón. Era evidente que el	**gen pesticida** no parecía actuar en las plantas de al	7IB
6	ayor riesgo de ser atacadas por los	**genes** GM y sean más vulnerables al efecto factor de	10JS

Fig. 5.80: *Concordance lines of 'Genes alterados; gen/es Terminator; genes GM; gen pesticida' in the soc corpus.*

Once the concordance lines have been examined, four books (4JR, 7IB, 8BL and 10JS) hold 5 denominative variants, from which 4JR embraces the most salient collocates, *transgénico/s* and *resistente/s:*

Book	Denominative variants of Adj + N (*gen/es*)		Tokens	No. of variants
4JR	**1.**	***Gen/es transgénico/s***	7	5
	2.	**Gen/es resistente/s**	5	
	3.	*Gen/es modificado/s*	3	
	4.	*Paraphrasis: Gen/es sometidos a la IG*	2	
	5.	*Gen/es alterado/s*	1	
6LA	**6.**	*Paraphrasis: Con propiedades insecticidas*	1	2
	7.	*Gen/es modificado/s*	1	
7IB	**8.**	**Gen/es resistente/s**	2	5
	9.	Gen pesticide	1	
	10.	Gen/es insecticida/s	1	
	11.	Gen/es Roundup Ready	1	
	12.	**Gen/es Terminator**	1	
8BL	**13.**	*Paraphrasis: Indujesen resistencia*	1	5
	14.	Gen/es Roundup Ready	1	

	15.	*Gen/es modificado/s*	1	
	16.	**Gen/es Terminator**	1	
	17.	*Gen/es alterado/s*	1	
10JS	18.	Gen/es insecticida/s	3	5
	19.	Gen/es Roundup Ready	2	
	20.	**Gen/es resistente/s**	1	
	21.	*Gen/es alterado/s*	1	
	22.	Gen/es GM	1	
		T O T A L	**38**	**10**

Table 5.81: *Denominative variants of 'N (gen/es) + Adj' in the Spanish soc corpus.*

As for the comparison of the Spanish *sci* and *soc* corpora (tables 5.73 and 5.81), half of the pie chart (17 occurrences) in the *sci corpus* is occupied by the most prominent terms: *gene/es resistentes* (12) and *alterados* (5). In fact, the first most frequent collocates *–resistente/s, alterado/s* and *manipulado/s–* account for two thirds (21) of the graph (33).

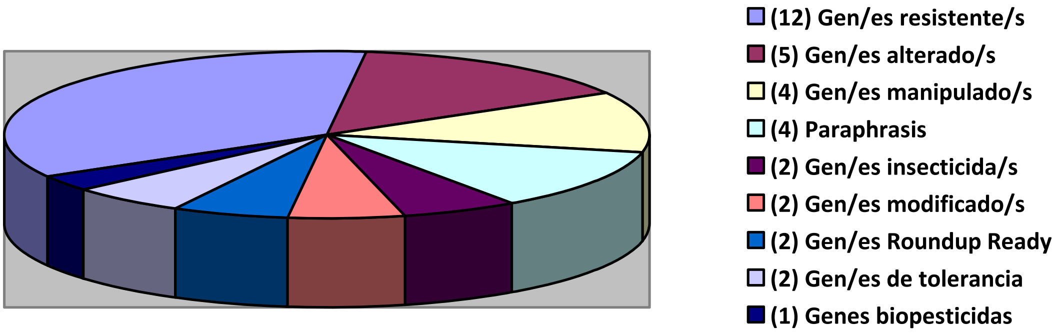


Fig. 5.82: *Pie chart of denominative variants of 'Adj + N (gene/s)' in the Spanish sci corpus.*

With regard to the *soc corpus,* a bit less than half of the occurrences of the pie chart (15 occurrrences) correspond to the most recurrent terms (39.5%): *gene/es resistentes* and *gen/es transgénico/s.* Furthermore, four denominative variants – *resistente/s, transgénico/s, insecticida/s* and *modificado/s–* (24 occurrences) make up almost two thirds of the graph (63.2%):

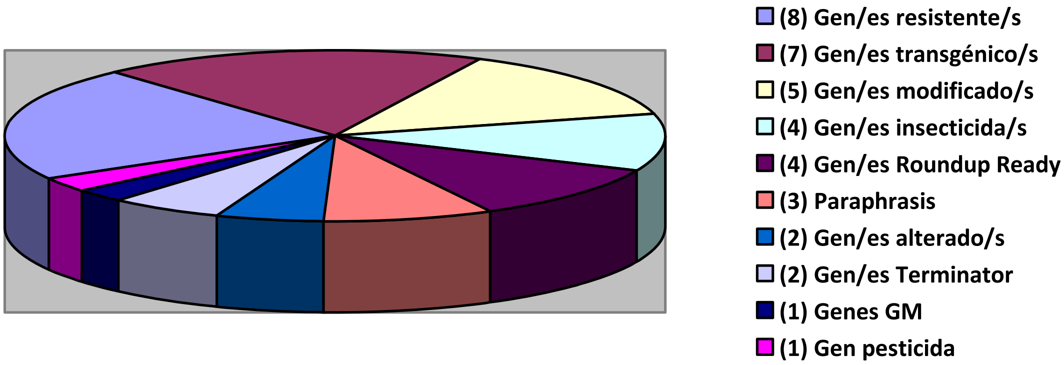


Fig. 5.83: *Pie chart of denominative variants of 'Adj + N (gene/s)' in the Spanish soc corpus.*

Particularly worthy of note is the most frequent collocate *–resistance–* that is the prominent hit for *Adj + gene/s* in the entire *GE_P-ACTRES corpus* and, therefore, emphasis is given to the function of genes (e.g. *herbicide-resistance genes, insect resistance genes, Bt-resisting genes*). The *soc corpus* does not only highlight that purpose, but also, to a lesser extent, the commercial product of engineering an organism (*Terminator genes*). In detail, results of an interlinguistic evaluation are compared below:

	English *sci corpus* GENE/s	*Freq*		Spanish *sci corpus* GEN/es	*Freq*
1.	Resistance GROUP	12	1.	Gen/es resistente/s	12
2.	*Engineered gene/s*	7	2.	*Gen/es alterados*	5
3.	*Altered gene/s*	5	3.	Gen/es manipulado/s	4
4.	*Genetically engineered gene/s*	2	4.	Paraphrasis	3
5.	*Herbicide-tolerance*	2	5.	*Gen/es insecticida/s*	2
6.	*Insecticide GROUP*	2	6.	*Gen/es modificado/s*	2
7.	*Roundup Ready gene/s*	2	7.	*Gen/es Roundup Ready*	2
8.	*Biopesticide genes*	1	8.	*Gen/es de tolerancia*	2
			9.	*Genes biopesticidas*	1
	Total: 33			Total: 33	

Table 5.84: *English and Spanish collocates for 'gene/s' in the sci corpus.*

As for the *soc corpus,* a significant finding is that the one more denomination was registered for the English corpus with little variation in the translation word choices:

	English *soc corpus* GENE/s	*Freq*		Spanish *soc corpus* GEN/es	*Freq*
1.	Resistance GROUP	9	1.	Gen/es resistente/s	8
2.	***Transgenic gene/s***	7	2.	***Gen/es transgénico/s***	7
3.	*Insecticide GROUP*	5	3.	*Gen/es modificado/s*	5
4.	*Roundup Ready gene/s*	4	4.	*Gen/es insecticida/s*	4
5.	*Modified gene/s*	4	5.	*Gen/es Roundup Ready*	4
6.	*Engineered gene/s*	2	6.	Paraphrasis	4
7.	*Altered gene/s*	2	7.	*Gen/es alterado/s*	2
8.	***Terminator gene/s***	2	8.	***Gen/es Terminator***	2
9.	*GM genes*	1	9.	*Genes GM*	1
10.	*Pesticide gene*	1	10.	*Gen pesticida*	1
11.	*Genetically engineered gene/s*	1			
	Total: 38			Total: 38	

Table 5.85: *English and Spanish collocates for 'gene/s' in the soc corpus.*

After examining *DNA* and *gene/s* at the microbiology level as technical terms, the next section will compare results with the investigation of denominative variation in *food/s* and *crop/s,* as part of the plant biotechnology level within the category of subtechnical terms.

5.3.4.2. Subtechnical terms: *Food/s* and *crop/s*

Again, examples such as *tomatoes with fish genes, the pigs with human genes* (<s id="BL14E.s350">) were disregarded in favor of taking hold of terms such as *genetically engineered crops,* which qualified as a term for the analysis of denominative variation.

Corpus	**Sci_corpus**					**Soc_corpus**				
Books	1-ER	2-SA	3-EG	5-MH	9-SN	4-JR	6-LA	7-IB	8-BL	10-JS
Tokens	75515	82628	56001	95278	76284	92068	29505	79107	124821	83215
Food	646					1315				
	1961									
Freq.	40	69	63	77	397	35	103	296	493	388
Rel.	530	835	1125	808	4955	380	3491	3742	3950	4266
Foods	266					621				
	887									
Freq.	3	6	7	28	222	8	30	160	121	302
Rel.	40	73	125	294	2910	87	1017	2023	969	3593

Table 5.86: *Number of tokens, frequency and relative frequencies of 'food/s' in the English sci and soc corpora.*

Out of the four studied terms within this section of denominative variation, *food/s* is the case whose total number of occurrences is double in the *soc corpus* (1936) in comparison with the *sci corpus* (912).

As previously stated, it is expected to find a larger number of complex NPs when the head of the NP is a semitechnical rather than technical term. In the *sci corpus,* from the 912 occurrences of the terms *food* (646) and *foods* (266), 680 showed *food/s* in a complex noun phrase:

- 365 occurrences as a premodifier (e.g. *food* composition)
- 275 as the head of a NP (e.g. genetically modified *food*)
- 40 as the complement of a NP (e.g. labeling of *food*)

The graph below illustrates the collocates that accompany *food/s*:

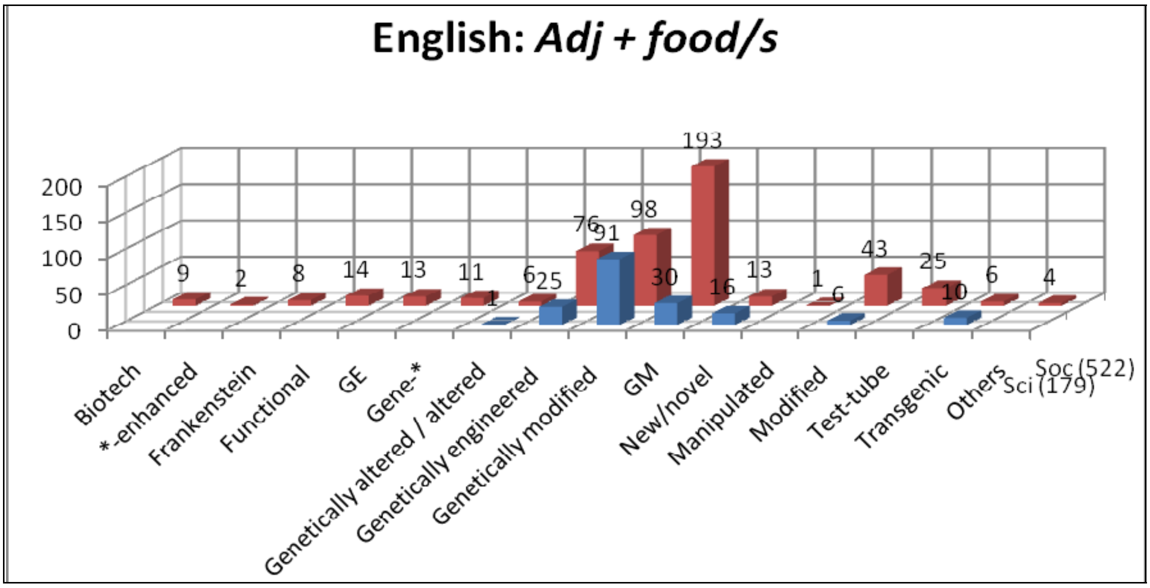


Fig. 5.87: *English collocates for 'Adj + food/s' in the sci and soc corpora.*

There is a significant difference of occurrence between the collocations of *food/s* and *genes / DNA,* the former being much more frequent than the latter category. In figure 5.87, *genetically modified food* from the *sci corpus* is the preferred option (91):

1	overning international commerce of	genetically modified food and agricultural products a	5MH
2	PERILS AMID THE PROMISES OF	GENETICALLY MODIFIED FOOD. Agricultural biotech	5MH
3	sting practices and regulations. Can	genetically modified food feed the world? The pover	5MH
4	d edition. EAT YOUR GENES: How	Genetically Modified Food Is Entering Our Diet. Lond	9SN
5	Your Genes explains how and why	genetically modified food suddenly became part of o	9SN
6	hical and moral concerns relating to	genetically modified food are raised in Chapter 9. Bi	9SN
7	it may fall outside the definition of a	genetically modified food. In addition, Monsanto has	9SN
8	the first clearance of an unprocessed	genetically modified food anywhere in Europe. The g	9SN
9	e debate on marketing approvals for	genetically modified food. However, it was US-based	9SN
10	chapter. 12. Marketing approval for	genetically modified food in Europe. Marketing appro	9SN

Fig. 5.88: *Sample of concordance lines for 'Genetically modified food/s' in the sci corpus.*

The term *genetically modified food* is in principle a transparent expression whose surrounding is impregnated of *perils, promises, debate* and *concern,* among others. An orthographic variation of *genetically modified food* is conveyed as an acronymn, that is, *GM food* (30)*:*

1	however, considerable resistance to	GM food has developed. The public in Europe, for inst	9SN
2	lth issues and the lack of labeling on	GM food. Meanwhile, environmental pressure groups	9SN
3	ational labeling regulations covering	GM food and the drafting of an international agreemen	9SN
4	ts surrounding transgenic crops and	GM food have intensified as we have entered the twen	9SN
5	from animal feed, and humans from	GM food, antibiotic treatments could be rendered less	9SN
6	ps, and the testing assessments for	GM food. This is in recognition of the need to guard in	9SN
7	vals for the import and marketing of	GM food, in line with EU Directives. The advisory Com	9SN
8	gards restrictions on the free flow of	GM food worldwide as a restriction of its trade. The US	9SN
9	h the WTO over the way it regulates	GM food. Marketing. The post-harvest distribution and	9SN
10	harvest distribution and marketing of	GM food in Europe is examined in Chapter 12. The pol	9SN

Fig. 5.89: *Sample of concordance lines for 'GM food' in the sci corpus.*

Figure 5.89 shows *GM food* exclusively found in 9SN. A lesser amount of occurrences was registered for *genetically engineered food* (25), partly because it is a less transparent term than *genetically modified:*

1	e food and pre-market testing of any	**genetically engineered food**. The labeling of food giv	1ER
2	ch must be discussed seriously. Can	**genetically engineered food** and drugs be harmful? M	1ER
3	r, a transgenic tomato that is the first	**genetically engineered food** to find its way into the m	2SA
4	d for thought. The manufacturers of	**genetically engineered food** know they will have a to	2SA
5	e groups who promote the view that	**genetically engineered food** is both unnatural and da	2SA
6	aing the product offered. But even if	**genetically engineered food** turns out to be perfectly	2SA
7	gineered plant or animal variety. The	**genetically engineered food** could be compared with	5MH
8	esent a relatively small proportion of	**genetically engineered food**, and are more likely to r	9SN
9	at the benefit to consumers of most	**genetically engineered food** is small, the accuracy a	9SN
10	ernment that the people did not want	**genetically engineered food**. A range of other polls a	9SN

Fig. 5.90: *Sample of concordance lines for 'Genetically engineered food/s' in the sci corpus.*

Specific lexical items, such as *harmful* and *pressure groups* are highlighted to prepare the grounds for the analysis of SP. The remaining occurrences for '*Adj' + 'Food/s*' are *new* or *novel* (16)*, transgenic* (10), *modified food/s* (6) and *genetically altered* (1), which are the least frequent collocares for *food/s:*

1	ility for regulating food additives and	**new foods**, although meat and poultry are within the r	9SN
2	In Europe there is the concept of a	**novel food**, which may relate to the way it has been p	2SA
3	a preliminary risk assessment of the	**novel food** or food ingredient. The Commission forwa	9SN
4	ew legislation, would be required for	**novel foods** only if they contained viable (' live ') gene	9SN
5	the UK. The Advisory Committee on	Novel **Foods** and Processes (ACNFP) provides exper	9SN
6	overnment 's Advisory Committee on	Novel **Foods** and Processes (ACNFP) decided that th	9SN
7	tments. The Advisory Committee on	Novel **Foods** and Processes (ACNFP), for example, a	9SN
8	example, the Advisory Committee on	Novel **Foods** and Processes (ACNFP) in the UK, con	9SN
9	eigy / Novartis' modified maize. The	**Novel Food** and Food Ingredient Regulation was atta	9SN
10	rops, the FDA assesses the safety of	**novel foods**, while the EPA determines whether a pro	9SN

Fig. 5.91: *Sample of concordance lines for 'New/novel food/s' in the sci corpus.*

Since *new/novel* is not a specialized lexical entity*,* it was a doubtful case whether to consider this adjective as a way to convey 'genetic modification' when found as a collocate of *food/s*. The ACNFP web site (The Advisory Committee on Novel Foods and Processes), http://www.acnfp.gov.uk/, was consulted and it may be argued that,

> The Advisory Committee on Novel Foods and Processes (ACNFP) is a non-statutory, independent body of scientific experts that advises the Food Standards Agency on any matters relating to novel foods (including genetically modified foods) and novel processes (including food irradiation) http://www.acnfp.gov.uk/.

The ACNFP, which has a legal duty from November 2002, regards *novel* as any new food including *genetically modified food*. Therefore, *new/novel* was considered an elegible collocate for the analysis. 9 occurrences refer to 'ACNFP regulation' and the rest of the cases of *novel food/s* (6)/*new food* (1) refer to 'genetically modified', especially in lines 2, 3 and 10 in fig. 5.91) that clearly state 'genetic modification' within the realm of plant biotechnology.

The next example, *transgenic food/s* (10), is a transparent term –a gene that has been transferred–, although less used than *genetically modified:*

1	prove shelf life and the very first live	**transgenic food** to be introduced to our supermarket	5MH
2	me people balk at the very notion of	**transgenic foods**, evidence supports the view that thi	3EG
3	rgies are particularly concerned over	**transgenic foods**, since a chemical to which the react	3EG
4	d plants. One serious concern over	**transgenic foods** relates to their potential to be toxic	5MH
5	ks. Serious doubts over the safety of	**transgenic foods** were raise by the recent experimen	5MH
6	evidence one would be foolish to eat	**transgenic foods**, as the manipulated DNA may resis	5MH
7	automatically degraded in processed	**transgenic foods**, such as Zeneca 's tomato paste, a	5MH
8	ratorium, at the very least, and for all	**transgenic foods** containing DNA to be withdrawn fro	5MH
9	NA to infect cells after the ingestion of	**transgenic foods**, to regenerate disease viruses, and t	5MH
10	ical processes. The potential risks of	**transgenic foods** are in many cases balanced against	9SN

Fig. 5.92: *Concordance lines of 'Transgenic food/s' in the sci corpus.*

The frequency of *transgenic food* is low (10) partly because the new science was still emerging in the media at the time the *sci corpus* was being written (which is earlier in time than the *soc corpus*). A simplified form of the preferred term in the English *sci corpus –genetically modified–* is the least employed option *–modified–* along with *genetically altered* (1):

1	but labeled foods from the USA. The	**modified food** contains the same ingredients, but just	9SN
2	uld occur to novel proteins present in	**modified foods**. A case in which a soybean modified	9SN
3	e lack of segregation and labeling of	**modified foods**, and poor public relations on the part	9SN
4	ith genetic engineering, the safety of	**modified foods**, and the fact that foods produced usin	9SN
5	I avoid discussing the risks posed by	**modified foods** and to move away from the logical fac	9SN
6	future, companies wanting to market	**modified foods** will have to apply to ANZFA for approv	9SN
7	s or livestock be safe to be eat? Will	**genetically altered food** have less nutritional value?	3EG

Fig. 5.93: *Concordance lines of 'Modified/genetically altered food/s' in the sci corpus.*

After examining the different denominations, the book that shows a higher tendency for denominative variation is 9SN:

Book	**Denominative variants of Adj + N (*food/s*)**		**Tokens**	**No. of variants**
1ER	**1.**	*Genetically engineered food/s*	2	1
2SA	**2.**	*Genetically engineered food/s*	5	2
	3.	New/novel food/s	1	
3EG	**4.**	***Transgenic foods***	2	2
	5.	*Genetically altered food*	1	
5MH	**6.**	*Genetically engineered food/s*	12	3
	7.	***Transgenic food/s***	7	
	8.	*Genetically modified food/s*	4	
9SN	**9.**	*Genetically modified food/s*	87	6
	10.	*GM food/s*	30	
	11.	New/novel food/s	15	
	12.	*Genetically engineered food/s*	6	
	13.	*Modified food/s*	6	
	14.	***Transgenic food***	1	
		T O T A L	**179**	**7**

Table 5.94: *Denominative variants of 'Adj + N (food/s)' in the English sci corpus.*

In the *soc corpus* from the 1936 occurrences of the terms *food* (1315) and *foods* (621), 1417 showed *food/s* in a complex noun phrase:

- 606 occurrences as a premodifier (e.g. *food* biotechnology)
- 727 as the head of a NP (e.g. GM *food*)
- 84 as the complement of a NP (e.g. genetic engineering of *food*)

The *soc corpus* registers the second most frequent polilexical term of the *sci corpus –GM food/s–* as the most frequent (193) in the *soc corpus*:

1	ngineering. MARTINA: BENEFITS OF	GM FOOD " FAR OUTWEIGH THE COSTS ". The visit	8BL
2	OULD KILL YOU. HUMAN GENES IN	GM FOOD. THIS TERRIFYING TAMPERING. COURT	8BL
3	ing that the EU 's restrictive policy on	GM food violates international agreements. On the da	10JS
4	S. policy, allowing millions of acres of	GM food to be planted, sold, and eaten without prior sa	10JS
5	engineering that is used to create the	GM food everyone was already eating. By Monday af	10JS
6	y 1 percent of the public thought that	GM food " was good for society. " The government's c	10JS
7	d yet been published on the safety of	GM foods, and the world 's scientific community had pl	10JS
8	itute had created a better way to test	GM foods, he reasoned, this could result in very lucrati	10JS
9	is results strongly suggested that the	GM foods already approved and being eaten by hund	10JS
10	in newspapers touting the benefits of	GM foods and attempting to enlist a skeptical public. M	10JS

Fig. 5.95: *Sample of concordance lines for 'GM food/s' in the soc corpus.*

This term that is formed by the acronym –GM– appears mainly in 10JS, although there are a few hits in 8BL. Just the opposite case is *genetically modified food/s* (98), that is examined below and whose emergence in the corpus is mainly found in 8BL and a few occurrences in 10JS and 7IB. Thus, the first most frequent term of the *sci corpus –genetically modified food/s–* (91) is second in the *soc corpus* (98)*:*

1	d to label all products containing any	genetically modified food. The directive was seen as	7IB
2	e U.S. saw European efforts to label	genetically modified foods as equivalent to a non-tra	7IB
3	entists hasten their quest to produce	genetically modified food that is more nutritious - or	8BL
4	ds modified so soon, the creators of	genetically modified food have led us to believe that	8BL
5	ernment was about to announce that	genetically modified foods would be prohibited from	8BL
6	y can be made to work for us. And if	genetically modified food will be shown to be safe th	10JS
7	wo warring blocks. All those who see	genetically modified food as a scary prospect - ' Fra	10JS
8	ology companies to consider labeling	genetically modified food to help prevent consumer f	10JS
9	tates have all but shut out criticism of	genetically modified (GM) food and crops from their	10JS
10	chosen to create a model for testing	genetically modified (GM) foods, verifying that they	10JS

Fig. 5.96: *Sample of concordance lines for 'Genetically modified food/s' in the soc corpus.*

So as not to have a list of denominative variants too large to be handled, some other terms, such as g*enetically engineering foods* (1 occurrence), *engineered food/s* (2) and *bioengineered foods* (4), were included in a larger category, in this case, within the label of *genetically engineered food/s* (76), the third most frequent denominative variant, which is present in the whole *soc corpus*:

1	nced in 1992 that special labeling for	**genetically engineered foods** would not be required,	4JR
2	ough the FDA said it would label any	**genetically engineered foods** containing genes from	4JR
3	igher residues of these chemicals in	**genetically engineered food**. Monsanto, for example,	6LA
4	one can see why the development of	**genetically engineered food** is so attractive to the life	6LA
5	n is religiously motivated to avoid all	**genetically engineered foods** as they view the produ	7IB
6	uld begin testing for the presence of	**genetically engineered foods** in early 1998, starting	7IB
7	" Is biotechnology and its derivative,	**genetically engineered food**, the solution to solving w	8BL
8	expensive agricultural inputs. Even if	**genetically engineered food** has some yet-to -discove	8BL
9	n or data that would suggest that any	**genetically engineered foods** that have been allowed	10JS
10	gh Stitt was not focused on removing	**genetically engineered foods** per se, by taking out th	10JS

Fig. 5.97: *Sample of concordance lines for 'Genetically engineered food/s' in the soc corpus.*

To sum up, the previous three terms *–GM, genetically modified* and *genetically engineered food/s–* are the most recurrent terms in the *soc corpus* for *food/s*. The next 2 cases head the list of medium-frequency *food* collocates: *modified food/s* (43) and *test-tube food/s* (25).

1	ific tampering with food. Although no	**modified foods** were then commercially available, tho	7IB
2	in which companies intending to sell	**modified food** would need only to tell the government	8BL
3	n is n't compelled to order labeling of	**modified food** with medicinal properties. For instance,	8BL
4	ere are questions about the safety of	**modified foods**, there are profound hopes. Already th	8BL
5	hese genetic technologies tell us that	**modified foods** are simply a natural progression of a s	8BL
6	, in future, all companies proposing a	**test-tube food** with an antibiotic-resistant marker gene	8BL
7	ntially says to the developers of new	**test-tube foods**," if your novel food kills people, let us	8BL
8	ponents, like the U.S., protested that	**test-tube foods** were safe and already overregulated.	8BL
9	te, signed a people 's petition to ban	**test-tube foods**, as well as the deliberate release of g	8BL
10	ult for society to make a decision on	**test-tube foods-** particularly if scientific information is	8BL

Fig. 5.98: *Sample of concordance lines for 'Modified / test-tube food/s' in the soc corpus.*

It seems clear that the former, *modified food/s* (43), is a simplified form of *genetically modified food/s.* The latter, *test-tube food/s* (25)*,* reminds us of other terms such as *test-tube babies* in which an egg has been removed from the mother's body, fertilized, and then replaced in her womb, as much as it happens with genetically modified animals. *Test-tube* may probably emphasize the controversy of *test-tube babies* raised at an earlier time without forgetting that it is a process of *in vitro* fertilization (IVF). The IVF procedure (*high register*) may easily be obviated when it is rendered into a less specialized denomination as *test-tube.* It may be argued that a controversial character is stamped on *test-tube,* much more than the technological side as a scientific advance. As for the dispersion plots, *modified food/s* was primarily found in 8BL except for one occurrence in 7IB, whereas *test-tube food/s* was only located in 7IB.

The last set of concordance lines (fig. 5.99) in the *soc corpus* comprises the least frequent DVs: *functional food/s* (14), *GE food/s* (13), *new/novel food/s* (13), *gene-* food/s* (11), *biotech food/s* (9), *Frankenstein food/s* (8), *(genetically) altered food/s* (6), *transgenic* (6), **-enhanced food/s* (2) and *others* (5).

1	orth America. For starters, the term	" **functional food** " has no legal statue in the U.S. or Ca	8IB
2	ture in which genetically engineered	**functional foods** are not adequately legislated. Example	8IB
3	. Some scientists believe that eating	**GE food** containing these marker genes could encoura	6LA
4	ouncils across the country to remove	**GE food** from all their outlets - schools, town halls, and	6LA
5	arrowing the prospects for providing	**new food**, pharmaceuticals, and fiber for the human ra	4JR
6	pre-market human tests required of	" **novel " foods** in Canada as there would be for the intr	7IB
7	For the critics, it demonstrated that a	**gene-altered food** might cause unexpected, even fata	8BL
8	s had made their feelings clear about	**gene-spliced food**, so efforts in the agricultural area l	7IB
9	f North Americans have been eating	**biotech food** every day for years and not a single adv	10JS
10	ne Canadian firm working to develop	**biotech foods** and crops was publicly, traded on the c	7IB
11	he government 's policy on so-called	**Frankenstein food** were raised last night when it eme	8BL
12	sing its regulatory freedom to roll out	**transgenic foods** in what has to be seen as a giant nu	7IB
13	they allowed all these seeds to sprout,	**genetically altered food** would take root on European	8BL
14	critical void: persuading people that	**altered foods** contain benefits. In France, for example,	8BL
15	rticles describing the coming array of	**nutritionally enhanced food** that would revolutionize	8BL
16	substantial equivalence " means that	**manipulated foods** are examined according to an insp	7IB

Fig. 5.99: *Sample of concordance lines for the least frequent collocations for 'food/s' in the soc corpus.*

By examining the previous figure, the following results are shown below:

- The first concordance line uncovers that *functional food* is not legally recognized in the US or Canada.
- Regarding *GE food/s,* the genetic engineering technology of food is conveyed as an acronymn.
- The cases of *new/novel food/s* in the *soc corpus* are unambiguous examples of genetically modified food supported by their context (see 8.7., table 8.17 and 8.18).
- The terms *gene-altered* and *gene-spliced* integrate the category of *gene-* food/s.* The latter makes a clear reference to the biomolecular process of gene splicing.
- The case of *biotech food/s* is an abbreviation of *biotechnology food/s* and the base change has turned *biotech* into a colloquial form.
- Needless to say that *Frankenstein food* was born within groups who use the expression to highlight public disquiet from the viewpoint of NGO's.
- It may be striking not to find a larger number of occurrences for *transgenic food/s* since they were usually encountered in the context of European and Canadian food regulation.
- Since food has been genetically modified for years, the term *genetically altered* may imply a more direct allusion to the laboratory procedure. 2 out of the 6 occurrences in this group are *altered foods* without having *genetically* as a premodifying adverb. When *altered* is not premodified by *genetically,* evidence may suggest either a favorable or unfavorable state of affairs that will be examined in the section of semantic prosody.

- The collocates, *biotechnology-enhanced* (8BL) and *nutricionally-enhanced* (8BL), draw attention to the possible connotations of the terms in Europe different from those in the US: "which has a different ring to it than what we hear in the United States" (8BL19E.s71). By reading the whole section in which this quotation is embedded, the author implies that alimentary improvement is likely to be regarded in the US, whereas Europe greatly differs from this standpoint.
- The category named *others* includes *genetic foods, monster foods*, *lab-created foods, manipulated foods* and *boosted foods*.

In consideration of the above and for the purposes of comparison, denominative variants for *food/s* have been grouped in table 5.100. In 4JR, there are the fewest occurrences (4). However, this figure gradually increases up to the most recent book published. Thus, the occurrences of *Adj + N (food/s)* are: 6LA (23), 7IB (99), 8BL (164), and 10JS (232).

The books that hold a larger number of denominative variants are 7IB (11), 8BL (12) and 10JS (9). The most prominent denominative variants are *genetically engineered* (7IB)*, genetically modified* (8BL) and *GM food* (10JS) that account for 35.1% (7IB), 48.5% (8BL) and 80.2% (10JS) of the total occurrences of 7IB, 8BL and 10JS respectively:

Book	Denominative variants of Adj + N (*food/s*)		Tokens	No. of variants
4JR	1.	Genetically engineered food/s	2	3
	2.	**Gene-spliced foods**	1	
	3.	New food	1	
6LA	4.	Genetically engineered food/s	13	3
	5.	GE food	9	
	6.	**Transgenic food**	1	
7IB	7.	Genetically engineered food/s	31	11
	8.	Test-tube food/s	25	
	9.	Functional food/s	13	
	10.	New/novel foods	8	
	11.	*Genetically modified food/s*	5	
	12.	**Gene-spliced food/s**	5	
	13.	**Transgenic food**	4	
	14.	Biotech food/s	3	
	15.	*Modified food/s*	2	
	16.	Manipulated foods	1	
	17.	Others: monster; lab-created	2	
8BL	18.	*Genetically modified food/s*	79	12
	19.	*Modified food/s*	41	
	20.	Genetically engineered food/s	13	
	21.	GM food/s	7	
	22.	FRANKENSTEIN FOOD/S	7	
	23.	Genetically altered food/s	6	
	24.	Gene-altered food/s	4	

	25.	*-enhanced	2	
	26.	Others	2	
	27.	Biotech food/s	1	
	28.	Functional food/s	1	
	29.	New food/s	1	
10JS	30.	GM food	186	9
	31.	Genetically engineered food/s	17	
	32.	Genetically modified food/s	14	
	33.	Biotech food	5	
	34.	GE foods	4	
	35.	New food/s	3	
	36.	Gene-altered food	1	
	37.	FRANKENSTEIN FOOD/S	1	
	38.	Transgenic food	1	
		T O T A L	522	15

Table 5.100: *Denominative variants of 'Adj + N (food/s)' in the English soc corpus.*

Given the diverse nature of the writers, it was expected that denominations vary according to the authors. Let us now examine the denominative variants contained in the two English corpora intralinguistically.

As for the comparison of the English *sci* and *soc corpora* (tables 5.94 and 5.100), half of the occurrences (91) in the *sci corpus* are taken up by *genetically modified food/s* and the other half are less frequent (88 occurrences).

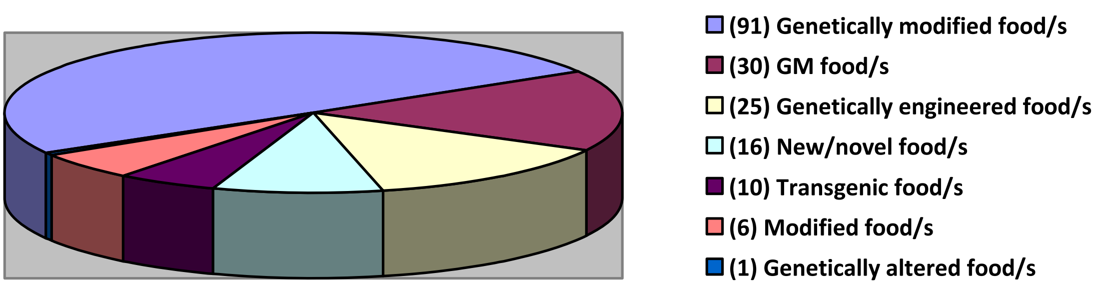


Fig. 5.101: *Pie chart of denominative variants of 'Adj + N (food/s)' in the English sci corpus.*

From the 522 hits, the *soc corpus* reveals that over half (55.7%) of the pie chart (291 occurrences) correspond to the most recurrent terms: *GM food/s* (193) and *genetically modified food/s* (98). Although two denominative variants, both in the English *sci* and *soc* corpora, make up half of the occurrences in each one of the corpora, the total amount of denominative variants is more than double in the *soc corpus* (16) than those in the *sci corpus* (7):

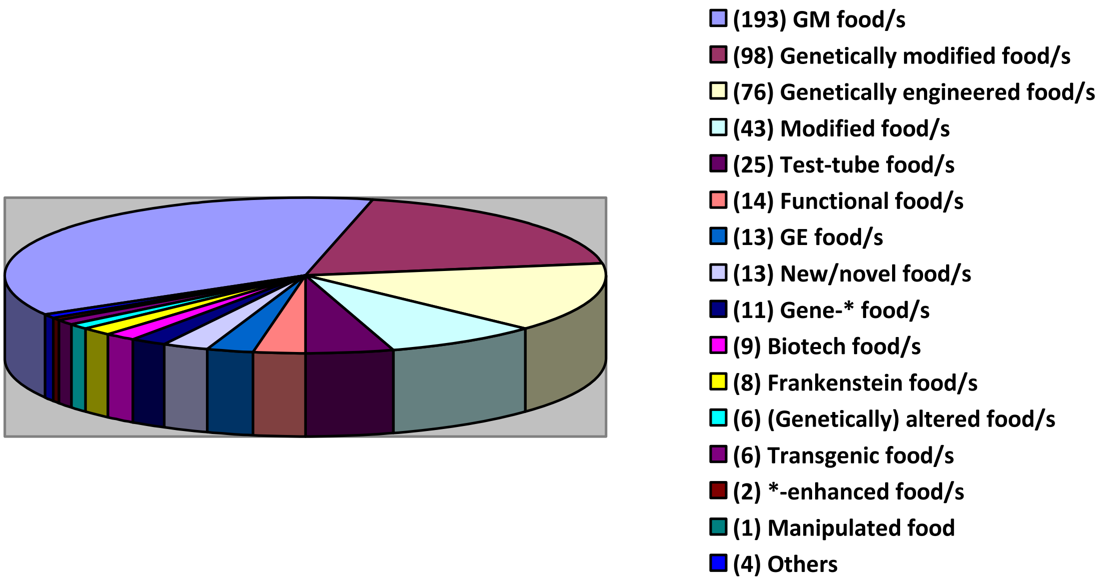


Fig. 5.102: *Pie chart of denominative variants of 'Adj + N (food/s)' in the English soc corpus.*

As previously seen, the most frequent collocate in the English *sci corpus* –*genetically modified*– (91) ranks second in the *soc corpus* (98), whereas the most frequent in the *soc corpus* –*GM*– (193), occupies the second position in the *sci corpus* (30). Up to here, the pie charts for *food/s* in the English corpora yield the same results obtained earlier, that is, the *soc corpus* has always shown more variants than the *sci corpus*. By looking into fig. 5.103, the Spanish collocates for *food/s* also show this tendency:

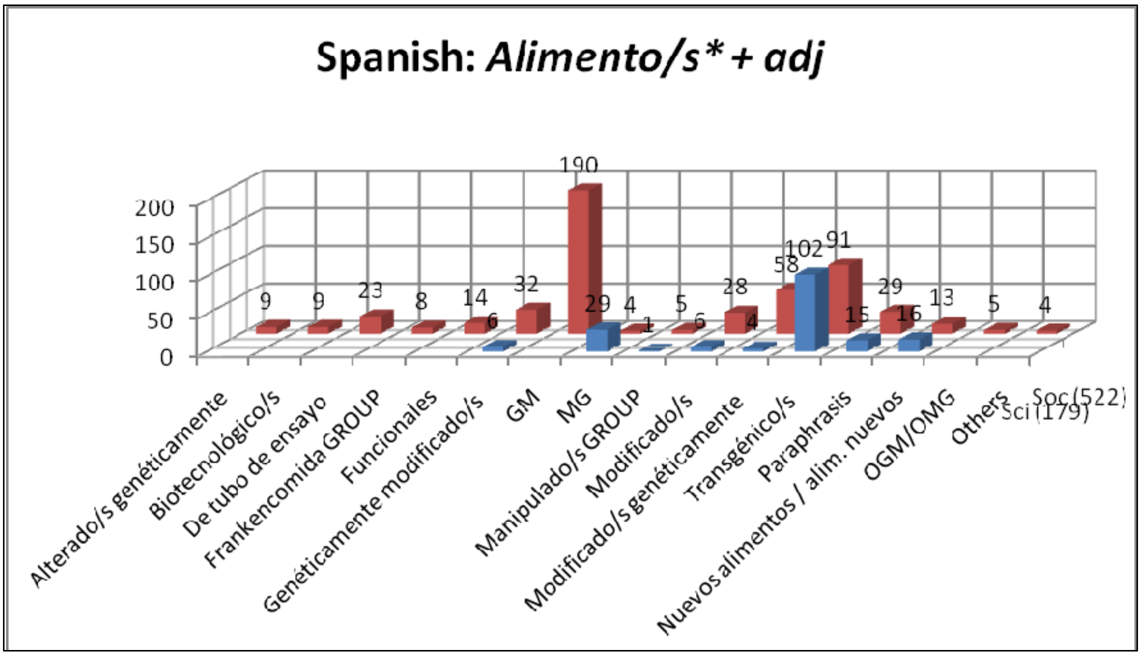


Fig. 5.103: *Spanish collocates for 'Alimento/s + Adj' in the sci and soc corpora.*

While 8 variants were found in the *sci corpus,* a doble amount was encountered in the *soc corpus* (16). The top collocate in the Spanish *sci corpus* is *transgénico/s* (102):

1	de Washington, ha propuesto que los	**alimentos transgénicos**	lleven una etiqueta identificat	1ER
2	te es contraria a la idea misma de los	**alimentos transgénicos**	, la evidencia respalda la opin	3EG
3	particularmente preocupadas por los	**alimentos transgénicos**	, ya que algún compuesto noc	3EG
4	manencia en el aparador, y el primer	**alimento transgénico**	vivo que se introdujo en nuestro	5MH
5	na seria preocupación acerca de los	**alimentos transgénicos**	es su potencial para ser tóxic	5MH
6	r las células luego de la ingestión de	**alimentos transgénicos**	, para regenerar virus patogén	5MH
7	e destacar la prohibición de producir	**alimentos transgénicos**	en Austria, una moratoria par	9SN
8	parecen oponerse, en principio, a los	**alimentos transgénicos**	, pero afirman que desean dar	9SN
9	de desaprobación con respecto a los	**alimentos transgénicos**	puede no corresponderse con	9SN
10	aron un alto grado de oposición a los	**alimentos transgénicos**	por parte de la opinión pública	9SN

Fig. 5.104: *Sample of concordance lines for 'Alimento/s transgénico/s' in the sci corpus.*

After *transgénico/s, alimentos MG* (29) rank second:

1	bre etiquetado que contemplaban los	**alimentos** MG	y la redacción de un acuerdo internacional	9SN
2	dean a los cultivos transgénicos y los	**alimentos** MG	se han intensificado al entrar en el siglo X	9SN
3	imal y los humanos la obtienen de los	**alimentos** MG	, los tratamientos con antibióticos pueden	9SN
4	de importación y comercialización de	**alimentos** MG	, de conformidad con las directivas de la U	9SN
5	restricciones en la libre circulación de	**alimentos** MG	por todo el mundo como una limitación a s	9SN
6	gado poco razonable el etiquetado de	**alimentos** MG	y cree que supone una barrera para el libr	9SN
7	Con todo, se sigue previendo que los	**alimentos** MG	sean lo normal en Estados Unidos. En los	9SN
8	l cultivo de transgénicos y la venta de	**alimentos** MG	, siempre que consideren que suponen un	9SN
9	undo han rechazado ampliamente los	**alimentos** MG	, lo que ha obligado a minoristas y procesa	9SN
10	l «libre comercio». La resistencia a los	**alimentos** MG	en Europa ha afectado a los agricultores e	9SN

Fig. 5.105: *Sample of concordance lines for 'Alimento/s MG' in the sci corpus.*

After *alimentos MG,* the two collocates whose frequency is 15 and 16 occurrences each are those registered as paraphrasis and *nuevo/s alimento/s* group. It is not striking to locate paraphrasis particularly in the first books (1ER, 2SA) to talk about genetically modified food, since this new technology was publicly emerging at the time of the publication year of those books:

1	rosos los **alimentos** y medicamentos	**producidos por ingeniería genética**	? Muchas personas	1ER
2	n tomate transgénico que es el primer	**alimento fabricado por ingeniería genética**	que va a se	2SA
3	ateria de reflexión. Los fabricantes de	**alimentos elaborados por ingeniería genética**	saben q	2SA
4	dad de monitoreo de la salud para los	**alimentos alterados por ingeniería genética**	, similar al	5MH
5	na parte relativamente pequeña de los	**alimentos modificados mediante ingeniería genética**	y	9SN
6	reliminar de los riesgos que plantea el	**nuevo alimento**	o ingrediente alimentario. La Comisión h	9SN
7	mos transgénicos. El etiquetado de los	**nuevos alimentos**	, de acuerdo con esta nueva legislació	9SN
8	os ; la FDA evalúa la seguridad de los	**nuevos alimentos**	, mientras que la EPA determina si un	9SN
9	a consideración. El Reglamento sobre	**alimentos** e ingredientes alimentarios **nuevos**	fue aproba	9SN
10	se ha ocupado el Advisory Comité on	**Novel Foods**	and Processes (ACNFP) del gobierno britá	9SN

Fig. 5.106: *Sample of concordance lines for paraphrasis and 'Nuevos alimento/s GROUP' in the sci corpus.*

The only book that does not contain paraphrasis is 3EG. As for *nuevo/s*, it appears premodifying the noun –although it is not its usual position in Spanish– as a way to indicate a new distintictive feature of food. The least recurrent terms, *modificado/s* (6) and its amplified variants (*genéticamente modificados* 6, and *modificados genéticamente* 4) along with *manipulados genéticamente* (1) are shown below:

1	geniería genética, la seguridad de los	**alimentos modificados**	y el hecho de que los alimentos	9SN
2	entrar en los riesgos que plantean los	**alimentos modificados**	y abandonara el planteamiento l	9SN
3	compañías que quieran comercializar	**alimentos modificados**	tendrán que solicitar la autorizaci	9SN
4	técnicas de ingeniería genñetica. Los	**alimentos modificados**	también pueden contener genes	9SN
5	es simplemente si debiéramos aceptar	**alimentos modificados genéticamente**	: la agricultura de	5MH
6	tos de Estados Unidos respecto de los	**alimentos modificados genéticamente**	fue iniciada en	5MH
7	ocurrir que no entre en la definición de	**alimento modificado genéticamente.**	Asimismo, Monsa	9SN
8	ocultos detrás de las promesas de los	**alimentos genéticamente modificados.**	La biotecnologí	5MH
9	DA) de aprobar la comercialización de	**alimentos genéticamente modificados**	, y exige pruebas	5MH
10	una petición popular para prohibir los	**alimentos manipulados genéticamente**	, así como el lan	5MH

Fig. 5.107: *Sample of concordance lines for 'Alimento/s modificados (genéticamente)/genéticamente modificados/manipulados genéticamente' in the sci corpus.*

So far the total number of collates is 179, distributed unevenly among the books: 1ER (2), 2SA (6), 3EG (3), 5MH (23) and 9 SN (145) and being 5MH and 9SN the books that contain a larger number of denominative variants (5). Based on table 5.108, *alimento/s transgénico/s* (102) is undeniably the most prominent term accounting for 56,9%; however, although its presence is in every book of the *sci corpus* except for 2SA, its frequency is almost restrained to 9SN in the *soc corpus*:

Book	Denominative variants of N (*alimento/s*) + Adj		Tokens	No. of variants
1ER	**1.**	***Alimento/s transgénico/s***	1	2
	2.	*Paraphrasis*	1	
2SA	**3.**	*Paraphrasis*	5	2
	4.	*Nuevo/s alimento/s GROUP:Novedoso*	1	
3EG	**5.**	***Alimento/s transgénico/s***	3	1
5MH	**6.**	***Alimento/s transgénico/s***	7	5
	7.	*Paraphrasis*	7	
	8.	*Alimento/s genéticamente modificado/s*	6	
	9.	*Alimentos modificados genéticamente*	2	
	10.	*Alimentos manipulados genéticamente*	1	
9SN	**11.**	***Alimento/s transgénico/s***	91	5
	12.	*Alimento/s MG*	29	
	13.	*Nuevo/s alimento/s GROUP*	15	
	14.	*Alimento/s modificado/s*	6	
	15.	*Alimento/s modificado/s genéticamente*	2	
	16.	*Paraphrasis*	2	
		T O T A L	**179**	**8**

Table 5.108: *Denominative variants of 'N (food/es) + Adj' in the Spanish sci corpus.*

A smilar phenomenon happens in the *soc corpus* that reveals *alimentos GM* (190) as the principal option, but it was only encountered in one book (10JS). The second more abundant term, *alimento/s transgénico/s* (91), was encountered in four out of the five books in the *soc corpus:*

1	tricciones puestas por la UE sobre los	**alimentos** GM	de violar los acuerdos internacionales. E	10JS
2	evos programas relacionados con los	**alimentos** GM	y un intenso bombardeo mediático. Iba a	10JS
3	igación acerca de la seguridad de los	**alimentos** GM	es tan escasa y los riesgos tan elevados,	10JS
4	la industria biotecnológica, ya que los	**alimentos**	y suplementos GM siguen a la venta sin habe	10JS
5	recomendaba que se sometiera todo	**alimento** GM	a prueba " antes de que salga al mercado	10JS
6	gunos científicos creen que comiendo	**alimentos transgénicos**	que contienen éstos genes ma	6LA
7	anunciaron que prohibirían la venta de	**alimentos transgénicos**	no etiquetados pese a un acue	7IB
8	volucionará con la aceptación de los	**alimentos transgénicos**	en el mundo, pero, de pie en	8BL
9	s, y la creciente impresión de que los	**alimentos transgénicos**	no tienen nada que ofrecer a	8BL
10	Tenía pruebas que me indicaban que	**los transgénicos**	causaban graves problemas " afirmó	10JS

Fig. 5.109: *Sample of concordance lines for 'Alimento/s GM/transgénicos' in the soc corpus.*

Whereas the term *transgenic* does not appear in the first book of the *soc corpus* (4JR), it has undergone a terminological evolution in the last book (10JS). The last concordance line indicates that there has been a change in its grammatical category from adjective (*alimentos transgénicos*) to noun (*los transgénicos*) by using the definitive article *los* (*the*).

The third most used term is *alimentos modificado/s genéticamente* (58), mainly found in plural form:

1	e entender por qué el desarrollo de los	**alimentos modificados genéticamente**	es tan atractivo	6LA
2	midores estadounidenses cree que los	**alimentos modificados genéticamente**	deben ser etiqu	6LA
3	n Europea de segregar y etiquetar los	**alimentos modificados genéticamente**	podría suponer	6LA
4	los ojos de un foráneo el riesgo de los	**alimentos modificados genéticamente**	parece una nim	8BL
5	nas no saben que están consumiendo	**alimentos modificados genéticamente**	(y la FDA decía	8BL
6	ocimiento que tiene la gente sobre los	**alimentos modificados genéticamente**,	incluso los vec	8BL
7	la breve pero turbulenta historia de los	**alimentos modificados genéticamente**,	el período entre	8BL
8	struo de Frankenstein el destino de los	**alimentos modificados genéticamente**	sigue siendo inc	8BL
9	r un modelo de análisis aplicable a los	**alimentos modificados genéticamente**	con el objeto de	10JS
10	ncepto, adecuada para probar que los	**alimentos modificados genéticamente**	descritos no ent	10JS

Fig. 5.110: *Sample of concordance lines for 'Alimento/s modificado/s genéticamente' in the soc corpus.*

The middle-frequency terms are *genéticamente modificado/s* (32), paraphrasis (29), *modificado/s* (28) and *de tubo de ensayo* (23).

1	odificar las reglas, permitiendo que los	**alimentos genéticamente modificados**	pudieran clasifi	8BL
2	no haya cambiado su actitud hacia los	**alimentos genéticamente modificados**	desde 1992 ",	10JS
3	an utilidad, y si se demuestra que los	**alimentos genéticamente modificados**	son seguros, e	10JS
4	evistados dijeron que querían que los	**alimentos modificados**	estuviesen señalados en las eti	7IB
5	e las compañías deseosas de vender	**alimentos modificados**	sólo tenían que comunicárselo	8BL
6	cho sobre esta nueva industria de los	**alimentos modificados**,	ni si es algo bueno o malo. Me	8BL
7	uería un etiquetado especial para los	**alimentos que hubiesen sufrido ingeniería genética.**		4JR
8	or motivos religiosos a evitar todos los	**alimentos obtenidos mediante ingeniería genética**,	y	7IB

9	ro el mayor estallido de oposición a los	**alimentos de tubo de ensayo** fue seguramente el que	7IB
10	igiendo al gobierno que prohibiese los	**alimentos de tubo de ensayo**, la venta de organismos	7IB

Fig. 5.111: *Sample of concordance lines for middle-frequency terms 'Alimento/s genéticamente modificado/s, modificado/s, paraphrasis* and *de tubo de ensayo' in the soc corpus.*

The linguistic device of paraphrasis (*modificados mediante ingeniería genética, elaborados por ingeniería genética*) was more abundant in the first books published (4JR, 7IB), was less frequent in 8BL and disappeared in 6LA and 10JS. *Alimentos de tubo de ensayo* were only found in 7IB (journalist). And finally, the least frequent occurrences were *funcionales* (14), *nuevos* (13), *alterados genéticamente* (9), *biotecnológicos* (9), *Frankenstein* (8), *manipulados* (5), *OMG/OGM* (5), *alimentos MG* (4) and others (4):

1	eleran su investigación, para producir	**alimentos alterados genéticamente** que sean más nutr	8BL
2	ses que trabajan en el desarrollo de	**alimentos** y cultivos **biotecnológicos** cotizaba en la bol	7IB
3	bernamental en relación a la llamada	**Frankencomida**, al descubrirse que un productor de cult	8BL
4	una " farma " (pharm), que producirá	**alimentos funcionales** y biomedicamentos en los camp	7IB
5	lidos del tubo de ensayo: " Si vuestros	**nuevos alimentos** matan a la gente, hacédnoslo saber.	7IB
6	etado. En Canadá no se le exige a un	**alimento " nuevo "** que venga precedido, antes de su c	7IB
7	alencia substancial " significa que los	**alimentos manipulados** son examinados de acuerdo a	7IB
8	tación, objetamos a la introducción de	**alimentos** MG en la cadena alimenticia. Ese proceder s	8BL
9	ARTINA: LOS BENEFICIOS DE LOS	OMG " SUPERAN CON MUCHO A LOS COSTES ". El	8BL
10	orción se había invertido. Los nuevos	**alimentos creados en el laboratorio** que fueron introdu	8BL

Fig. 5.112: *Sample of concordance lines for the least frequent occurrences for 'Alimentos' in the soc corpus.*

As in previous sections, the different collocates have been grouped together in order to observe how denominative variation was distributed in each book:

Book	Denominative variants of N (*alimento/s*) + Adj		Tokens	No. of variants
4JR	**1.**	*Paraphrasis*	3	2
	2.	Nuevo/s alimento/s	1	
6LA	**3.**	***Alimento/s transgénico/s***	13	3
	4.	*Alimentos modificado/s genéticamente*	10	
7IB	**5.**	Alimento/s de tubo de ensayo	23	12
	6.	*Paraphrasis*	21	
	7.	***Alimento/s transgénico/s***	20	
	8.	*Alimento/s funcional/es*	13	
	9.	Nuevos alimentos/alimentos nuevos	8	
	10.	*Alimento/s biotecnológico/s*	3	
	11.	Alimento/s genéticamente manipulado/s	3	
	12.	*Alimento/s genéticamente modificado/s*	2	
	13.	*Alimento/s modificado/s*	2	
	14.	*Alimentos modificado/s genéticamente*	1	
	15.	Alimento/s manipulado/s	1	

	16.	*Otros: monstruosos, creados en el lab.*	2	
8BL	17.	***Alimento/s transgénico/s***	57	13
	18.	*Alimentos modificado/s genéticamente*	43	
	19.	*Alimentos modificado/s*	26	
	20.	Alimento/s alterado/s genéticamente	9	
	21.	FRANKENCOMIDA/S GROUP	7	
	22.	*Alimentos genéticamente modificado/s*	6	
	23.	Paraphrasis	5	
	24.	*Alimento/s MG*	4	
	25.	*OMG*	3	
	26.	Alimento/s funcional/es	1	
	27.	Nuevo/s alimento/s	1	
	28.	*Alimento/s biotecnológico/s*	1	
	29.	Others: productos ampliados	1	
10JS	30.	*Alimento/s GM*	190	10
	31.	*Alimentos genéticamente modificado/s*	24	
	32.	*Alimento/s biotecnológico/s*	5	
	33.	*Alimentos modificado/s genéticamente*	4	
	34.	Nuevos alimentos/alimentos nuevos	3	
	35.	*OGM*	2	
	36.	***Los transgénicos***	1	
	37.	Alimentos biomanipulados	1	
	38.	ALIMENTOS FRANKENSTEIN	1	
	39.	Others	1	
		T O T A L	**522**	**16**

Table 5.113: *Denominative variants of 'N (alimento/s) + Adj' in the Spanish soc corpus.*

In the first book 4JR, it seems that paraphrasis is an expected mechanism as some terms are not yet fixed in the language, especially when a new topic arises in the field of knowledge. Hence, a few occurrences were found in 4JR. The number of occurrences increases considerably throughout the time span of publications selected for the *soc corpus*. By this way of reasoning, it seems logical that new concepts were expressed in the 4JR by means of a paraphrasis (*alimentos que hubiesen sufrido ingeniería genética, alimentos sometidos a la ingeniería genética* and *alimentos obtenidos mediante empalme génico*) or by simply emphasizing the nature of the newness of this innovative type of food (*nuevos alimentos*).

As for the comparison of the English *sci* and *soc corpora* (tables 5.108 and 5.113), *alimento/s transgénico/s* (102) covers more than half of the total number of occurrences (56.9%), so that one prominent denomination stands out in the *sci corpus*:

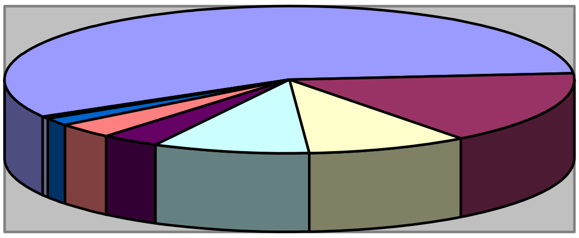


Fig. 5.114: *Pie chart of denominative variants of 'N (alimento/s) + Adj' in the Spanish sci corpus.*

The *soc corpus* reveals that half (53.8%) of the occurrences (281) correspond to the two most frequent denominative variants: *alimento/s GM* (190) and *alimento/s transgénico/s* (91). If we sum *alimentos modificado/s genéticamente* (58) to the previous percentage, two thirds of the pie chart (64,9%) are filled by the top three denominative variants (339 occurrences). If we compare the percentage of the most prominent denominative variant of *ADN + Adj* in the Spanish *sci corpus –recombinante–* (64.3%) with the rest of percentages for *gen/es + Adj* (61.8% make up for *genes de resistencia, genes alterados* and *genes manipulados*) and *alimentos + Adj* (73.2% embraces *transgénicos* and *MG*), there is an increase in the number of denominative variants from those of *ADN* (1 denomination) to those of *genes* (3 denominative variants) and *alimentos* (2 denominative variants) within the two-thirds region that assumes terminological pre-eminence and, hence, characterizes the level of specialization of a text and the scientific/popular treatment of a certain topic. This increase in the amount of denominative variants is even more accute in the *soc corpus:*

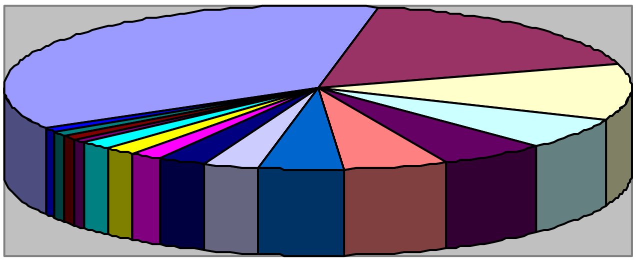


Fig. 5.115: *Pie chart of denominative variants of 'N (alimento/s) + Adj' in the Spanish soc corpus.*

Percentages in the *soc corpus* also reflect the increment of denominative variants from a technical to a subtechnical term. The most prominent denominative variants for the pattern *ADN + Adj* in the Spanish *soc corpus* – *recombinante, alterados* and *GM*– (68.8%) contain 3 DVs, while 4 lexical variants were registered for the most frequent term of *gen/es + Adj* (63.2% make up *genes de resistencia, genes transgénicos, genes modificados* and *genes insecticidas*), and 3 denominative variants were encountered for *alimentos + Adj* (64.9% embraces *GM, transgénicos* and *modificados genéticamente*), as shown in fig. 5.115. In detail, results of an interlinguistic evaluation are compared below:

English *sci corpus* *FOOD/S*		*Freq*	Spanish *sci corpus* *ALIMENTO/S*		*Freq*
1.	*Genetically modified*	91	*1.*	**Transgénicos (adj)**	102
2.	GM	30	*2.*	MG	29
3.	*Genetically engineered*	25	*3.*	Nuevo/s alimento/s	16
4.	New/novel	16	*4.*	Paraphrasis	15
5.	***Transgenic***	10	*5.*	*Genéticamente modificado*	6
6.	*Modified*	6	*6.*	*Modificado*	6
7.	Genetically altered	1	*7.*	*Modificado genéticamente*	4
			8.	Manipulados genéticamente	1
Total: 179			Total: 179		

Table 5.116: *English and Spanish collocates for 'food/s' in the sci corpus.*

The first choice, *genetically modified,* is most translated by *transgénico/s,* as much as in the *soc corpus:*

English soc corpus FOOD/S		Freq	Spanish soc corpus ALIMENTO/S		Freq
1.	GM	193	1.	GM	190
2.	Genetically modified	98	2.	Transgénicos (adj /n)	91
3.	Genetically engineered	76	3.	Modificados genéticamente	58
4.	Modified	43	4.	Genéticamente modificados	32
5.	Test-tube	25	5.	Paraphrasis	29
6.	Functional	14	6.	Modificado/s	28
7.	GE	13	7.	Tubo de ensayo GROUP	23
8.	New/novel	13	8.	Funcionales	14
9.	Gene-*	11	9.	Nuevo/s alimento/s GROUP	13
10.	Biotech	9	10.	Alterados genéticamente	9
11.	FRANKENSTEIN	8	11.	Biotecnológicos	9
12.	(Genetically) altered	6	12.	FRANKENCOMIDA GROUP	8
13.	Transgenic	6	13.	OGM/OMG	5
14.	*-enhanced	2	14.	Manipulado/s GROUP	5
15.	Manipulated	1	15.	MG	4
16.	Others	4	16.	Others	4
Total: 522			Total: 522		

Table 5.117: *English and Spanish collocates for 'food/s' in the soc corpus.*

The prominent collocate *GM* is maintained, as the English form, in the bulk of cases in the Spanish translation. Although *los transgénicos* as a noun only appears in the Spanish *soc corpus,* a search of the node *transgenics* was made to check if this neologism was also recurrent in English, and 2 hits were generated from the AKSIS search form as follows:

(During a public debate with me, Henry Miller, a prominent spokesperson for the industry in the United States, went as far as to refer to the varieties produced by conventional breeding methods, retrospectively, as " **transgenics** ".) (MH1E.s138)	(En un debate público conmigo, Henry Miller, un prominente vocero de la industria en los Estados Unidos, llegó incluso a referirse a las variedades producidas por cruce convencional como retrospectivamente " transgénicas ".) (MH1S.s138)
The new breed of genetically engineered organisms (or ' **transgenics** ') that are deliberately released on a large scale are designed to be ecologically vigorous and therefore are potentially much more hazardous, than genetically crippled micro-organisms that were engineered for contained use in the laboratory in the seventies. (MH2E.s27)	La nueva generación de organismos manipulados genéticamente (o " transgénicos ") que se liberan deliberadamente a gran escala están diseñados para ser ecológicamente vigorosos y, por lo tanto, son potencialmente mucho más peligrosos que los microorganismos genéticamente lisiados que se manipulaban para su uso contenido en el laboratorio durante los años setenta. (MH2S.s27)

Table 5.118: *Concordance of 'Transgenics' in the sci corpus.*

Although not abundant, both examples belong to 5MH in the *sci corpus* and, as a neologism, they are written in inverted commas.

The last term to be analyzed is the second most frequent subtechnical term, that is, *crop/s*. There is a similar number of occurrences for *crop/s* in the *sci corpus* (909) in comparison with the *soc corpus* (779).

Corpus	**Sci_corpus**					**Soc_corpus**				
Books	1-ER	2-SA	3-EG	5-MH	9-SN	4-JR	6-LA	7-IB	8-BL	10-JS
Tokens	75515	82628	56001	95278	76284	92068	29505	79107	124821	83215
Crop	297					218				
	515									
Freq.	20	19	35	14	209	30	21	79	69	19
Rel.	265	230	625	147	2740	326	712	999	553	228
Crops	612					561				
	1173									
Freq.	15	14	67	65	451	77	92	139	162	91
Rel.	199	169	1196	682	5899	836	3118	1757	1298	1070

Table 5.119: *Number of tokens, frequency and relative frequencies of 'crop/s' in the English sci and soc corpora.*

As with the case of *food/s,* it is expected to find more DVs when studying semitechnical terms in comparison with technical ones. In the *sci corpus,* from the 909 occurrences of the terms *crop* (297) and *crops* (612), 687 showed *crop/s* in a complex noun phrase:

- 199 occurrences as a premodifier (e.g. *crop plant*)
- 458 as the head of a NP (e.g. *transgenic crops*)
- 30 as the complement of a NP (e.g. *strains of crops*)

Again, as with the case of *food/s, crop* in the singular was mainly found as a premodifier and *crops* as the head of a NP. As a premodifier, the most recurrent collocation was *crop plant,* which was, in turn, primarily premodified by *transgenic.* As the head of the NP, the predominant collocation is *transgenic crop/s* (207) in both corpora, being its frequency in the *sci corpus* profuse and significant, as illustrated below:

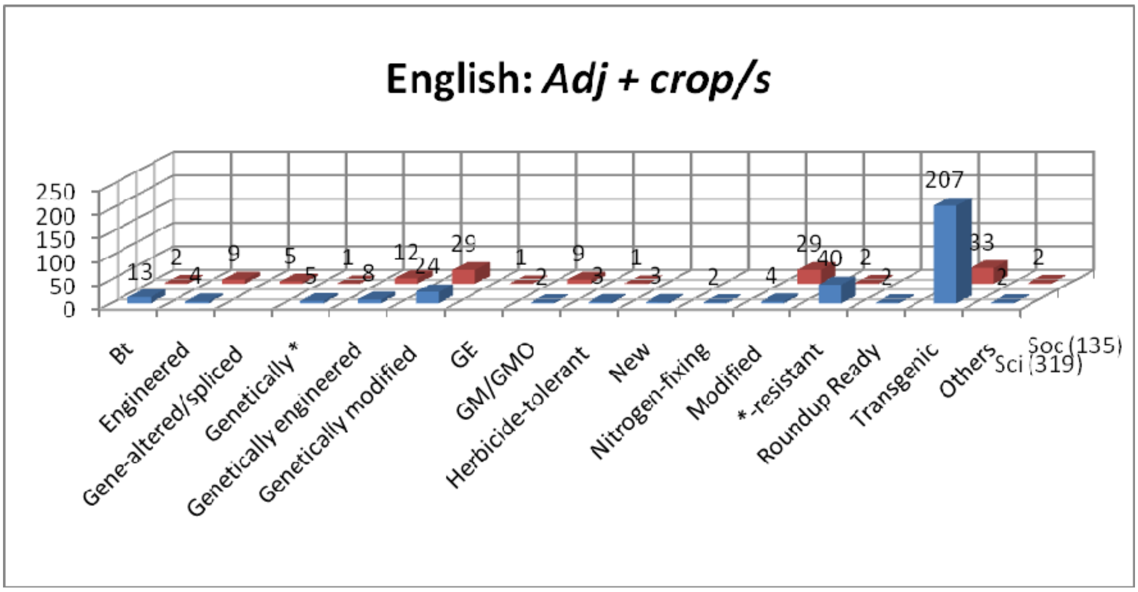


Fig. 5.120: *English collocates for 'Adj + crop/s' in the sci and soc corpora.*

The first option, *transgenic* (207), is primarily found in 9SN, followed by 5MH:

1	r, more environmentally responsible	transgenic crops, which would reduce the use of pes	5MH
2	e range of environmental impacts of	transgenic crops and the implications of awarding pa	9SN
3	ed primarily to improve the image of	transgenic crops generally, but to provide workable s	9SN
4	oncern arising from the cultivation of	transgenic crops has been the spread of transgenes	9SN
5	own problems. Herbicide-tolerant	transgenic crops make it possible to apply powerful b	9SN
6	herbicides with herbicide-resistant	transgenic crops will result in the irretrievable loss of	5MH
7	pesticides with pesticide-resistant	transgenic crops, leading to pesticide-related illnesse	5MH
8	e used to develop insect-resistant	transgenic crops. These included genes from the bac	9SN
9	are associated with virus-resistant	transgenic crops, however, which may limit their dep	9SN

Fig. 5.121: *Sample of concordance lines for 'Transgenic crop/s' in the sci corpus.*

Crop/s is the term that bears a higher number of premodifiers: *transgenic, herbicide-resistant, herbicide-tolerant* and *pesticide-resistant,* among others. It is the feature of conferring resistance to the head (*-resistant*) of the noun-adjective compound collocates (*herbicide-resistant crop/s, insect-resistant crop/s, virus resistant crop/s*) that stands out as the second most recurrent collocate (40) of *crop/s:*

1	and to gain by selling both seeds for	herbicide-resistant crops and the herbicides that he	3EG
2	bicides that help control weeds. Will	herbicide-resistant crops need less spraying? Som	3EG
3	e. Monsanto argues that by using a	herbicide-resistant crop, a single herbicide spray co	9SN
4	ly modified, and the development of	herbicide-resistant crops, which are perceive as inc	9SN
5	became the first genetically modified,	insect-resistant crop to receive full U.S. federal regu	3EG
6	would slow down the deployment of	insect-resistant crops, not something that companie	9SN
7	nning of the use of particular genes.	Virus-resistant crops will contain viral genes in all the	9SN
8	cted in Europe in 1996, insect- and	disease-resistant crops were perceived as more use	9SN
9	d Monsanto 's Roundup ReadyTM	(glyphosate-resistant) crops is the preservation of m	9SN
10	1980s, few experimental releases of	triazine-resistant crops have been made in recent ye	9SN

Fig. 5.122: *Sample of concordance lines for 'Resistant GROUP' in the sci corpus.*

The *resistant group* is again mainly found in 9SN, along with a few occurrences in 3EG (fig. 5.122). The hits in the *resistant group* obviate the transgenicity of crops, whereas the last occurrences of the collocation *transgenic crop/s* emphasize this characteristic by making it explicit through a three-collocate pattern (*herbicide-resistant transgenic crop/s*), as shown in figure 5.121.

When examining middle frequency collocates for *crop/s,* two hits *–genetically modified* (24) and *Bt* (13) – are output at the left of the searchword. As for the former, 276 hits for *genetically modified* were generated, out of which *genetically modified crop/s, genetically modified food/s, genetically modified organism/s* and *genetically modified product/s* were the outstanding collocations. As for the latter, 109 hits were retrieved in WST5 by typing *Bt,* whose results retrieved *Bt maize, Bt cotton, Bt toxins* but also *Bt-cotton crop/s* or simply *Bt crop/s*.

1	ansgenic soya. There is no need for	**genetically modified crops**. They will not feed the wor	5MH
2	genetic engineering. Transgenic or	**genetically modified** (GM) **crops** entered the diet as	9SN
3	efore it is the pure-breeding lines of	**genetically modified crops** that are patented, and th	9SN
4	he increasing number of variants of	**genetically modified crops**, with different gene comb	9SN
5	an. The first large-scale plantings of	**genetically modified crops** occurred in the USA in 1	9SN
6	to the problems experienced by the	**Bt-cotton crop** in the United States and Australia in 1	5MH
7	e larvae. One of the first commercial	**B.t. crops** was maize modified to be resistant to the E	9SN
8	s were to be grown with **transgenic**	**B.t. crops**, few susceptible insects would survive, and	9SN
9	seful pesticide useless. One reason	**Bt-engineered crops** are expected to promote pest r	9SN
10	e proper way. A typical customer for	**Bt-expressing crops** is either encouraged or, in some	9SN

Fig. 5.123: *Sample of concordance lines for 'Genetically modified crop/s' and 'Bt crop/s' in the sci corpus.*

In the last hits, the pattern consisting of *–ing* form as the head of the collocate along with *Bt (Bt-*ing crop/s)* also conveys the meaning of crops that have been genetically engineered. The rest of the options *–genetically engineered* (8) and *genetically * crop/s* (5)– are provided below:

1	orations will stop at nothing to force	**genetically engineered crops** and products on the	5MH
3	use of their genetic uniformity, while	**genetically diverse crops** contain a proportion of pl	9SN
4	oratories in Austria ; no field trials of	**genetically manipulated crops** in Austria ; and no p	9SN
5	o decades, using new plantations of	**genetically altered, rapidly growing crops** planted	4EG
6	nd the Middle East. Field releases of	**genetically transformed crops** in Europe between 1	9SN
7	he invasion of Ireland by Monsanto's	**genetically " mutilated crops "** to the Norman invas	9SN

Fig. 5.124: *Sample of concordance lines for 'Genetically * crop/s' in the sci corpus.*

The remaining samples register low frequencies: *modified crop/s* and *engineered crop/s* (4 each), *herbicide-tolerant crop/s* and *new crop/s* (3 each) and finally, *GM crop/s* (2), *nitrogen-fixing crop/s* (2), *Roundup Ready crop/s* (2) and the *happax legomena* collocates (*Monsanto crop* and *designer crop*) that are contained in figure 5.125:

1	, safety and health. Will food from	**modified crops** or livestock be safe to eat? Will gene	3EG
2	end, there seems little doubt that	**engineered crops** and livestock will play a growing r	3EG
3	the industry 's focus on producing	**herbicide-tolerant crops** could undermine efforts to	3EG
4	ations of genes. We have created	**new crops**, livestock, and domestic pets for centurie	3EG
5	ard against inadvertent exports of	**GM crops** (and transgenic material) that might advers	9SN
6	es reduce the need for pesticides,	**nitrogen-fixing crops** reduce the need for chemical	1ER
7	monas. However, the commercial	**Roundup ReadyTM crops** on the market today inclu	9SN
8	sing a patented transgene from a	**Monsanto crop**, without the company's permission, a	9SN
9	the future against forestry pests.	**Designer crops**. A range of transgenic crops that ha	9SN

Fig. 5.125: *Concordance lines of the least frequent collocates for 'crop/s' in the English sci corpus.*

The only book that does not contain the sought pattern is 2SA. The first book just contains one single occurrence of the pattern *Adj + noun* (*nitrogen-fixing*), whereas the number of occurrences increases in 3EG (20), 5MH (49) and 9SN (319):

Book	Denominative variants of Adj + N (*crop/s*)		Tokens	No. of variants
1ER	**1.**	*Nitrogen-fixing crop/s*	1	1
2SA		-	-	-
3EG	**2.**	*Bt crop/s*	6	8
	3.	***-resistant crop/s**	3	
	4.	***Transgenic crop/s***	2	
	5.	*Engineered crop/s*	2	
	6.	**Herbicide-tolerant crop/s**	2	
	7.	New crop/s	2	
	8.	Genetically * crop/s	2	
	9.	*Modified crop/s*	1	
5MH	**10.**	***Transgenic crop/s***	39	7
	11.	*Genetically engineered crop/s*	4	
	12.	*Genetically modified crop/s*	2	
	13.	Genetically * crop/s	1	
	14.	**Herbicide-tolerant crop/s**	1	
	15.	*Nitrogen-fixing crop/s*	1	
	16.	*Bt crop/s*	1	
9SN	**17.**	***Transgenic crop/s***	166	12
	18.	***-resistant crop/s**	36	
	19.	*Genetically modified crop/s*	22	
	20.	*Bt crop/s*	6	
	21.	*Genetically engineered crop/s*	4	
	22.	*Modified crop/s*	3	
	23.	Genetically * crop/s	3	
	24.	*Engineered crop/s*	2	
	25.	*GM crop/s*	2	
	26.	*Roundup Ready crop/s*	2	
	27.	New crop/s	1	
	28.	*Others*	2	
		T O T A L	**319**	**14**

Table 5.126: *Denominative variants of 'Adj + N (crop/s)' in the English sci corpus.*

Unlike 3EG, *transgenic* happens to be the most prominent collocate for *crop/s* in 5MH and 9SN, with 39 and 166 occurrences, respectively, being the rest of the options much less frequent. Particularly worth of note is 9SN, which holds the highest number of denominative variants, 12 of a total of 14. Regardless of the quantity of variants, *transgenic crop/s* in 9SN is the salient collocate, due to the terminological stability concerning this term.

Moving onto the occurrences of *crop* (218) and *crops* (561) together in the *soc corpus,* 558 showed *crop/s* in a complex noun phrase:

- 74 occurrences as a premodifier (e.g. *crop* plant)
- 463 as the head of a NP (e.g. transgenic *crops*)
- 21 as the complement of a NP (e.g. genetic modification of a *crop*)

In the *soc corpus, transgenic* (33) is, again, the most recurrent collocate, although not as frequent as in the *sci corpus* (207):

1	ustry biologists that the likelihood of a	**transgenic crop** becoming a weed is slim or nonexistent.	4JR
2	ved the transfer of a transgene from a	**transgenic crop** to the genome of a wild weedy relative	4JR
3	erant crops. The new **pest-resistant**	**transgenic crops** pose similar environmental problems	4JR
4	e new generation of **virus-resistant**	**transgenic crops** pose the equally dangerous possibili	4JR
5	efficacy of releasing **virus-resistant**	**transgenic crops** into the open environment. There is a	4JR
6	nexpected ways by **insect-resistant**	**transgenic crops**. One study found that when bees we	6LA
7	Bt, like those found in some types of	**transgenic crops**, do not disappear when added to soil	6LA
8	on-weedy) species of plant related to	**transgenic crops**, there could be a rapid transfer of mod	6LA
9	squash with the aim of sowing these	**transgenic crops** in countries that want them. In Egypt,	8BL
10	ays. "I firmly believe that it is only the	**transgenic crops** that can contribute to productivity and	8BL

Fig. 5.127: *Sample of concordance lines for 'Transgenic crop/s' in the soc corpus.*

Two other collocates (*genetically modified* and *modified*), almost as frequent as *transgenic* with 29 hits each, occupy the position of the second most frequent collocates in the *soc corpus*, whereas the 2nd most frequent collocate was the *resistant GROUP* in the *sci corpus*.

1	rests in bovine somatotropin milk and	**genetically modified crops** is littered with the compan	6LA
2	If a company wants to grow or self a	**genetically modified crop** in Europe, it must first apply	7IB
3	after the United States had approved	**genetically modified crops**, farmers had planted them	8BL
4	e was broad: It aimed not only to ban	**genetically modified crops** but also prohibit the breedi	8BL
5	A) had made it clear that in their view,	**genetically modified crops** were assumed to be safe a	10JS
6	udies showed potential damage from	**modified crops** to their beloved monarch butterflies. La	8BL
7	nd kept free of windblown pollen from	**modified crops** was posing regulatory and liability que	8BL
8	be held responsible for damage from	**modified crops**, such as contamination of nearby orga	8BL
9	esigned to measure the effects of the	**modified crops** on the abundance as well as the divers	8BL
10	e soy, cotton, canola, and corn. Other	**modified crops** include some U.S. zucchini and yellow	10JS

Fig. 5.128: *Sample of concordance lines for 'Genetically modified' and 'Modified crop/s' in the soc corpus.*

The medium-frequency collocates comprise *genetically engineered* (11), *engineered* (9), *GM/GMO crop/s* (9), *gene-altered/spliced* crop/s (5):

1	or group of individuals to determine a	**better-engineered crop** or animal or a new human hor	4JR
2	n Moxham was growing, was the first	**genetically engineered crop** on the Canadian market,	7IB
3	it was commercially launching its first	**genetically engineered crop**, the disease-resistant pot	8BL
4	ere called, when microbes and, later,	**engineered crops** were first transplanted from labs to t	8BL
5	ernment had approved more than fifty	**bioengineered crops**. In 2000 in the United States, soy	8BL
6	er Noel Dempsey to vote in favor of a	**GM crop** at a crucial E.U. meeting on the eighteenth of	8BL
7	ting amounts to is deciding whether a	**GM crop** is similar in terms of its composition to the non	10JS
8	oddly, radicchio. In 1996, the first year	**GMO crops** were grown commercially, American farmers	8BL
9	declares that the citizens believe that	**gene-altered crops** pose little risk to the environment w	8BL
10	s on some of the 600,000 acres of the	**gene-spliced crop** began to droop and fall off. Monsant	7IB
11	buffers of unmodified plants next to a	**genetically altered crop**. These so-called “refugees” are	7IB

Fig. 5.129: *Sample of concordance lines for medium-frequency collocates for ‘crop/s’ in the English soc corpus.*

The least frequent collocates embrace, *Bt crops* (2), **-resistant* (2), *herbicide-tolerant* (1) *GE crop/s* (1), *genetically altered* (1), and others (2) such as *high-tech crops* and *value-added crops*.

1	question is not " Do we need another	**herbicide-resistant crop**? " but " Does it work in the wa	7IB
2	ere might indeed be some benefits to	**herbicide-tolerant crops**. But he has no intention of mo	7IB
3	nd nearly all plants will die except the	**resistant crop**. Of the 27.8 million hectares of geneticall	6LA
4	es " not useful " for assessing risks of	**Bt crops** without more field studies. In the revisionist loo	7BL
5	tic had argued that heavy plantings of	**Bt crops** will hasten the evolutionary cycle of pests and	8BL
6	ould increase as a result. Instability in	**GE crop** lines has already led to crop failures, which hav	6LA
7	who have heisted Bt 's magic for their	**high-tech crops** - have depended on the naturally occur	8BL
8	ses bordering on quackery. There 's "	**value-added crops**, " a term with a sterile, mercantile rin	8BL

Fig. 5.130: *Sample of concordance lines for least frequent collocates for ‘crop/s’ in the English soc corpus.*

As with 9SN in the *sci corpus,* 8BL displays 11 out of the 12 denominative variants encountered in the *soc corpus:*

Book	Denominative variants of Adj + N (*crop/s*)		Tokens	No. of variants
4JR	**1.**	***Transgenic crop/s***	19	2
	2.	** engineered crop/s: Better-engineered*	1	
6LA	**3.**	***Transgenic crop/s***	9	4
	4.	*Genetically modified crop/s*	1	
	5.	****-resistant crop/s***	1	
	6.	*GE crop/s*	1	
7IB	**7.**	*Genetically modified crop/s*	3	6
	8.	*Genetically engineered crop/s*	2	
	9.	*Gene-altered/spliced crop/s*	1	
	10.	*Genetically altered crops*	1	
	11.	****-resistant crop/s: tolerant***	1	
	12.	*Modified crop/s*	1	

8IB	**13.**	*Modified crop/s*	27	11
	14.	*Genetically modified crop/s*	21	
	15.	*Genetically engineered crop/s*	9	
	16.	*Engineered crop/s*	9	
	17.	***Transgenic crop/s***	5	
	18.	*GM crop/s*	4	
	19.	Gene-altered/spliced crop/s	4	
	20.	*Bt crop/s*	2	
	21.	***-tolerant crop/s**	1	
	22.	*GMO crop/s*	1	
	23.	Others	2	
10JS	**24.**	*Genetically modified crop/s*	4	3
	25.	*GM crop/s*	4	
	26.	*Modified crop/s*	1	
		T O T A L	**135**	**12**

Table 5.131: *Denominative variants of 'Adj + N (crop/s)' in the English soc corpus.*

When contrasting the English *sci* and *soc corpora* (tables 5.126 and 5.131), the fact that the occurrences of the *sci corpus* collocates are more than double (319 occurrences) in number, compared to those in the *soc corpus* (135), is outstanding; however, the total number of denominative variants for the term *crop/s* in the *sci* and *soc* corpora is identical (14 variants):

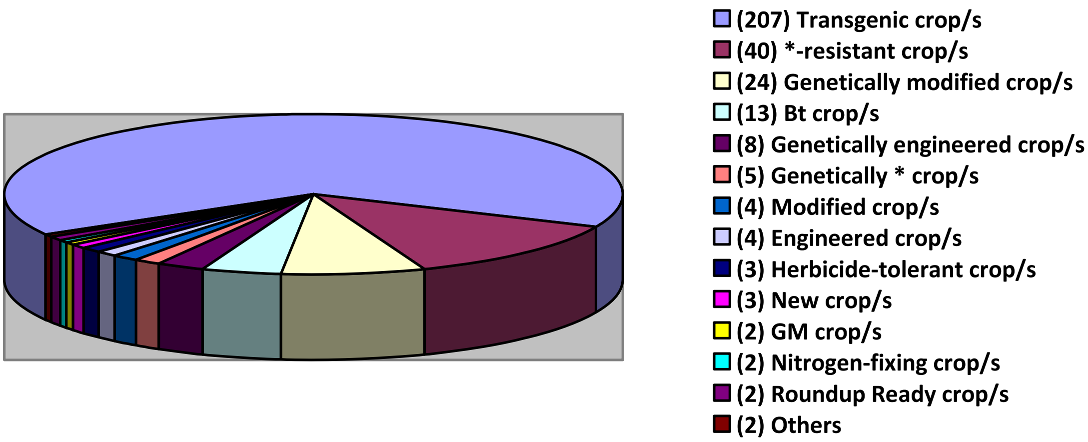


Fig. 5.132: *Denominative variants of 'Adj + N (crop/s)' in the English sci corpus.*

Again, figure 5.132 displays the most frequent collocation, *transgenic crop/s* (207), occupying two thirds of the pie chart (319 occurrences). Notwithstanding, *transgenic crop/s* (33) in the *soc corpus* only accounts for 24.4% of the total amount of tokens (135):

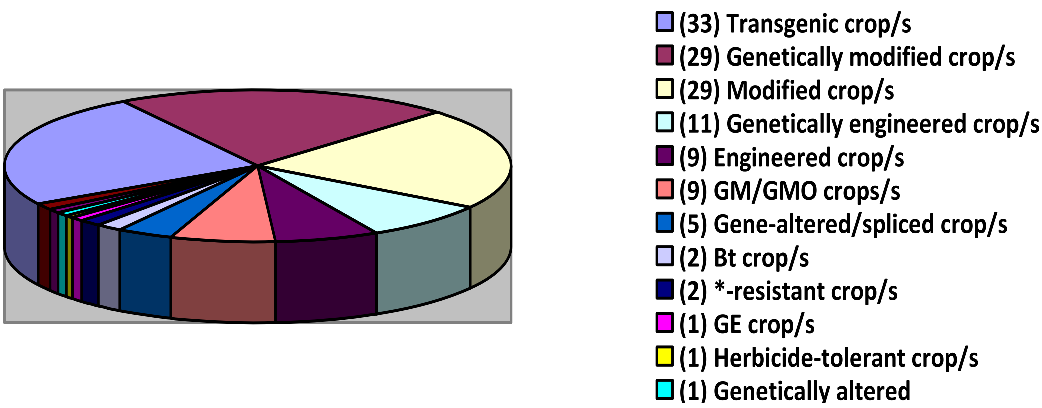


Fig. 5.133: *Denominative variants of 'Adj + N (crop/s)' in the English soc corpus.*

With regard to the *soc corpus*, 3 terms share the terminological prevalence: *transgenic* (33), *genetically modified* (29) and *modified crop/s* (29), which constitute two thirds (91) of figure 5.133.

As for the Spanish corpus, results are shown below:

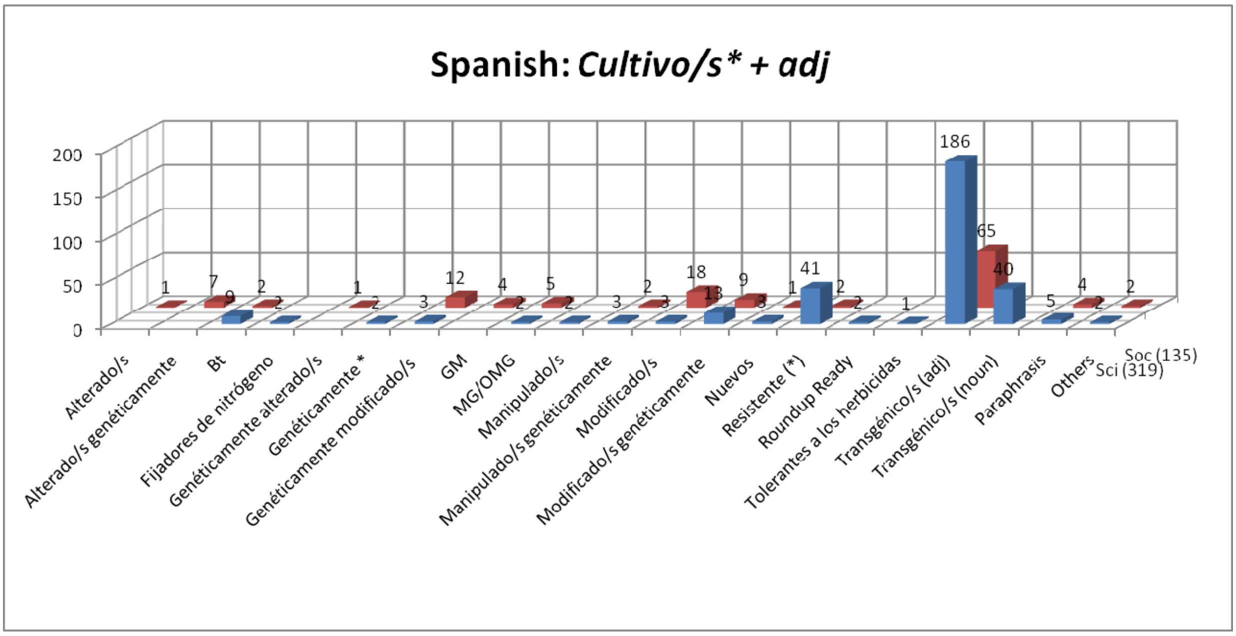


Fig. 5.134: *Spanish collocates for 'Cultivo/s* + adj' in the sci and soc corpora.*

In the Spanish *sci corpus,* there is a major collocate, *transgénico/a/os/as,* as shown in the English counterpart:

1	s mil pruebas sobre el terreno de	cultivos transgénicos en todo el mundo, con la con	4EG
2	usieron en vigor prohibiciones de	cultivos transgénicos o una moratoria antes de con	5MH
3	ostenible, les prometía desarrollar	cultivos transgénicos más vigorosos y ambientalme	5MH
4	pítulo 6 se describe la variedad de	cultivos transgénicos que se ha manipulado aplican	9SN
5	ón de la empresa. Por ejemplo, los	cultivos transgénicos resistentes a los herbicidas	9SN

Fig. 5.135: *Sample of concordance lines for 'Transgénico/s' as adjective in the sci corpus.*

Although in the majority of cases, *trangénico* is an adjective, in a number of cases (40) the grammatical category has turned into a noun:

1	la soja destacó por ser el principal	transgénico comercializado, seguido del maíz. La can	9SN
2	El gran aumento del consumo de	transgénicos en todo el mundo es un reflejo de la co	9SN
3	balmente, la superficie dedicada a	transgénicos superó los 52 millones de hectáreas en	9SN
4	ntaria la prohibición de desarrollar	transgénicos que produzcan sustancias farmacéutica	9SN
5	4 se examina hasta qué punto los	transgénicos han cumplido su promesa inicial y qué c	9SN

Fig. 5.136: *Sample of concordance lines for 'Transgénico/s' as noun in the sci corpus.*

Thus, *transgénico* is not always a premodifier (186), but accompanied by the definitive article (*el, los*) and this way, it is considered a nominalized adjective (fig. 5.136). The rest of the Spanish collocates, both in the *sci* and the *soc corpus,* always appear as premodifiers –never as nominalized adjectives–. As observed, the *resistente/s** group was listed as the second collocate (41), ranked by frequency in the *sci corpus.* Most of the translation choices in figure 5.137 are *cultivos resistentes,* but there are some shifts regarding the head of the NP, as in the case of line 2 (*semilla = seed*) and the strategy of paraphrasis (*para resistir a estas sustancias*) in line 5:

1	adá lidera el desarrollo de	cultivos resistentes a los herbicidas, siendo sus criterios pa	3EG
2	negocio vendiendo tanto la	semilla resistente al herbicida como el herbicida al que ésta	3EG
3	eno. Monsanto ha liberado	cultivos resistentes a los herbicidas, en condiciones experim	9SN
4	mo herbicida empleado en	cultivos resistentes, como una acción de amplio espectro, un	9SN
5	utilización generalizada de	cultivos resistentes a estas sustancias, podría comportar vari	9SN
6	et Burbank fueron el primer	cultivo genéticamente modificado para resistir a las plagas qu	4EG
7	alentizaría el despliegue de	cultivos resistentes a los insectos, algo que no quieren las co	9SN
8	nes (véase la nota 11). Los	cultivos resistentes a los virus contendrán genes víricos en tod	9SN
9	ercial que hay detrás de los	cultivos Roundup ReadyTM de Monsanto(resistentes al glifosa	9SN
10	raciones experimentales de	cultivos resistentes a la triazina (véase la nota 5). Los regulado	9SN

Fig. 5.137: *Sample of concordance lines for 'Resistentes GROUP' in the sci corpus.*

The same is true for the third (13) and fourth (9) most repeated collocates, *modificado/s genéticamente* and *Bt,* some of whose hits, show the change of *cultivos* for *cosechas* (line 10) and the mechanism of paraphrasis (*tratado con* in line 6) in figure 5.138:

1	hay ninguna necesidad de	cultivos modificados genéticamente. Estos no alimentarán al m	5MH
2	arrollar mercados para sus	cultivos modificados genéticamente. En marzo conocí unos gra	5MH
3	vez mayor de variantes de	cultivos modificados genéticamente, con combinaciones génic	9SN
4	eras investigaciones sobre	cultivos modificados genéticamente tenía como objetivo produ	9SN
5	poner a todo el mundo los	cultivos y productos modificados genéticamente ; pero la socie	5MH
6	eas de uno de los primeros	cultivos de algodón tratado con Bt plantado en el sur de Estado	3EG
7	ultivaran zonas enteras con	cultivos transgénicos B. t., sobrevivirían pocos insectos vulnera	9SN
8	bajos. Uno de los primeros	cultivos B. t. que comercializó Ciba-Geigy (Novartis y, por enton	9SN
9	cia en todos los casos si los	cultivos B.t. han de ofrecer algo más que simples beneficios a cor	9SN
10	arte necesaria del cultivo de	cosechas modificadas con B.t. Las principales esrategias para c	9SN

Fig. 5.138: *Sample of concordance lines for 'Cultivos modificados genéticamente' and 'Cultivos Bt' in the sci corpus.*

Among the low frequency collocates are paraphrasis (5) and *manipulados genéticamente* (3), *genéticamente modificados* (3), *nuevos cultivos* (3), *modificados* (3), *genéticamente ** (2), *manipulados* (2), *fijadores de nitrógeno* (2), *MG* (2), *Roundup Ready* (2), *tolerantes a los herbicidas* (1) and others (2) that are listed below:

1	ecesidad de pesticidas y las	**plantas fijadoras de nitrógeno** reducirán la necesidad de fertiliza		1ER
2	udas de que los animales y	**cultivos genéticamente manipulados** irán adquiriendo un papel		3EG
3	de Irlanda por parte de los	**cultivos " genéticamente mutilados " de Monsanto** con la inva		5MH
4	ecológicas que suscitan los	**cultivos modificados mediante ingeniería genética** son: en prim		9SN
5	es. Hemos creado **nuevos**	**cultivos**, ganado y animales de compañía durante siglos, alterand		3EG
6	portaciones involuntarias de	**cultivos** MG (y material transgénico) que pudieran tener consecu		9SN
7	aíz resistente al 2,4-D. LOS	CULTIVOS ROUNDUP READYTM DE MONSANTO. El herbicida		9SN
8	n transgén patentado de un	**cultivo de Monsanto**, sin el permiso de la empresa y antes de que		9SN

Fig. 5.139: *Sample of concordance lines for the least frequent collocates for 'crop/s' in the Spanish sci corpus.*

Having observed the previous concordances in the *sci corpus,* 9SN is again the book with a larger number of occurrences and denominative variants:

Book	Denominative variants of N (*cultivo/s*) + Adj		Tokens	No. of variants
1ER	**1.**	*Plantas fijadoras de nitrógeno*	1	1
2SA		-	-	-
3EG	**2.**	***Resistentes GROUP***	5	7
	3.	***Cultivo/s transgénico/s***	5	
	4.	Cultivo/s manipulado/s genéticamente	3	
	5.	*Cultivo/s Bt*	2	
	6.	*Cultivo/s genéticamente modificado/s*	2	
	7.	Nuevo/s cultivo/s	2	
	8.	Cultivo/s genéticamente manipulado/s	1	
5MH	**9.**	***Cultivo/s transgénico/s***	39	8
	10.	*Cultivo/s modificado/s genéticamente*	4	
	11.	*Cultivo/s Bt*	1	
	12.	*Cultivo/s genéticamente modificado/s*	1	
	13.	Paraphrasis	1	
	14.	**Cultivos tolerantes a los herbicidas**	1	
	15.	*Cultivos fijadores de nitrógeno*	1	
	16.	*Others: genéticamente mutilados*	1	
9SN	**17.**	***Cultivo/s transgénico/s***	142	11
	18.	***Los transgénicos***	40	
	19.	***Resistentes GROUP***	36	
	20.	*Cultivo/s modificado/s genéticamente*	9	
	21.	*Cultivo/s Bt*	6	
	22.	Paraphrasis	4	
	23.	*Cultivo/s modificado/s*	3	
	24.	*Roundup Ready*	3	
	25.	*Cultivo/s MG*	2	
	26.	Cultivo/s manipulado/s genéticamente	2	
	27.	*Others*	2	
		T O T A L	**319**	**16**

Table 5.140: *Denominative variants of 'N + Adj (cultivo/s)' in the English sci corpus.*

9SN is the only book that included *transgénicos* as a noun in the *sci corpus*; and, the following figure in the *soc corpus* takes account of *transgénico/s* as an adjective:

1	la transferencia de un transgén de un	**cultivo transgénico** al genoma de una mala hierba silve	4JR
2	especies de plantas relacionadas con	**cultivos transgénicos**, puede haber una rápida transfer	6LA
3	calabaza, con miras a sembrar estos	**cultivos transgénicos** en aquellos países que deseen te	8BL
4	ás comunes. La nueva generación de	**cosechas transgénicas resistentes a los virus** plantea	4JR
5	ad y la eficacia de la implantación de	**cultivos transgénicos resistentes a los virus** en el me	4JR
6	tropina bovina recombinante y en los	**cultivos modificados** está ensuciada por la forma en la	6LA
7	plia: no sólo iba dirigida a prohibir los	**cultivos modificados**, sino que también aspiraba a proh	8BL
8	asil sería imposible plantar legalmente	**cultivos modificados**, aunque los granjeros los estaban	8BL
9	desea plantar o vender en Europa un	**cultivo genéticamente modificado**, primero tiene que p	7IB
10	uno de los primeros conversos a los	**cultivos genéticamente modificados**, y piensa plantar t	8BL

Table 5.141: *Sample of concordance lines for the most frequent collocates for 'crop/s' in the Spanish soc corpus.*

The concordance lines above also include the top *soc corpus* collocates and subsequent collocates in frequency: *modificado/s* (18) and *genéticamente modificado/s* (12). Below are the least frequent collocates, such as *modificado/s genéticamente* (9), *alterados genéticamente* (7), *MG/OMG* (5), *GM* (4), paraphrasis such as *mejorados* (improved) *con la ingeniería* (4), *resistentes* (2), *manipulados genéticamente* (2), *Bt* (2), *genéticamente alterado/s* (2), *alterados* (1), *nuevos cultivos* (1) and others (2):

1	ue los Estados Unidos aprobasen los	**cultivos alterados genéticamente**, los granjeros los hab	8BL
2	odificadas alrededor de los cultivos de	**plantas genéticamente alteradas** para que sirviesen de	7IB
3	blemas. Cuando Paul me habla de los	**cultivos modificados genéticamente**, raras veces sus	8BL
4	ende en lo relativo a la ciencia de los	**cultivos manipulados genéticamente.** Dicen: «Las con	10JS
5	e plantó Dean Moxham, fue el primer	**cultivo de la ingeniería genética** que se introdujo en el	7IB
6	tes. Visité laboratorios y me paseé po	**plantaciones fruto de la ingeniería genética**, para ver	8BL
7	e individuos el poder de determinar un	**cultivo** o animal **mejorado con la ingeniería** o una nue	4JR
8	s es imposible determinar si un nuevo	**cultivo GM** causa o no alergia hasta que ese producto p	10J
9	n no consiste en: " ¿Necesitamos otra	**planta resistente a los herbicidas**? ", sino en: " ¿Funci	7IB
10	mente le beneficiaría disponer de unos	**cultivos que tolerasen bien los herbicidas**. Pero tamb	8BL
11	si todas las plantas morirán excepto el	**cultivo resistente**. De los 39,9 millones de hectáreas de	6LA
12	entes " para valorar los riesgos de los	**cultivos dotados de Bt**, en ausencia de otros estudios d	8BL
13	en que se produjeron comercialmente	OMG, los granjeros norteamericanos plantaron unos 300	8BL
14	extravagancia. También encontramos	"**cultivos de valor añadido**", una expresión que suena e	8BL

Fig. 5.142: *Sample of concordance lines for the least frequent collocates for 'crop/s' in the Spanish soc corpus.*

Having examined the collocates for *crop/s* in the *soc corpus,* 8BL holds the top position in denominative variants over the rest of the books and also contains the largest number of samples (85) out the total (135):

Book	Denominative variants of N (*cultivo/s*) + Adj		Tokens	No. of variants
4JR	**1.**	***Cultivo/s transgénico/s***	18	3
	2.	*Nuevos cultivos*	1	
	3.	*Paraphrasis: mejorado con la ingeniería*	1	
6LA	**4.**	***Cultivo/s transgénico/s***	10	3
	5.	*Cultivo/s modificado/s*	1	
	6.	**Resistentes GROUP**	1	
7IB	**7.**	*Cultivo/s genéticamente modificado/s*	4	5
	8.	***Cultivo/s transgénico/s***	2	
	9.	**Resistentes GROUP**	1	
	10.	*Cultivo/s genéticamente alterado/s*	1	
	11.	Paraphrasis: cultivo de la ingeniería genética	1	
8IB	**12.**	***Cultivo/s transgénico/s***	35	12
	13.	*Cultivo/s modificado/s*	16	
	14.	*Cultivo/s modificado/s genéticamente*	7	
	15.	*Cultivo/s genéticamente modificados*	7	
	16.	*Cultivo/s alterado/s genéticamente*	7	
	17.	*Cultivo/s MG*	4	
	18.	*Cultivo/s con Bt*	2	
	19.	*Paraphrasis*	2	
	20.	*Cultivo/s alterado/s*	1	
	21.	*Cultivo/s manipulado/s genéticamente*	1	
	22.	OMG	1	
	23.	Others	2	
10JS	**24.**	*Cultivo/s GM*	4	5
	25.	*Cultivo/s modificado/s genéticamente*	2	
	26.	*Cultivo/s manipulado/s genéticamente*	1	
	27.	*Cultivo/s genéticamente modificado/s*	1	
	28.	*Cultivo/s modificado/s*	1	
		T O T A L	**135**	**16**

Table 5.143: *Denominative variants of 'N + Adj (cultivo/s)' in the English soc corpus.*

The top and second collocate in the English *soc corpus* (table 5.143) is *transgénico/s*, except for the last book, in which the term is avoided. It is the preferred option in the Spanish *sci* and *soc* corpora. When the two Spanish corpora are compared (tables 5.140 and 5.143), a similar number of variants (15 in the *sci,* 6 in the *soc*) is found and, as such, is displayed in the following graphs:

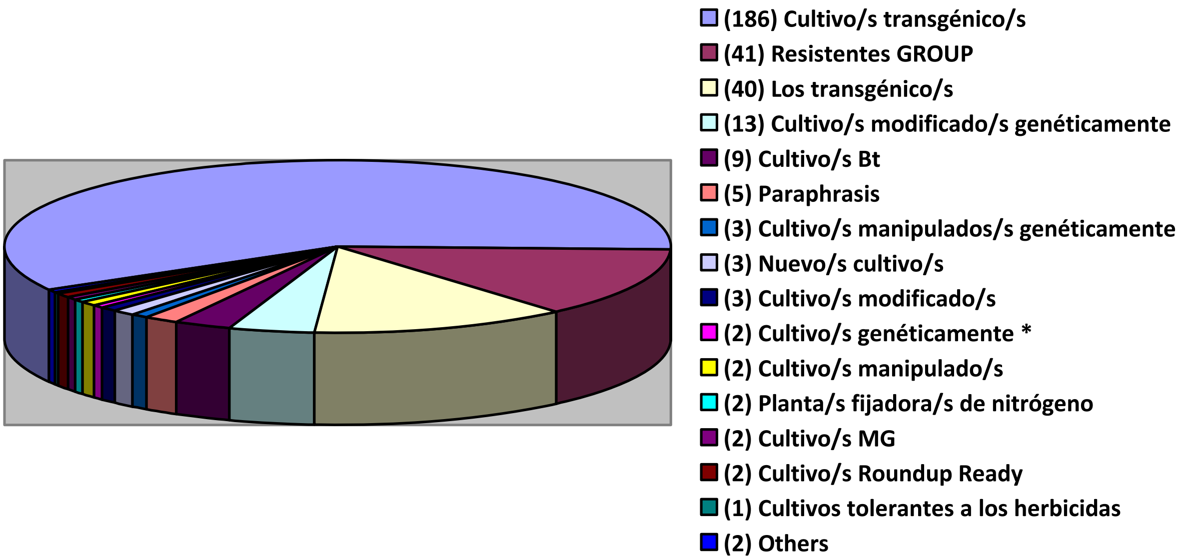


Fig. 5.144: *Denominative variants of 'N (cultivo/s*) + Adj' in the Spanish sci corpus.*

In figure 5.144, the top collocate of the *sci corpus*, which is *transgénico/s* (186 adj + 40 noun), represents over two thirds (226, 70.6%) of the total number of occurrences (319). Figure 5.145 displays the three top collocates in the *soc corpus –transgénico/s, modificado/s* and *genéticamente modificado/s* (95)– that occupy a bit over two thirds (70.4%) of the pie chart (135 occurrences in total).

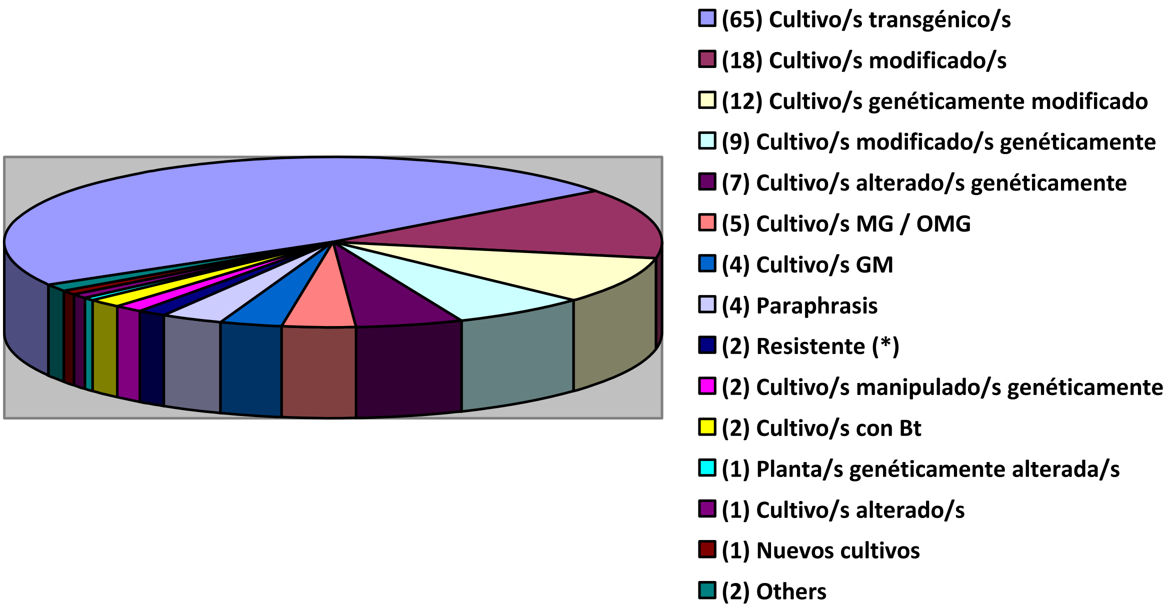


Fig. 5.145: *Denominative variants of 'N (cultivo/s*) + Adj' in the Spanish soc corpus.*

Based on the previous data, let us assemble the results through the following interlinguistic comparison tables:

	English *sci corpus* *CROP/S*	*Freq*		Spanish *sci corpus* *CROP/S*	*Freq*
1.	**Transgenic (adj)**	207	*1.*	**Transgénicos (adj)**	186
2.	*-resistant	40	*2.*	Resistente/s GROUP	41
3.	*Genetically modified*	24	*3.*	**Transgénicos (noun)**	40
4.	*Bt*	13	*4.*	*Modificados genéticamente*	13
5.	*Genetically engineered*	8	*5.*	*Bt*	9
6.	*Genetically **	5	*6.*	Paraphrasis	5
7.	*Modified*	4	*7.*	*Manipulado/s genéticamente*	3
8.	*Engineered*	4	*8.*	*Genéticamente modificados*	3
9.	Herbicide-tolerant	3	*9.*	Nuevo/s cultivo/s	3
10.	New	3	*10.*	*Modificado/s*	3
11.	*GM*	2	*11.*	*Genéticamente **	2
12.	*Nitrogen-fixing*	2	*12.*	*Manipulados/s*	2
13.	*Roundup Ready*	2	*13.*	*Planta fijadora de nitrógeno*	2
14.	*Others*	2	*14.*	*MG*	2
			15.	*Roundup Ready*	2
			16.	Tolerante/s a los herbicidas	1
			17.	*Others*	2
	Total: 319			Total: 319	

Table 5.146: *English and Spanish collocates for 'crop/s' in the sci corpus.*

There is a clear tendency to massively translate English collocates as *transgénicos* into Spanish. The same is true for *transgénico/s* in the *soc corpora:*

	English *soc corpus* *CROP/S*	*Freq*		Spanish *soc corpus* *CROP/S*	*Freq*
1.	**Transgenic (adj)**	33	*1.*	**Transgénicos (adj)**	65
2.	*Genetically modified*	29	*2.*	*Modificados*	18
3.	*Modified*	29	*3.*	*Genéticamente modificados*	12
4.	*Genetically engineered*	12	*4.*	*Modificados genéticamente*	9
5.	*Engineered*	9	*5.*	*Alterado/s genéticamente*	7
6.	*GM*	8	*6.*	*MG / OMG*	5
7.	*Gene(*) altered/spliced*	5	*7.*	*GM*	4
8.	*Bt*	2	*8.*	Paraphrasis	4
9.	*GE/GMO*	2	*9.*	Resistente/s (*)	2
10.	*-resistant	2	*10.*	*Manipulado/s genéticamente*	2
11.	Herbicide-tolerant	1	*11.*	*Bt*	2
12.	*Genetically altered*	1	*12.*	*Genéticamente alterado/s*	1
13.	*Others*	2	*13.*	*Alterado/s*	1
			14.	*Nuevos cultivos*	1
			15.	*Others*	2
	Total: 135			Total: 135	

Table 5.147: *English and Spanish collocates for 'crop/s' in the soc corpus.*

The second most frequent collocate in the English *sci corpus* is *resistant*. As seen before, a significant L1 collocate is *herbicide* along with *insect resistance,* which are the most common traits engineered into transgenic crops. As translation strategies, we can mention that a specific collocation (e.g. *herbicide-resistant crops*) is simplified or amplified in Spanish (*cultivos resistentes; cultivos resistentes a estas sustancias*) or even paraphrased (*para resistir a las plagas*).

As a summary of findings, the number of denominative variants in the *soc corpus* outranks those found in the *sci corpus*. Up to here, variation was reported and the next step is to focus on thelanguage use through the study of semantic prosodies. It is no use examining denominative variation and remaining in a descriptive stage, unless we look into the meaning of collocates and how the study of semantic prosody contributes to the purposes of a deeper analysis.

5.3.5. Semantic prosody

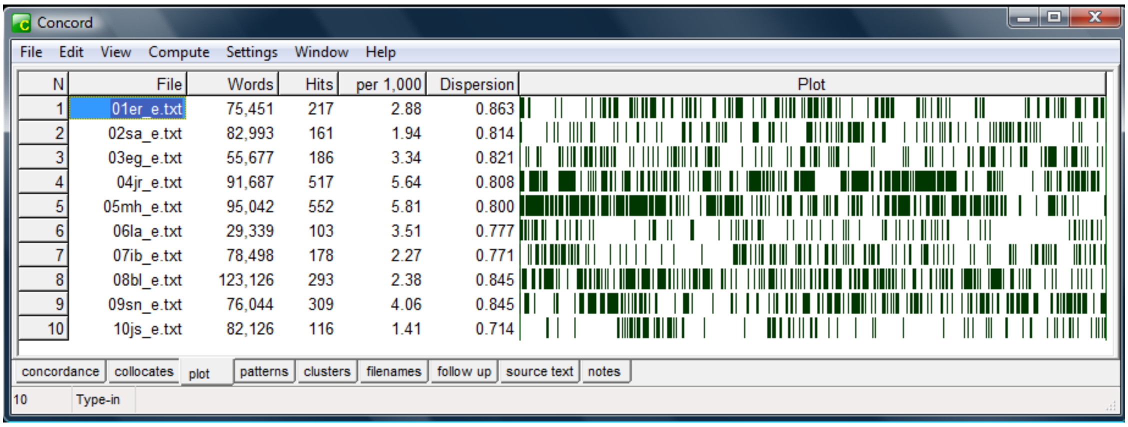
The technical terms of the specialized field that are analyzed in this part are *genetic* and *genetically.* As shown in table 5.13, these two terms are common terms for both English corpora and those terms that are not shared –and then left out– by the two sets of data are *engineering, engineered* and *GM.*

Focusing on the technical terms –*genetic* and *genetically*–, the collocations *genetic manipulation, genetic modification, genetic recombination* and their Spanish translations have a similar frequency of occurrence that may be strinkingly low compared with the whole size of the GE corpus. The study of semantic prosodies for *genetic* is not very extensive in this part but was considered enough to show common features between the *sci* and the *soc corpora,* whereas the study of semantic prosodies for *genetically* is sufficiently thorough by means of the identification of semantic data sets that exhibit the differences between the two corpora.

Let us then examine the collocational behavior of the two terms shared by the English *sci* and *soc corpora* in order to go further into the difference between LSP and GL collocations within the genre of popular science.

5.3.5.1. Technical terms (specialized field): *Genetic + N*

A search in the entire GE corpus for *genetic* retrieves 1,425 occurrences in the *sci corpus* and 1,207 in the *soc corpus,* whose hits are more frequently encountered in 5MH (552) (*sci corpus*) and 4JR (517) (*soc corpus*):



Concord

File Edit View Compute Settings Window Help

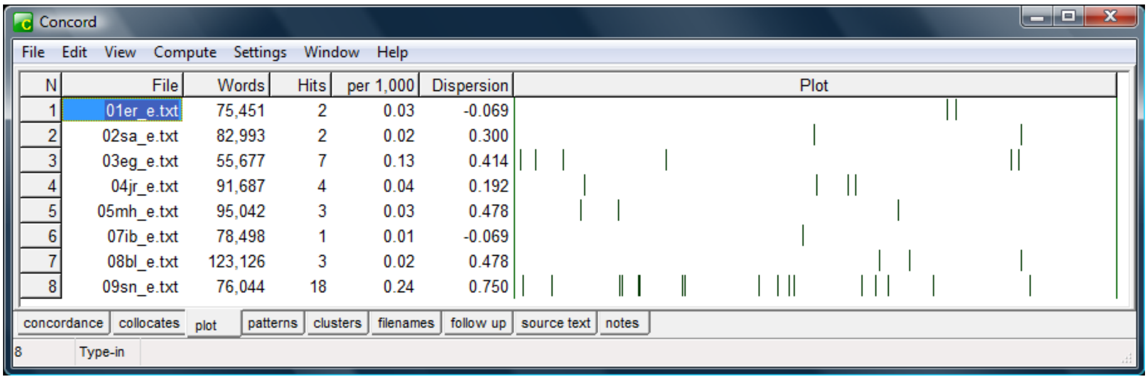
N	File	Words	Hits	per 1,000	Dispersion	Plot
1	01er_e.txt	75,451	217	2.88	0.863	
2	02sa_e.txt	82,993	161	1.94	0.814	
3	03eg_e.txt	55,677	186	3.34	0.821	
4	04jr_e.txt	91,687	517	5.64	0.808	
5	05mh_e.txt	95,042	552	5.81	0.800	
6	06la_e.txt	29,339	103	3.51	0.777	
7	07ib_e.txt	78,498	178	2.27	0.771	
8	08bl_e.txt	123,126	293	2.38	0.845	
9	09sn_e.txt	76,044	309	4.06	0.845	
10	10js_e.txt	82,126	116	1.41	0.714	

concordance collocates plot patterns clusters filenames follow up source text notes

10 Type-in

Fig. 5.148: *Plot of 'genetic' in the English sci corpus.*

The data reported for *genetic* in the *sci corpus* suggests that a great number of hits are occupied by *genetic engineering, genetic engineering biotechnology, genetical material, genetic code, genetic determinism, genetic determinist, genetic make up, plant genetic systems, genetic engineers, genetic modification, genetic screening, genetic discrimination, genetic engineering agriculture* and *genetic manipulation,* to name the most frequent collocations. Since our interest lies in the different denominations to express 'genetic modification', the collocations referring to this concept are *genetic manipulation* (32 occurrences in the *sci corpus,* 8 in the *soc corpus*), *genetic modification* (29 in the *sci,* 24 in the *soc corpus*) and *genetic recombination* (6 in the *sci,* none in the *soc*). It is particularly remarkable that *genetic manipulation* does not show up in either 6LA or 10JS from the *soc corpus.* These 3 collocations are much less frequent, compared to the total number of *genetic* occurrences (2,632), as illustrated in the following plot:



Concord

File Edit View Compute Settings Window Help

N	File	Words	Hits	per 1,000	Dispersion	Plot
1	01er_e.txt	75,451	2	0.03	-0.069	
2	02sa_e.txt	82,993	2	0.02	0.300	
3	03eg_e.txt	55,677	7	0.13	0.414	
4	04jr_e.txt	91,687	4	0.04	0.192	
5	05mh_e.txt	95,042	3	0.03	0.478	
6	07ib_e.txt	78,498	1	0.01	-0.069	
7	08bl_e.txt	123,126	3	0.02	0.478	
8	09sn_e.txt	76,044	18	0.24	0.750	

concordance collocates plot patterns clusters filenames follow up source text notes

8 Type-in

Fig. 5.149: *Plot of 'genetic manipulation' in the entire GE_P-ACTRES corpus.*

Regardless of the dispersion of results, we have assumed in the theoretical framework that semantic prosody is contingent upon its context, and thus starting with the first of the 3 collocations, the concordance of *genetic manipulation* is reproduced in table 5.150.

A quick look at the 32 concordance lines reveals the scientific treatment of the term *genetic manipulation* by conveying the insertion of new genetic material into a host genome. A substantial number of typical occurrences, such as *process of genetic manipulation, genetic manipulation of + a living organism (e.g. mammal, animal), modified by genetic manipulation* or definitions of the type *genetic modification involves transgenes,* do not represent neither unpleasant things nor conflicts. The use of the above-mentioned collocates is conventional within the field of biology as no particular nuance was conveyed.

Distinctively, the lines that treat the topic as a controversial and sensitive area of science are lines 1, 3, 15, 19, 20, 26, 27, 28, 31 and 32; that is, ten lines out of the 32 deal with the ethical part of *genetic manipulation,* being line 19 the one expressing explicit rejection to GMOs, with sentences such as "therefore are potentially much more hazardous". The remaining concordance lines tell us about the genetic modification of tomatoes carried out by Calgene and Zeneca companies, and that the debate is measured in terms of risks and benefits. Other organisms, such as the FDA are alluded to in line 12; and lines 6, 9, 10 and 18 deal with the patent system.

1	cial applications, using the cloning and	**genetic manipulation**	of mammals, if the majority of peo	9SN
2	genic animals. Gene silencing. Not all	**genetic manipulation**	involves transgenes that express p	9SN
3	ome of the early experimental work on	**genetic manipulation techniques**.	Two research groups	9SN
4	nd therefore presents a good target for	**genetic manipulation**.	Besides damaging crops onto wh	9SN
5	engineering. They provide the tools for	**genetic manipulation**,	while their production by transferre	9SN
6	in the past been awarded to cover any	**genetic manipulation**	to a particular crop plant (e.g. soyb	9SN
7	Fish offer a number of advantages for	**genetic manipulation**.	They have a high fecundity and e	9SN
8	t coding sequences. The processes of	**genetic manipulation**	have been likened to using a word	9SN
9	cceeded in getting patents covering all	**genetic manipulation**	of cotton and soybeans, and had p	9SN
10	teria. The patents covered most of the	**genetic manipulation techniques**	in use at that time. To	9SN
11	irst tropical crop to be given priority for	**genetic manipulation**.	Specific techniques for producing	9SN
12	ducts, including those produced using	**genetic manipulation**.	The FDA has the primary respons	9SN
13	nzymes can potentially be modified by	**genetic manipulation**.	There is much potential for impro	9SN
14	ll the essential amino acids. However,	**genetic manipulation**	could be used to supply all the ess	9SN
15	ine the suffering caused to animals by	**genetic manipulation**.	Much of the public's objection to g	9SN
16	t characters simultaneously. However,	**genetic manipulation techniques**	allow salt tolerance an	9SN
17	he next few years. Modifying milk. The	**genetic manipulation**	of both the quantity and quality of	9SN
18	ganisms, genes and the processes of	**genetic manipulation**.	Patents are often broadly defined	9SN
19	ing biotechnology. Now the risks from	**genetic manipulation**	have become greater. Genetic en	5MH
20	plation of germ-line gene therapy and	**genetic manipulation**	are negative and positive eugenic	5MH
21	ses to be exploited as a vector for the	**genetic manipulation**	of animals. And top of the list of ba	5MH
22	changed gears and the modern era of	**genetic manipulation**	was on its way. How does DNA sto	3EG
23	ime ago. In the beginning. The path to	**genetic manipulation**	can be said to have started in 166	3EG
24	dures of biotechnology — the "how" of	**genetic manipulation**.	The bulk of the book, Chapters 3 t	3EG
25	atch, scientists aim to produce one by	**genetic manipulation**.	In 1994, pigs were engineered wi	3EG
26	f plants less troublesome morally than	**genetic manipulation**	of animals. On widely publicized is	3EG
27	r species. In general, people consider	**genetic manipulation**	of plants less troublesome morally	3EG
28	between supporters and opponents of	**genetic manipulation**	come down to different interpretati	3EG
29	oor to much more precise control over	**genetic manipulation**	— occurs only in one in a million t	2SA
30	gy to boost the yield of crops is to use	**genetic manipulation**	to override the ecological limits of	2SA
31	ight to penetrate the atmosphere. Will	**genetic manipulation**	be another factor, degrading our e	1ER
32	e people who have invested heavily in	**genetic manipulation**	who are impatient, and there are p	1ER

Fig. 5.150: *Concordance of 'genetic manipulation' in the English sci corpus.*

Those concordance lines in figure 5.150, in which controversy is present, take us to a careful examination of the verb *manipulate.* This study may shed light on the issue whether *manipulation* (14) strictly refers to the scientific technique or otherwise may imply a biased meaning, such as a skillful way of controlling or influencing in an unfair manner.

1	NA or RNA, which are more difficult to	**manipulate**	than double-stranded DNA. Viruses do, how	9SN
2	akes use of these enzymes as tools to	**manipulate**	DNA. Different enzymes are responsible for	9SN
3	netic engineering is now being used to	**manipulate**	both the quantity and quality of animal milk.	9SN
4	rtainties about how far humans should	**manipulate**	the processes of life. Opinion polls have ide	9SN
5	eople who had been granted power to	**manipulate**	nature, with genetic engineering being just a	9SN
6	nly makes it possible for geneticists to	**manipulate**	genes but also happens to be a powerful res	5MH
7	sist in futile and hazardous attempts to	**manipulate**	our genes and the genes of other species.	5MH
8	enable practitioners to recombine and	**manipulate**	genetic material from different sources? An	5MH
9	manipulating our genes, we may also	**manipulate**	our destiny. It is an irresistibly heroic view —	5MH
10	tein surface. Chemical engineers can	**manipulate**	different combinations of drug and disease p	3EG
11	rstand the natural systems we want to	**manipulate.**	Co-opting nature better idea than opposing	3EG
12	of the basic techniques used today to	**manipulate**	genes. In 20 or 30 years, our knowledge will	3EG
13	ss of having to remove fertilised eggs,	**manipulate**	them, then transfer them back into the body,	2SA
14	ons of germ warfare? Is it possible to	**manipulate**	an organism such that it will be dangerous to	1ER

Fig. 5.151: *Concordance of 'manipulate' in the English sci corpus.*

Habitual co-occurences of *manipulate* are often broken down into several semantic sets. The meaning that the concordance in figure 5.151 instantiates is the *modification of genes/organisms,* with the exception of line 9 that presents a genetic-determinist viewpoint. Except for that line, the rest of the occurrences of *manipulate* are not considered to be any negative evaluation. The underlined words in the rest of occurrences express concern to some extent. On the contrary, the first and third lines of the concordance of *genetic manipulation* in the *soc corpus* (fig. 5.152) clearly exhibit an unfavorable evaluation:

1	said in their news release. Their point:	**Genetic manipulation**	can yield scary results. Pro-biotec	8BL
2	o reassure consumers nervous about	**genetic manipulation**	of their food. In the infancy of the t	8BL
3	s. It began unambiguously: "We reject	**genetic manipulation**	as being an ethically questionable	8BL
4	le that an approved, apparently minor	**genetic manipulation**	could strip the soil of nutrients and	7IB
5	s, and the new techniques for human	**genetic manipulation**	comprise the fourth strand of the o	4JR
6	cist at Princeton University. Together,	**genetic manipulation**	and cloning will allow scientists to	4JR
7	human germ line therapy. Debate over	**genetic manipulation**	of human eggs, sperm, and embry	4JR
8	c ends. As mentioned in chapter one,	**genetic manipulation**	is of two kinds. In somatic therapy,	4JR

Fig. 5.152: *Concordance of 'genetic manipulation' in the English soc corpus.*

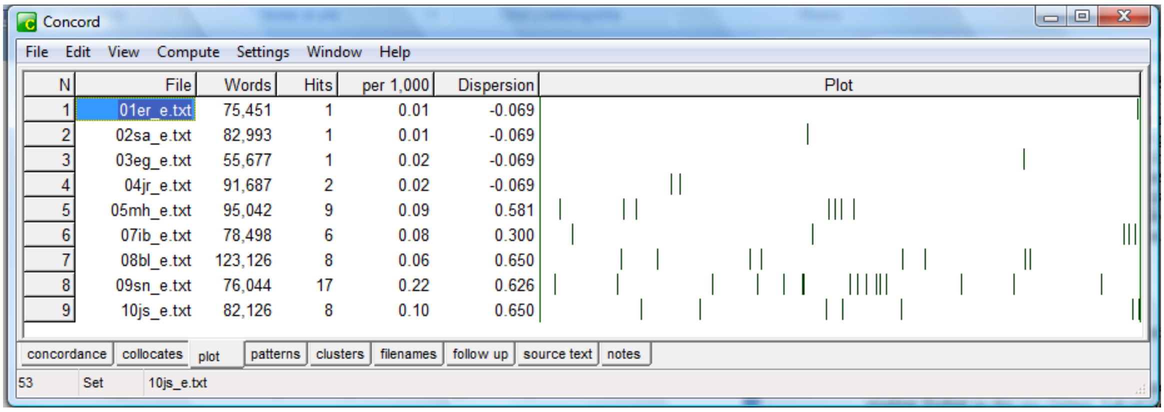
By examining the whole paragraph in which the concordance lines are embedded in figure 5.152, dubious cases of negative evaluation were spotted in line 2, in which Monsanto was mentioned, and in line 4, where *apparently minor* may impregnate the node with an even greater effect than the mentioned *minor,* that is, even higher. Lines 5-8 from JR author tend to be neutral, since they tell us about the types of genetic manipulation in eggs, embryos, among others.

Although the number of occurrences of *genetic manipulation* (8) in the *soc corpus* is low, the frequency of *manipulate* (28) as a verb is slightly higher:

1	he FDA have chosen to suppress and	**manipulate**	animal health test data in efforts to approve	10JS
2	.'" Another method Byrne used was to	**manipulate**	websites so that search engines listed only p	10JS
3	ons, Delta and Pine Land knew how to	**manipulate**	the system. Indeed, its name, which suggest	8BL
4	ore than 70 percent were put there to	**manipulate**	the workings of weed killers. Nor is this tech	8BL
5	s. "You don't create anything; you just	**manipulate**	the nature of life," he argues. I am so struck	8BL
6	life, and other properties. The ability to	**manipulate**	plant nutritional content has the potential to	8BL
7	rity. They believed themselves able to	**manipulate**	not just genes, but people and governments.	8BL
8	products. It was difficult to genetically	**manipulate**	plants and animals and still create a food tha	7IB
9	call the facts. But surely the power to	**manipulate**	life poses many ethical questions beyond the	7IB
10	netic engineers do not create life; they	**manipulate**	genes. Key Dismukes, from the National Aca	6LA
11	they themselves are using when they	**manipulate**	it? The point is, our new ideas about how nat	4JR
12	allow people to interact with nature, to	**manipulate**	and appropriate it. The problem is that people	4JR
13	near contexts, believing it possible to	**manipulate**	development, gene by gene, as if an organis	4JR
14	ibe to it, we would find it impossible to	**manipulate**	it the way we do in the laboratory. The probl	4JR
15	at he and his colleagues were able to	**manipulate**	certain genes in a frog embryo and suppress	4JR
16	volution. With our newfound power to	**manipulate**	the genetic code of life, we open up a new v	4JR
17	genes, organisms, and processes to	**manipulate**	them is unprecedented. Charges of patent in	4JR
18	newfound ability to identify, store, and	**manipulate**	the very chemical blueprints or living organis	4JR
19	tists and biotech companies to locate,	**manipulate**,	and exploit genetic resources for specific ec	4JR
20	panied by a host of new techniques to	**manipulate**	and transform genes. The most formidable of	4JR
21	so that it will grow to maturity quicker.	**Manipulate**	the genetic instructions of domestic breeds t	4JR
22	ientific tools are becoming available to	**manipulate**	the genetic instructions in human cells. The n	4JR
23	"substitute mind"— or language — to	**manipulate**,	redirect, and organize the vast genetic inform	4JR
24	tion framework for using computers to	**manipulate**	and organize the vast genomic data flow of t	4JR
25	pend on their ability to understand and	**manipulate**	biological diversity." The importance of biolog	4JR
26	the technological expertise needed to	**manipulate**	the new "green gold" resides in scientific labo	4JR
27	sts, corporations, and governments to	**manipulate**	the natural world at the most fundamental lev	4JR
28	ability, acquired through evolution, to	**manipulate**	genomes by selective breeding, and more rec	$JR

Fig. 5.153: *Concordance of 'manipulate' in the English soc corpus.*

The pragmatic function behind the occurrence *power to manipulate life* (line 9) reflects the motivation for the writers to make statements of the type *manipulate the system* (line 3)*, manipulate the nature of life* (line 5)*, manipulate biological diversity* (line 25)*,* and *manipulate the new "green gold"* (line 26). The direct objects of *manipulate* may indicate that the node – manipulate– may be impregnated by the meaning conveyed from the immediate co-occurrences and, as a result, may adopt part of the semantic features from its adjacency. The L1 collocates for *manipulate* in the *soc corpus* may be considered unfavorable and may pass this semantic feature onto the node. Going back to line 19 from figure 5.150 in the *sci corpus,* there was only one example of *genetic manipulation* showing a clear negative standpoint against genetic engineering techniques, whereas five similar unfavorable cases were spotted in the *soc corpus* in figure 5.153. In other words, the tendency to find an unfavorable evaluation in the collocational profile of *manipulation* is slighter higher in the *soc corpus;* although this small amount of occurrences may not be considered significant. Let us now study the collocational profile of *genetic modification* whether a similar behavior takes place.



N	File	Words	Hits	per 1,000	Dispersion	Plot
1	01er_e.txt	75,451	1	0.01	-0.069	
2	02sa_e.txt	82,993	1	0.01	-0.069	
3	03eg_e.txt	55,677	1	0.02	-0.069	
4	04jr_e.txt	91,687	2	0.02	-0.069	
5	05mh_e.txt	95,042	9	0.09	0.581	
6	07ib_e.txt	78,498	6	0.08	0.300	
7	08bl_e.txt	123,126	8	0.06	0.650	
8	09sn_e.txt	76,044	17	0.22	0.626	
9	10js_e.txt	82,126	8	0.10	0.650	

Fig. 5.154: *Plot of 'genetic modification' in the entire GE_P-ACTRES corpus.*

The plot of *genetic modification* shows both the presence of this collocation throughout the corpus (not found in 6LA), and the frequency (29 occurrences in the *sci corpus* and 24 in the *soc corpus*). Below is the concordance in the *sci corpus:*

1	tion of a programme that allows the	**genetic modification** of the human germ line, even fo	1ER
2	e removed from a mature animal for	**genetic modification** and then returned to its body, o	2SA
3	technology has added tools such as	**genetic modification** and vaccination to the tradition	3EG
4	onceptual distinction exists between	**genetic modification** of plants and micro-organisms	5MH
5	nded too unfriendly and frightening).	**Genetic modification**, we were told, was simply the l	5MH
6	tic resources — requiring no further	**genetic modification** — that can guarantee a sustain	5MH
7	million acres of rice to leaf-hoppers.	**Genetic modification** for disease-resistance or pest-	5MH
8	tions. It also presents the process of	**genetic modification** as a precise and simple operati	5MH
9	s to promote public understanding of	**'genetic modification'** (the term 'engineering' having	5MH
10	eeding. The significant advantage of	**genetic modification** was that it was much more prec	5MH
11	substitution of the less emotive term	**'genetic modification'** for 'genetic engineering'. (It is	5MH
12	crops. It is irresponsible to claim that	**genetic modification** can make high-yielding or nitro	5MH
13	dressed. This case illustrates how a	**genetic modification** in one organism can affect a co	9SN
14	elt that all animals originating from a	**genetic modification programme** should be treated	9SN
15	kill the plant. Resistance obtained by	**genetic modification** is usually to a single group of h	9SN
16	tional suffering caused to animals by	**genetic modification** is compared to the benefits gai	9SN
17	proteins are the main candidates for	**genetic modification** to enhance the nutritional value	9SN
18	ods. The Committee on the Ethics of	**Genetic Modification** and Food Use, established by t	9SN
19	edly split owing to the side effects of	**genetic modification.** Insect resistance. Insect resist	9SN
20	ulated to the Advisory Committee on	**Genetic Modification** (ACGM), which evaluates each	9SN
21	sed the invasiveness of oilseed rape.	**Genetic modification** of crops could also lead to adv	9SN
22	ker than during the green revolution.	**Genetic modification** can achieve in years transform	9SN
23	rn USA. This illustrates how a small	**genetic modification** could potentially have a large e	9SN
24	od reasons are needed to justify the	**genetic modification** of organisms. People can overc	9SN
25	Two research groups pioneered the	**genetic modification** of tomatoes for delayed ripening	9SN
26	tion. Benefits for insect control. The	**genetic modification** of crops offers many potential a	9SN
27	ces can be shown in food due to the	**genetic modification process.** The genetic change, in	9SN
28	ntrol the insects that spread viruses.	**Genetic modification** could therefore make a significa	9SN
29	transfer of particular genes, whether	**genetic modification** increases the suffering of anima	9SN

Fig. 5.155: *Concordance of 'genetic modification' in the English sci corpus.*

Since words tend to take on meaning from its immediate surroundings, occurrences appearing within a 1-4 collocational span departing from R1 in 5.155 are semantic sets that refer to the gene therapy (lines 1 and 2), as a tool (line 3), biosafety (line 4, 13), rejection (line 6), agricultural biotechnology (line 7, 15, 19, 21, 23, 26), a scientific process (line 8, 12, 14, 16, 22, 27, 28), terminology (line 5,9,11), a scientific advantage (line 10), and ethics (line 18, 20, 23, 24, 29). If we now move on to mine the concordance of *modify,* the following concordance lines are extracted from the *sci corpus*:

1	id will be able to grow. We can even	modify	the technique further to allow the specific recogni	1ER
2	atively easy job. Isolate the zein gene,	modify	its DNA sequence a little so that it now contains a	1ER
3	Some pests have evolved so that they	modify	the development of the plant on which they feed s	1ER
4	acteria, plants and animals, now try to	modify	life for their own interests. The engineers of life ha	1ER
5	hnically possible, it would be better to	modify	the germ line. Genetically speaking this may be c	1ER
6	engineers — engineers, because we	modify	life, genetic because the only way to change the p	1ER
7	. Environment, diet, and habits can all	modify	the outcome of many genetic predispositions. But	3EG
8	of protein in their milk. Scientists can	modify	the milk content by giving the animals added gen	3EG
9	ed thermostable enzymes. Those that	modify	DNA molecules — for example, polymerases, liga	3EG
10	). Genetic engineering can be used to	modify	different stages of crop production, from speeding	3EG
11	tive and researchers are now trying to	modify	microbes to produce suitable enzymes. Electric tr	3EG
12	rate cold may even make it possible to	modify	subtropical plants so they can be grown in cooler	3EG
13	enetic engineering can now be used to	modify	the bacteria, increasing their growth rate or alterin	3EG
14	king for the company were the first to	modify	the genome of cotton using a bacterial species. O	3EG
15	y of increasing ocean productivity is to	modify	the nutrient balance of the waters. Plants use nutr	3EG
16	leguminous host plants. They hope to	modify	the genes to boost bacterial efficiency, and to sub	3EG
17	g only two enzymes. Attempts made to	modify	Z. mobilis for commercial production of fuel ethan	3EG
18	ethods or by molecular techniques that	modify	DNA and transfer genes.' (Similar statements hav	3EG
19	ironmental deterioration it promised to	modify	strains of bacteria and higher plants so that they c	5MH
20	mes, genetic engineers can potentially	modify	any biochemical reaction in an organism to produ	9SN
21	is is due to the action of enzymes that	modify	the bases and stop restriction enzymes recognizin	9SN
22	Genes are now being developed that	modify	the properties of cotton. Monsanto's blue gene pr	9SN
23	DNA synthesizer can also be used to	modify	coding sequences to create novel proteins. This is	9SN
24	he potential of genetic engineering to	modify	crops is enormous. In this chapter, a wide range o	9SN
25	pproaches have been tried in order to	modify	crops to resist freezing: altering their fat composit	9SN
26	e application of genetic engineering to	modify	farm animals has raised concerns about animal w	9SN
27	r different environmental conditions, to	modify	the expression of a gene. Genes could also be re	9SN
28	n of other genes. All genes can act to	modify	the effects of any other gene, through subtle envir	9SN

Fig. 5.156: *Concordance of 'modify' in the English sci corpus.*

Now semantic sets can be grouped into the modification of the technique (line 1, 20), the modification of DNA or microorganisms (line 2, 9, 11, 13, 14, 16-19, 21, 23, 27, 28), of crop production (line 3, 10, 12, 22, 24, 25), life (line 4, 6), germ line (line 5), genetics (line 7), nutrients (line 8, 15) and animals (line 26). None of these is conventionally undesirable or unattractive. Even in the case of *life* (line 4), the author states that human beings have learnt to produce new organisms so as to make use of them for our own interests based on the fact that GE is a scientific process and a potentially logical way to evolve within the scientific world. Regarding *genetic modification* in the *soc corpus*, results are offered in the next concordance lines:

1	Southern countries argue that a slight	**genetic modification**	of a crop or herb in the laboratory is	4JR
2	because it's been subjected to a slight	**genetic modification**	? What about a chimpanzee? Here'	4JR
3	ese companies were already avoiding	**genetic modification**	. Japan's largest maker of soybean	7IB
4	y". Thanks to what the company calls	"**genetic modification**,	" the environmentally friendly potat	7IB
5	new vernacular. The acronyms GM for	**genetic modification**	and GMO for genetically modified o	7IB
6	ore than two decades of experience in	**genetic modification**	, it is possible to snip, insert, stitch,	7IB
7	ed whether Pusztai's research proved	**genetic modification**	could have an unforeseen impact o	7IB
8	were becoming increasingly hostile to	**genetic modification**	. The American Corn Growers Asso	7IB
9	help develop better varieties of crops.	**Genetic modification**	is not new. We started genetically	8BL
10	ifferentiate between food derived from	**genetic modification**	and food from conventional means.	8BL
11	everything we eat can be derived from	**genetic modification**	, if the public is willing. What we dri	8BL
12	modern, intensive farming — including	**genetic modification**	. Vegetables, fruit, meat, eggs, and	8BL
13	is unacceptable because we don't like	**genetic modification**	? We have no right to say that. Let's	8BL
14	an health concerns with the process of	**genetic modification**	itself or even with the particular gen	8BL
16	riety of a crop. "Yet this is surely what	**genetic modification**	will encourage," he wrote. "It is enti	8BL
17	nces between traditional breeding and	[**genetic modification**]	... In fact the FDA is making a dist	10JS
18	ad it was. Tobacco is bad enough. But	**genetic modification**	, if it is going to be problematic, if it I	10JS
19	ng in comparison with this. The size of	**genetic modification**	and problems it may cause us are t	10JS
20	and the environment by proponents of	**genetic modification**	and by supposedly disinterested ad	10JS
21	-biotech in its sentiment, did state that	**genetic modification**	"could lead to unpredicted harmful	10JS
22	atch, "These results demonstrate that	**genetic modification**	is a clumsy process, not precise as	10JS
23	ccurring plant allergen is one way that	**genetic modification**	might promote allergies. Trypsin in	10JS
24	re venturing into a new technology, the	**genetic modification**	of food, and they were actually aski	10JS

Fig. 5.157: *Concordance of 'genetic modification' in the English soc corpus.*

As for the semantic sets in 5.157, the concordance lines have been classified into the following clusters: crops (line 1), scientific process (line 2, 4, 6, 9-11, 17, 20, 24), avoidance, rejection or ethical concerns (line 3, 13-16, 18, 19, 21-23), terminology (line 5), risk (line 7, 8), and agricultural biotechnology (line 12). Almost half of occurrences are focused on the scientific technique and almost the other half deals with ethical concerns. The next concordance analyzes the verbal node *modify,* so as to check whether the evaluative force of surrounding collocates is more powerful in the *soc corpus* compared to the *sci corpus:*

1	threshold of being able to selectively	**modify**	one gene at a time and thereby reduce dependen	4JR
2	to apply the laws of heredity so as to	**modify**	and improve our breeds of domestic animals. Can	4JR
3	uable-properties, but it is not simple to	**modify**	foods without affecting other characteristics. For e	4JR
4	nts represent the newly found ability to	**modify**,	improve, or produce large amounts of natural mat	4JR
5	retroactive. In the laboratory, they can	**modify**	proteins and carbohydrates at the macro level, int	8BL
6	sugar beet is just what it has done to	**modify**	soybeans, corn, and potatoes in the United States	8BL
7	lly before we will clone a person. If we	**modify**	corn for animals, there's less consequences than,	8BL
8	up things between nature and what we	**modify**."	Falhon rejects the claim that French farmers nee	8BL
9	cut the gene out of one species' DNA,	**modify**	it, and then insert it directly into another species'	10JS
10	a unique repertoire" of them, and may	**modify**	the protein in different ways. For example, the sa	10JS

Fig. 5.158: *Concordance of 'modify' in the English soc corpus.*

The meaning of R1 collocates comprises the modification of DNA, proteins or genes (line 1-3, 9), crops (line 4, 6, 7) and it is also conceptualized as a scientific procedure (line 5-8, 10). In line 7, the pejorative name *Frankenberries* is brought up in the inmmediate co-text in 8BL ("If we modify corn for animals, there's less consequences than, say, in so-called 'Frankenberries' for people" (BL4E.s277)). The evaluative nature of *genetic modification* might not be as clear as previously thought, since there is only one clear case (*Frankenberries*) against the majority of cases that come across as a statement of fact, either as a scientific process or as ethical, more than a clear attitudinal meaning. It seems that *genetic modification* mainly contains a neutral-positive aura around it, especially in the *sci corpus*, perhaps being a less emotive term than *genetic manipulation,* particularly in the *soc corpus.*

With regard to the last term in this subsection, *genetic recombination,* its appearance in only two books of the *sci corpus* (1ER and 5MH) is particularly noteworthy.

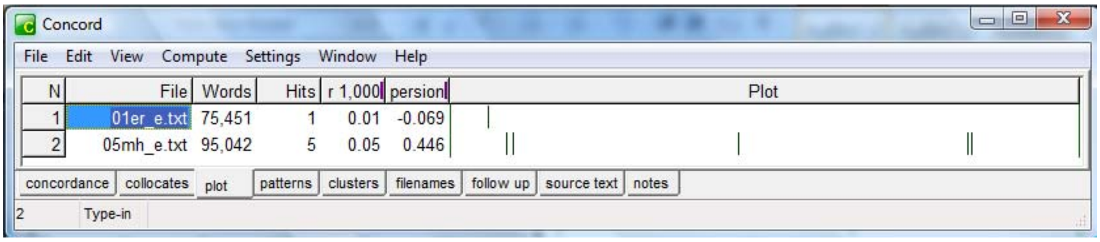


Fig. 5.159: *Plot of 'genetic recombination' in the entire GE_P-ACTRES corpus.*

These two books allocate this collocation in the following manner (6):

1	ve DNA repair or reverse transcription,	**genetic recombination**	, and single base-pair deletions.	5MH
2	ectors introduces further risks from the	**genetic recombination**	of vectors with viruses to genera	5MH
3	duces yet further risks, because of the	**genetic recombination**	of vectors with resident viruses t	5MH
4	rizontal gene transfer and subsequent	**genetic recombination**	generated the bacterial strains r	5MH
5	new disease-causing viruses through	**genetic recombination**	between artificial vectors contain	5MH
6	information from two parents is called	**genetic recombination**	. What we have just observed ab	1ER

Fig. 5.160: *Concordance of 'genetic recombination' in the English sci corpus.*

All the occurrences in figure 5.160 refer to the genetic engineering technique, but line 3 diverts attention to the risk of vector transfer concerning undesirable mutations. Likewise, only one concordance line in 5MH of the verb *recombine* was found in the company of *manipulate* (line 23 in fig. 5.161) and deals with a determinist viewpoint referring to the fact that, if we modify genes, we are also modifying our destiny. The rest of the concordance lines for *recombine* collocate with *genes, viruses, DNA* and *sequences*.

1	is called transforming DNA, and may	**recombine**	with the DNA of the recipient bacterium to pro	1ER
2	after scientists first started to cut and	**recombine**	genes in fruit flies, mice, bacteria, toads, toma	3EG
3	owing time for the cut-up fragments to	**recombine**	, they added bacterial cells to the mix. They la	3EG
4	gainst viruses that rapidly mutate and	**recombine.**	Even vaccines against bacterial pathogens p	5Mh
5	ntally between unrelated species and	**recombine.**	Four THE ORIGINS OF GENETIC DETERMI	5MH
6	ng them the opportunity to mutate and	**recombine**	into new variants, to fully realise their protean	5MH
7	bility to jump, to spread, to mutate and	**recombine.**	Microbes are ubiquitous. They live in abunda	5MH
8	can replicate indefinitely, spread, and	**recombine.**	There may yet be time to stop the dreams tu	5MH
9	enes and allowing them to spread and	**recombine**	with other genes to generate new pathogens	5MH

10	an help 'crippled' vectors mobilise and	**recombine**	with them. Recombination between external	5MH
11	h it is now well known that viruses can	**recombine**	, and that human genomes already harbour r	5MH
12	them. Once in the cell, the genes can	**recombine**	with other gene present in the cell — belongi	5MH
13	n increased propensity to invade cells,	**recombine**	with endogenous viruses and proviruses, or i	5MH
14	sed that the disabled AIDS virus could	**recombine**	into a virulent form and cause AIDS, but at le	5MH
15	n human proviral sequences that could	**recombine**	with sheep sequences to generate new viral	5MH
16	replicate DNA, that transcribe DNA or	**recombine**	with it by cutting and rejoining different stretc	5MH
17	d related elements that can potentially	**recombine**	with the introduced transgene. Another strate	5MH
18	ove genes around, mutate, rearrange,	**recombine**	, replicate sequences, delete or insert sequen	5MH
19	ove genes around, mutate, rearrange,	**recombine**	, replicate sequences, delete or insert sequen	5MH
20	as plasmid DNA. Donor DNA will then	**recombine**	with recipient DNA to generate new genetic r	5MH
21	do not interbreed in the process, they	**recombine**	and further mutate. Though bacteria will be k	5MH
22	do not interbreed; in the process, they	**recombine**	and further mutate. The spontaneous mutati	5MH
23	t the tools that enable practitioners to	**recombine**	and manipulate genetic material from differen	5MH
24	s barriers, with many opportunities to	**recombine**	and generate new disease-causing viruses.	5MH
25	antibiotic resistance, allowing them to	**recombine**	to generate new pathogens. What is even m	5MH
26	to be unstable and therefore prone to	**recombine**	with other genes. Third, the metabolic stress	5MH
27	parasites and therefore more prone to	**recombine**	with, and successfully transfer to, the genom	5MH
28	disabled viral vectors mobilise and to	**recombine**	with them. Furthermore, recombination betwe	5MH
29	n the original virus and more prone to	**recombine**	with other viruses and to pick up new genes f	5MH
30	opportunity for the genetic elements to	**recombine**	with other viruses and bacteria to generate n	5MH
31	d given the ability of viruses to acquire,	**recombine**	and swap genetic material, the deployment of	9SN

Fig. 5.161: *Concordance of 'recombine' in the English sci corpus.*

As a matter of fact, this term *–genetic recombination–* does not show up in the *soc corpus.* Only two occurrences of the noun *recombination* were found in 7IB from the *soc corpus*: *natural recombination* and *RNA recombination.* To delve into this issue, *recombine* (5) was also examined in the *soc corpus* as follows:

1	First, the ability to isolate, identify, and	**recombine**	genes is making the gene pool available, for t	4JR
2	ibility that the coat protein genes could	**recombine**	with genes in related viruses that find their wa	4JR
3	g decisions over what genes to insert,	**recombine**	, or delete in an effort to "alter," "transform," a	4JR
4	s can replicate indefinitely, spread and	**recombine.**	There may yet be time enough to stop the ind	7IB
5	und instead that the added genes can	**recombine**	with natural plant ruses to produce wholly new	7IB

Fig. 5.162: *Concordance of 'recombine' in the English soc corpus.*

Both *genes recombine with* and *recombine genes* are the most common patterns in the *soc corpus.* Although few, the evidence supplied in these concordance lines suggests that no attitude is ascribed to *genetic recombination.* Concordance lines do not necessarily convey negative evaluation or attitude. For example in figure 5.163, no evaluation as such is being expressed at all for *manipulación genética* in lines 1-19 when referring to the process of silencing technique (line 1), the characteristics of some organisms (e.g. fish) (line 2) to be modified, or for example, the analogy of the technique with a text processor (line 4). Lines 23-27, 31-32, 34-36, 38 also show the collocation *manipulación genética* employed with a scientific treatment. In contrast, lines 20 and 21 deal with the eugenics movement, lines 27-29, 33, 37, 39 deal with GMO labeling and risk assessment, and a less favorable evaluation can be read.

1	mo para impedir que se expresen. La	**manipulación genética**	por silenciado implica la regulac	9SN
2	ces ofrecen múltiples ventajas para la	**manipulación genética**	. Poseen una elevada fecundida	9SN
3	anto, supone un buen objetivo para la	**manipulación genética**	. Los herbicidas, además de per	9SN
4	licaciones comerciales, que utilizan la	**manipulación genética**	y la clonación de mamíferos, si	9SN
5	mo un texto, comparó el proceso de	**manipulación genética**	con el uso de un procesador de	9SN
6	genéticamente, genes y procesos de	**manipulación genética**	. Con frecuencia, están definidas	9SN
7	A MODIFICACIÓN DE LA LECHE. La	**manipulación genética**	tanto de la cantidad como de la	9SN
8	ica. Constituyen instrumentos para la	**manipulación genética**	, al tiempo que su producción po	9SN
9	s, se concedían para cubrir cualquier	**manipulación genética**	que se realizara a un vegetal pa	9SN
10	o aquellos que se elaboran mediante	**manipulación genética**	. La FDA es la principal respons	9SN
11	entes que contemplaban todo tipo de	**manipulación genética**	del algodón y la soja, y tenía pe	9SN
12	oncedió prioridad para someterlo a	**manipulación genética**	. En esta época se desarrollaron	9SN
13	Reglamento de sanidad y seguridad	(**manipulación genética**)	, de 1978, se introdujeron disp.	9SN
14	templaban casi todas las técnicas de	**manipulación genética**	que se empleaban por aquel en	9SN
15	esar de todo, es posible recurrir a la	**manipulación genética**	para aportar todos los aminoác	9SN
16	os experimentales sobre técnicas de	**manipulación genética**	. Dos grupos de investigación fu	9SN
17	frimiento que causa a los animales la	**manipulación genética**	suele ser difícil de determinar.	9SN
18	tánea. Sin embargo, las técnicas de	**manipulación genética**	si permiten integrar en la mism	9SN
19	en ser utilizado como vector para la	**manipulación genética**	de animales. Y en el tope de la	5MH
20	terapia génica de línea germinal y la	**manipulación genética**	son, respectivamente, prácticas	5MH
21	ca. En la actualidad, los riesgos de la	**manipulación genética**	se han vuelto mucho mayores.	5MH
22	ientíficos intentan crearlo mediante la	**manipulación genética**	. En 1994 fueron modificados ce	3EG
23	erosos los producidos mediante la	**manipulación genética**	de células con ADN recombinan	3EG
24	e los primeros éxitos en el intento de	**manipulación genética**	a principios de los años setenta.	3EG
25	os en biotecnología, el «cómo» de la	**manipulación genética**	. El grueso del libro — los capítu	3EG
26	que andando el tiempo llevaría a la	**manipulación genética**	se inició en 1665, cuando el cie	3EG
27	bió de marcha y la era moderna de la	**manipulación genética**	emprendió su andadura. ¿Cóm	3EG
28	anos y otras especies. En general, la	**manipulación genética**	de vegetales no despierta tant	3EG
29	otros alimentos producidos mediante	**manipulación genética**	, la inmensa mayoría de la gente	3EG
30	uro.) Hoy, tras más de veinte años de	**manipulación genética**	de bacterias sin que haya ocurr	3EG
31	nismos marinos. El resultado de esta	**manipulación genética**	es que las bacterias emiten luz	3EG
32	minerales. Queda, pues, claro que la	**manipulación genética**	está aún lejos de convertirse en	3EG
33	s entre defensores y detractores de la	**manipulación genética**	se resumen en distintas visione	3EG
34	n control mucho más preciso sobre la	**manipulación genética**	, ocurre solo en una entre un mil	2SA
35	o lo inmenso que es el campo para la	**manipulación genética**	en la industria láctea. Las Indus	2SA
36	ducción de las cosechas es utilizar la	**manipulación genética**	para superar los límites ecológi	2SA
37	yor de radiación ultravioleta. ¿Será la	**manipulación genética**	un factor adicional que degrade	1ER
38	da. Por tanto, genes introducidos por	**manipulación genética**	podrían transmitirse desde una	1ER
39	que han invertido mucho dinero en la	**manipulación genética**	y están impacientes. También	1ER

Fig. 5.163: *Concordance of ‘manipulación genética’ in the Spanish sci corpus.*

Lines in 5.163 are made up of 39 samples from which the same collocation –*manipulación genética*– registered 32 lines in the English *sci corpus.* The frecuency of the verb *manipular* is also slighty higher in the *soc corpus* (14 in the *sci,* 17 in the *soc corpus*). The habitual lexical environment of *manipular* is the microbiology level of *ADN* and *gen/es.*

1	N de cadena simple, más difíciles de	**manipular**	que el ADN de doble cadena (véase la nota	9SN
2	las emplea como instrumentos para	**manipular**	el ADN. Las diferentes enzimas se respons	9SN
3	urriendo a la ingeniería genética para	**manipular**	tanto la cantidad como la calidad de la leche	9SN
4	qué punto los seres humanos deben	**manipular**	los procesos de la vida. Los sondeos de opi	9SN
5	nes se les ha otorgado la facultad de	**manipular**	la naturaleza, con la ingeniería genética com	9SN
6	eron a sus especialistas recombinar y	**manipular**	el material genético de diferentes fuentes? Y	5MH
7	s genes extraños. Con el propósito de	**manipular**	, replicar y transferir genes los ingenieros gen	5MH
8	tir en fútiles y arriesgados intentos de	**manipular**	nuestros genes y los genes de otras especie	5MH
9	de críticos que deploraban la idea de	**manipular**	la naturaleza y mezclar la información genét	5MH
10	a. La investigación actual se dirige a	**manipular**	las bacterias para que produzcan resultado	3EG

11	sistemas naturales que pretendemos	**manipular**. Asociarse a la Naturaleza es más sensato		3EG
12	Los ingenieros químicos pueden así	**manipular** diferentes combinaciones de fármaco y prot		3EG
13	se encuentran en ella. Técnicas para	**manipular** genéticamente o utilizar microbios, plantas y		3EG
14	an desde si puede considerarse ético	**manipular** genes humanos hasta lo bueno y lo malo de		3EG
15	los hace mucho más económicos de	**manipular**. Dondequiera que se utilicen bacterias oxide		3EG
16	concentra y los hace más fáciles de	**manipular**. Después de un tratamiento típico de bioabs		2SA
17	de las armas biológicas. ¿Se podría	**manipular** un organismo para hacerlo peligroso para e		1ER

Fig. 5.164: *Concordance of 'manipular' in the Spanish sci corpus.*

When samples do not have *genes* or *DNA* as collocates of *manipular,* the ethical side of the issue comes into play (line 4, *manipular procesos de la vida [life],* line 9, *manipular la naturaleza*). In line 17, although the node collocates with *organism,* an ethical sense emerges as it was filled with a potential attitudinal meaning, since *armas biológicas* (biological weapons) and *peligroso* (dangerous) are placed in the immediate environment. With regard to the *soc corpus,* the following concordance lines for *manipulación genética* were extracted:

1	entos de generaciones después de la	**manipulación genética** original de los cultivos». La ine	10JS
2	erosas diferencias consecuencia de la	**manipulación genética**. Además, se han ignorado alg	10JS
3	era que los efectos indeseables de la	**manipulación genética** no se daban». Pryme y Lembc	10JS
4	inado todos los posibles efectos de la	**manipulación genética**». Pusztai, que había publicado	10JS
5	só de terrorismo a los opositores a la	**manipulación genética** en repetidas ocasiones. Uno d	10JS
6	or motivos que tengan que ver con la	**manipulación genética**, haría muy bien en hacérselo s	10JS
7	Pribyl dijo que algunos aspectos de la	**manipulación genética** «podrían ser más peligrosos».	10JS
8	os Unidos, donde las noticias sobre la	**manipulación genética** han recibido una mínima atenc	10JS
9	cado de prensa. Su idea clave: que la	**manipulación genética** puede arrojar unos resultados t	8BL
10	n día florecería convirtiéndose en una	**manipulación genética** destinada a que las plantas tole	8BL
11	una forma ambigua: «Rechazamos la	**manipulación genética** como una tecnología éticamente	8BL
12	midores que estaban nerviosos por la	**manipulación genética** de sus alimentos. Cuando la te	8BL
13	leada de informes sobre el éxito en la	**manipulación genética** de un arroz enriquecido con be	8BL
14	unos cerdos que, como resultado de la	**manipulación genética**, portaban el gen de la hormona	8BL
15	a música relajante, se nos dice que la	**manipulación genética** de los alimentos no se diferenci	8BL
16	les consecuencias». De momento, la	**manipulación genética** de los animales tiene escaso im	7IB
17	inaba por los tejidos resultantes de la	**manipulación genética** de los cerdos. Esa investigación	7IB
18	imos. Cada paso en la más elemental	**manipulación genética** tiene sus dificultades e implica r	7IB
19	gorosa y decidida la protesta contra la	**manipulación genética** como en Europa. ¿Por qué la s	7IB
20	teresada en la aureola que rodea a la	**manipulación genética**, ni en ganarse los elogios del s	7IB
21	idores tendrían que preguntarse si la	**manipulación genética** es realmente necesaria. Es difí	7IB
22	veces superiores a las variedades sin	**manipulación genética**. * En ensayos para evaluar la s	6LA
23	pulables. Esta nueva forma radical de	**manipulación genética** cambia tanto nuestro concepto	4JR
24	do en el capítulo 1, hay dos tipos de	**manipulación genética**. En la terapia somática se inter	4JR
25	a línea germinal. El debate sobre la	**manipulación genética** de las células de los óvulos, es	4JR

Fig. 5.165: *Concordance of 'manipulación genética' in the Spanish soc corpus.*

In fig. 5.165, twenty-five lines in the *soc corpus* (24 in the *sci* corpus) collocate with *consecuencias, efectos, opositores* (opponents), *peligrosos* (dangerous), *noticias* (news), *Monsanto*, *rechazamos* (reject), *dificultades* (difficulties), *transgénico, protesta, aureola* (glamour), *consumidores* (consumers), *riesgos y beneficios* (risks and benefits), *nueva forma* (new form), *resultados temibles* (fearsome results), and *debate*; that is, a large number of lines exhibit undesirable effects of the technique (e.g. line 3). However, lines 14, 15, 17 and 24 show no attitude, but the proper explanation of scientific procedures related to genetic engineering. If we move on to compare the results for the verbal node *manipular,* the number of hits are 26 concordance lines in the *soc corpus* against the previous 10 lines in the *sci corpus*.

1	to y la FDA habían decidido suprimir y	**manipular**	los datos de las pruebas de salud practicadas	10JS
2	su último libro, Engineering the Farm	(**Manipular**	la granja), que pasó por la imprenta sin prob	10JS
3	étodo utilizado por Byrne consistía en	**manipular**	sitios Web para que los motores de búsqueda	10JS
4	XX, Delta and Pine Land sabía cómo	**manipular**	el sistema. Ciertamente, su nombre, que sugi	8BL
5	lgodón es el rey. —Me evita tener que	**manipular**	todas esas variedades de insecticidas tan pot	8BL
6	ilenio, más del 70% iban destinadas a	**manipular**	la obra de los herbicidas. Esta tecnología tam	8BL
7	t. Louis, ya estaba planificando cómo	**manipular**	los genes de las plantas. En aquella época, n	8BL
8	ria. La tenacidad de la empresa para	**manipular**	a la burocracia (y su exitazo con el herbicida	8BL
9	o de seguridad. Se creían capaces de	**manipular**	no sólo genes, sino también a las personas	8BL
10	y otras propiedades. La capacidad de	**manipular**	el contenido nutricional de los vegetales tiene	8BL
11	—Ustedes no crean nada; se limitan a	**manipular**	la naturaleza de la vida —arguye. Me quedo	8BL
12	to perfeccionaba sus habilidades para	**manipular**	a los cuerpos reguladores. En los años que c	8BL
13	ro, con toda seguridad, la facultad de	**manipular**	la vida arroja muchas cuestiones de carácter	7IB
14	zas cuando descubrieron la forma de	**manipular**	el gen que controla el proceso de maduración	7IB
15	bía sido un error, pues la decisión de	**manipular**	el alimento prácticamente más perfecto de la	7IB
16	ambién se han realizado intentos para	**manipular**	genéticamente vacas, ovejas, cerdos y pollos	6LA
17	r que acabamos de hacer nuestro de	**manipular**	el código genético de la vida se nos presenta	4JR
18	o especializado que se necesita para	**manipular**	el nuevo «oro verde» está en los laboratorios	4JR
19	base, el ADN, que se puede extraer,	**manipular**,	recombinar y programar en un número infinit	4JR
20	adquirida de identificar, almacenar y	**manipular**	los mismísimos programas químicos de los o	4JR
21	e sus compañeros y él habían podido	**manipular**	ciertos genes de un embrión de rana y suprim	4JR
22	penden de su capacidad de conocer y	**manipular**	la diversidad biológica». No hay manifestación	4JR
23	ntextos lineales; creen que es posible	**manipular**	el desarrollo gen a gen, como si un organismo	4JR
24	eres nuevos y útiles, y que se pueden	**manipular**,	transformar e insertar en organismos destina	4JR
25	es empresas y los gobiernos pueden	**manipular**	el mundo natural al nivel más básico, el de lo	4JR
26	d, adquirida gracias a la evolución, de	**manipular**	los genomas mediante el cruzamiento selecti	4JR

Fig. 5.166: *Concordance of 'manipular' in the Spanish soc corpus.*

The first R1 collocates of *manipular* in the *soc corpus* are *datos* (data) (line 1), in which *Monsanto* is mentioned; *sistema* (line 4), that is preceded by *Delta and Pine Land* (a biotechnology company); *burocracia* (line 8); *naturaleza de la vida* (nature of life); *cuerpos reguladores* (regulatory bodies) (line 12); *vida* (life) (line 13), and *diversidad* (diversity) (line 22). It is remarkable to note the use of *manipular la granja* (line 2), as the translation of the original *Engineering the Farm*. A more neutral translation may have been *Modificar la granja genéticamente*; however, the assumption is that it may not be as catchy for the reader as the verb *manipular*. Assuming the absence of attitude in the term *engineering, manipular* may not avoid the force of evaluation, since it does not collocate with *genes, ADN* or *genéticamente* but *farm* and this way being not directly related with the items found in a laboratory. One could hypothesize that when *manipular* collocates with *genes,* the mechanism of semantic prosody seems to have been silenced. An exception for this is line 9 (fig. 5.166), in which *genes* is emphasized by *no solo* (not only), *capaces de* (not capable) and *Monsanto.* Some other emphasizers that add meaning to the direct objects of *manipular* are encountered in the rest of R1 collocates such as *todas esas variedades de insecticidas* (all these varieties of insecticides) (line 5) in which *Percy Schmeiser* is found in the co-text, *la obra de los herbicidas* (the workings of) (line 6) and *los mismísimos programas químicos* (the very chemical programmes) (line 20). Line 17 collocates with a neutral NP, *código genético* (genetic code), but is enhanced with the word *poder* (power) and a similar situation takes place in line 18 in which *manipular* collocates with the typographically enhanced *el nuevo «oro verde»* (green gold) and is also accompanied by *revolución biotecnológica.*

Devoid of attitudinal meaning are neutral occurrences that offer a scientific treatment of the search word. These are lines 7, 10, 19 and also lines in which *manipular* is clarified by *genéticamente* (genetically) (line 16), by *alimento* (food) (lines 14, 21 and 23), by *gen/es* and *organismos,* and by *genomas* (line 26).

Concerning *modificación genética,* R1-R5 collocates complete the meaning of the node mainly by means of purpose infinitives: *para mejorar* (to improve), *para resistir* (to resist); and internal arguments: *de los cultivos* (of the crops), as shown below:

1	son las principales candidatas a la	**modificación genética**	para mejorar los valores nutricio	9SN
2	luyó, que no había indicios de que la	**modificación genéta**	para resistir a la kanamicina o la to	9SN
3	taran la invasividad de la colza. La	**modificación genética**	de los cultivos también podría t	9SN
4	ina por los efectos secundarios de la	**modificación genética**.	RESISTENCIA A LOS INSECT	9SN
5	ón del Atlántico ha sido objeto de una	**modificación genética**	para introducirle el gen de una p	9SN
6	ROL DE PLAGAS DE INSECTOS. La	**modificación genética**	de cultivos ofrece muchas venta	9SN
7	fenómeno ilustra cómo una pequeña	**modificación genética**	tiene el potencial para causar un	9SN
8	dicional que causa a los animales la	**modificación genética**	se compara con los beneficios q	9SN
9	consten los métodos tradicionales de	**modificación genética**,	como la hibridación cruzada de	9SN
10	itan buenas razones para justificar la	**modificación genética**	de los organismos. Las persona	9SN
11	aturaleza. Este caso ilustra cómo una	**modificación genética**	en un organismo puede afectar	9SN
12	erencia de determinados genes, si la	**modificación genética**	incrementa el sufrimiento de los	9SN
13	animales surgidos de programas de	**modificación genética**	debían tratarse como potencial	9SN
14	mores; simplemente muestran que la	**modificación genética**	es mucho más común en nume	5MH
15	hambrientos del mundo mediante la	**modificación genética**	de los cultivos, para que resisti	5MH
16	tución de la expresión menos emotiva	«**modificación genética**»	por el término «ingeniería ge	5MH
17	asiado inamistoso y atemorizante). La	**modificación genética**,	se nos decía, era sencillament	5MH
18	plantas. La ventaja significativa de la	**modificación genética**	radicaba en que era mucho má	5MH
19	o existe distinción conceptual entre la	**modificación genética**	de vegetales y microorganismo	5MH
20	no». Es irresponsable afirmar que la	**modificación genética**	puede producir plantas transgén	5MH
21	tro desarrollo importante es el de la	**modificación genética**	del ganado doméstico, ovejas y	5MH
22	autóctonos, que no requieren ninguna	**modificación genética**,	y que pueden garantizar una pr	5MH
23	es. También presenta el proceso de	**modificación genética**	como una operación precisa y s	5MH
24	es parecidos en otros vegetales. La	**modificación genética**	de plantas para resistir enferme	3EG
25	ha consolidado como un paso hacia la	**modificación genética**	de la acacia. Pueden ser introd	3EG
26	micos con herramientas tales como la	**modificación genética**	y la vacunación. En 1993, por e	3EG
27	etiradas de un animal maduro para su	**modificación genética**	y luego volver a ser insertadas	2SA
28	icio de un programa que permitiera la	**modificación genética**	de la línea germinal humana, in	1ER

Fig. 5.167: *Concordance of 'modificación genética' in the Spanish sci corpus.*

The number of occurrences for *modificación genética* in the *sci corpus* is similar (28) to the ones in the *soc corpus* (32). It is not the case for *modificar* in the *sci corpus* (55) and the *soc corpus* (28). In fig. 5.168 it was expected to find that the majority of the R1-R2 collocates and the surrounding words belong to the realm of microorganisms, plants, genetic features and animals.

1	n método cada vez más habitual para	**modificar**	cultivos mediante ingeniería genética. Las gra	9SN
2	condiciones medioambientales, para	**modificar**	la expresión de un gen. También cabe la posi	9SN
3	eniería genética también ha permitido	**modificar**	la composición de las patatas, pero por razon	9SN
4	tica posee un enorme potencial para	**modificar**	los cultivos. En este capítulo se describe una	9SN
5	os alimentos producidos con sojas sin	**modificar**	. Uno de los usos más importantes de la soja e	9SN
6	as, los ingenieros genéticos pueden	**modificar**	potencialmente cualquier reacción bioquímica	9SN
7	últiples y complejas. Potencialmente,	**modificar**	un organismo puede tener repercusiones en t	9SN
8	ADN también puede emplearse para	**modificar**	secuencias codificadoras y crear nuevas prote	9SN
9	tros genes. Todos pueden actuar para	**modificar**	los efectos de otro gen, mediante sutiles camb	9SN
10	vírico principal, aunque es capaz de	**modificar**	la capacidad infecciosa del virus. El ARN sate	9SN
11	entes de los procesos realizados para	**modificar**	animales que «puedan provocarles sufrimient	9SN
12	s técnicas de ingeniería genética para	**modificar**	los animales de granja ha suscitado preocupa	9SN
13	emplearse la ingeniería genética para	**modificar**	un monocultivo mediante genes ajenos para p	9SN
14	s derechos de cualquier método para	**modificar**	las proteínas insecticidas B. t. y hacer que se	9SN
15	y, por lo tanto, es posible evitarlos al	**modificar**	genéticamente los organismos para elaborar a	9SN
16	a se ha visto en este libro, es posible	**modificar**	las enzimas recurriendo a la ingeniería genéti	9SN
17	dial de alimentos son, en primer lugar,	**modificar**	el rendimiento de la fotosíntesis y, en segund	9SN
18	n seguido dos líneas principales para	**modificar**	cultivos con vistas a conseguir la resistencia a	9SN
19	emplearse la ingeniería genética para	**modificar**	plantas resistentes a la sequía y desarrollar ra	9SN
20	un conjunto de técnicas para aislar,	**modificar**	, multiplicar y recombinar los genes de diferent	5MH
21	o indeseable; al cambiarlo, podemos	**modificar**	dicho rasgo y al transferirlo podemos transferi	5MH
22	ro ambiental del mundo, les prometía	**modificar**	cepas de bacterias y plantas superiores para	5MH
23	orma a la línea germinal, con el fin de	**modificar**	los genes para la próxima generación o estab	5MH
24	ial, debiéramos buscar para explicar y	**modificar**	nuestra condición»: en nuestros genes. De a	5MH
25	tanto, lo que necesitamos hacer es	**modificar**	genéticamente a las personas para que no s	5MH
26	erosos mecanismos bioquímicos para	**modificar**	y reorganizar el ADN, lo que sugiere que eso	5MH
27	ra la compañía fueron los primeros en	**modificar**	el genoma del algodón mediante el uso de un	3EG
28	tos que fueran surgiendo, así como a	**modificar**	sus opiniones sobre la biotecnología según lo	3EG
29	genética puede ser empleada para	**modificar**	diferentes etapas de la producción, desde la a	3EG
30	en proceso de desarrollo, consiste en	**modificar**	químicamente una molécula producida por el t	3EG
31	tas el frío podría incluso hacer posible	**modificar**	especies subtropicales para ser cultivadas en	3EG
32	ería genética puede entrar en juego y	**modificar**	las bacterias incrementando su ritmo de creci	3EG
33	o natural, los científicos se lanzaron a	**modificar**	el carácter genético del moho original, para lo	3EG
34	zo de ADN con otro, duplicar genes y	**modificar**	organismos mediante la introducción de nuev	3EG
35	encia, otro color de ojos. Podemos	**modificar**	la forma y las propiedades de algunas proteí	3EG
36	entorno, la dieta y los hábitos pueden	**modificar**	el resultado de múltiples predisposiciones gen	3EG
37	igura 2.1). Gracias a su capacidad de	**modificar**	las células de otras especies para que lleven	3EG
38	investigadores trabajan para intentar	**modificar**	los microbios más adecuados para su produc	3EG
39	obstante, los intentos realizados para	**modificar**	la Zymomonas mobilis para su producción co	3EG
40	la productividad oceánica consiste en	**modificar**	el contenido de nutrientes de las aguas. Las	3EG
41	partes de determinadas células para	**modificar**	su comportamiento habitual. No son, en princ	3EG
42	tibles de producir combustible, o para	**modificar**	los combustibles resultantes. La mayor parte	3EG
43	s plantas para adaptarse al suelo que	**modificar**	el suelo para adaptarse a las plantas. Los inv	3EG
44	lazo podría resultar más fácil y barato	**modificar**	las plantas para adaptarse al suelo que modif.	3EG
45	s en su leche. Los científicos pueden	**modificar**	la composición proteica de la leche proporcio	3EG
46	las leguminosas. Esperan conseguir	**modificar**	estos genes para multiplicar la eficiencia bac	3EG
47	er experimento exitoso realizado para	**modificar**	el color de las flores por ingeniería genética	2SA
48	tá en marcha. Algunas plagas pueden	**modificar**	el desarrollo de la planta que parasitan, haci	1ER
49	amente fácil. Aislar el gen de la zeína,	**modificar**	levemente su secuencia de ADN de modo qu	1ER
50	s secretos de la vida, están intentando	**modificar**	la vida en beneficio propio. ¡Han llegado los in	1ER
51	a; genéticos, porque la única forma de	**modificar**	permanentemente las propiedades de un orga	1ER
52	as y que, si fuera posible, sería mejor	**modificar**	la línea germinal. Desde el punto de vista gen	1ER

53	e, si se desarrolla una técnica para	**modificar** la línea germinal con objeto de tratar enferme	1ER
54	secuencia específica. Sólo se pueden	**modificar** las bases adenina y citosina. La modificación	1ER
55	virus producidos tendrán su ADN sin	**modificar** y como consecuencia tendrán grandes dificult	1ER

Fig. 5.168: *Concordance of 'modificar' in the Spanish sci corpus.*

The only occurrences that do not make reference to the previous topics (genetic features) are line 24 *modificar nuestra condición,* since it deals with genetic determinism. Albeit dealing with resignation to a fate, it may seem ardous to argue that this sentence may suggest a prosody when no appraisal was expressed, just concern.

If we move onto the *soc corpus,* the frequency of *modificación genética* in the *sci corpus* was 28, while it is 32 in the *soc corpus*. By examining the concordance lines, the first aspect that called our attention was the syntactic structure in which the node is embedded. The majority of lines are not followed by the object of the genetic modification (e.g. *genes, proteins*), as previously observed, but *genetic modification* is the object of the previous noun (e.g. *proceso de la modificación genética, política de modificación genética*), as illustrated below:

1	oducto alimentario relacionado con la	**modificación genética**. Como tal, había mucho en jueg	10JS
2	«estos resultados demuestran que la	**modificación genética** es un proceso más bien torpe y	10JS
3	ones» e imprimió a la campaña por la	**modificación genética** una velocidad fulgurante. Dice e	10JS
4	barcados en una nueva tecnología, la	**modificación genética** de los alimentos, e iban a pedirl	10JS
5	rreo electrónico de la actualidad de la	**modificación genética**». Rebecca Bowden, que había c	10JS
6	de las semillas serían producto de la	**modificación genética**. Al tiempo que algunos integrant	10JS
7	s Union, avisó de que si el proceso de	**modificación genética** «apagaba» un gen nativo cuya t	10JS
8	era. El tabaco es muy nocivo, pero la	**modificación genética**, si se torna problemática puede	10JS
9	ente modificado. Grandes planes: la	**modificación genética** de la producción alimentaria. Ci	10JS
10	uede tener su origen en procesos de	**modificación genética**. Según el Non-GMO Source, «E	10JS
11	tico por parte de los partidarios de la	**modificación genética** y de los organismos reguladore	10JS
12	ecnológica, también establecía que la	**modificación genética** «podría tener efectos pernicioso	10JS
13	encias entre la crianza tradicional y [la	**modificación genética**]... La propia FDA hace la distinci	10JS
14	tos de la crianza tradicional y los de la	**modificación genética**», escribió Pribyl en una carta dir	10JS
15	ses ya han adoptado la tecnología de	**modificación genética**. Los productos GM incluyen hel	10JS
16	unales hayan fijado que su política de	**modificación genética** no es norma sino, más bien, un	10JS
17	que comemos puede derivarse de la	**modificación genética**, si el público así lo quiere. Lo qu	8BL
18	moderna e intensiva, incluyendo la	**modificación genética**. Los vegetales, la fruta, la carne	8BL
19	a entre los alimentos derivados de la	**modificación genética** y la comida procedente de medi	8BL
20	o la empresa líder en la carrera de la	**modificación genética**, ha añadido hasta ocho genes a	8BL
21	estigación fue una avanzadilla de esa	**modificación genética** a base de Bt que a finales de lo	8BL
22	orgánicos». La normativa sobre la no	**modificación genética** inquietaba a los representantes	8BL
23	Es un error concluir que el proceso de	**modificación genética**, o incluso los genes insertados	8BL
24	de mejores variedades de cultivo. La	**modificación genética** no es algo nuevo. Empezamos	8BL
25	a de que esto es lo que fomentará la	**modificación genética**. Es totalmente posible que, den	8BL
26	ro de alimentos controla al mundo. La	**modificación genética** es el medio para acabar con el	8BL
27	os sugiere una paranoia en torno a la	**modificación genética** del pan nuestro de cada día. —	8BL
28	de dos décadas de experiencia en la	**modificación genética**, es posible cortar, insertar, pega	7IB
29	acias a lo que la compañía califica de	«**modificación genética**», esas patatas no sólo son be	7IB
30	ados Unidos vendrán de técnicas de	**modificación genética**." -Val Giddings, Vicepresidente	6LA
31	orque se les ha sometido a una ligera	**modificación genética**? ¿Qué pasa con un chimpancé?	4JR
32	países sureños arguyen que la ligera	**modificación genética** de un cultivo o hierba en el labo	4JR

Fig. 5.169: *Concordance of 'modificación genética' in the Spanish soc corpus.*

Taking into account that *modificación genética* is the complement of the NP, a significant number of occurrences reveal a tendency to deal with the negative effects of the technology (line 12), and the campaign against this food (line 3, 8, 10, 13, 22, 27). The topic around food is the prevalent subject in these concordance lines, the area that provokes controvery more than any other. Unlike *modificación genética,* the verb *modificar* in the *soc corpus* brings about semantic associations with the item to be modified. Although occurrences for *modificar* were 55 in the *sci corpus* and 28 in the case of the *soc corpus* (see fig. 5.170), the linguistic bahavior of this infinitive in the *soc corpus* is similar to the one in the concordance lines in the *sci corpus* (see fig. 5.168).

1	el silenciamiento del gen al intentar	**modificar**	genéticamente unas petunias. El nuevo gen	10JS
2	un repertorio único» de ellas, y puede	**modificar**	la proteína de distintas maneras. Por ejemplo,	10JS
3	a. Los mezcladores de código pueden	**modificar**	un código de ARN de muchas, muchas mane	10JS
4	, ahora propiedad de DuPont, quería	**modificar**	genéticamente un tipo de semilla de soja y co	10JS
5	retirados del mercado o tuvieron que	**modificar**	en gran medida su etiquetado porque no men	10JS
6	ya mencionados en esta lista pueden	**modificar**	el contenido nutricional de un alimento GM. L	10JS
7	o el gusto, sino también la textura. Al	**modificar**	los brotes de soja y el aceite derivado de ellos,	8BL
8	oactivos. En el laboratorio, se pueden	**modificar**	las proteínas y los carbohidratos a gran escala,	8BL
9	los primeros científicos del mundo en	**modificar**	genéticamente una planta de un modo sistema	8BL
10	r del que tenía cuando se dedicaba a	**modificar**	plantas genéticamente en St. Louis. Nuestra c	8BL
11	secha también es un tema central. Al	**modificar**	las vías metabólicas, podemos aumentar en m	8BL
12	tica no es algo nuevo. Empezamos a	**modificar**	genéticamente las plantas cuando salimos de	8BL
13	ue creía que habría un esfuerzo para	**modificar**	las reglas, permitiendo que los alimentos gen	8BL
14	ue hizo en los Estados Unidos para	**modificar**	la soja, el maíz y las patatas: insertar genes p	8BL
15	s de la biotecnología en su intento de	**modificar**	el flujo mundial de alimentos? Este cambio ta	8BL
16	Cambridge. Pero nadie había logrado	**modificar**	una planta, cualquier planta, de modo que exp	8BL
17	as y valiosas, pero no resulta tan fácil	**modificar**	los alimentos sin afectar otras características.	7IB
18	ultura de Estados Unidos consintió en	**modificar**	sus directrices.). Según las modernas ideas pr	7IB
19	stentes a las heladas. Hoy es posible	**modificar**	las plantas con genes procedentes de bacteri	6LA
20	bitats. Hay, por ejemplo, planes para	**modificar**	genéticamente con nuevos rasgos los cultivos	6LA
21	ntaria. Un ejemplo es el esfuerzo por	**modificar**	las frutas y las verduras para que maduren m	6LA
22	ca de extraer células de un paciente,	**modificar**	su constitución genética y devolverlas a su cu	4JR
23	lgo de valor al someter a ingeniería y	**modificar**	la constitución genética de las plantas, o al ide	4JR
24	deben encontrarse nuevas formas de	**modificar**	los planos genéticos de microbios, plantas y a	4JR
25	o de la recién adquirida capacidad de	**modificar**	, mejorar o producir grandes cantidades de ma	4JR
26	que estemos intentando decidimos a	**modificar**	sea la genética. El problema es sólo cómo ha	4JR
27	aplicar las leyes de la herencia para	**modificar**	y mejorar la raza de nuestros animales domés	4JR
28	ía se encuentra en el umbral de poder	**modificar**	selectivamente gen a gen y de lograr, por cons	4JR

Fig. 5.170: *Concordance of 'modificar' in the Spanish soc corpus.*

Like in the *sci corpus, modificar* appears reinforced by the adverb *genéticamente* (line 1, 4, 9, 10 and 20). Some of the lines (1-4, 6, 8, 16-17) refer to proteins, ARN and plants from which the process of genetic modification at the level of microorganisms can be inferred. This meaning disappears in line 5, which refers to the modification of labeling. Likewise, line 13, as it collocates with *rules,* does not maintain the meaning of *genetic modification.* The same is true for line 15 with *flujo mundial de alimentos* (food supply), line 18 with *directrices* (guidelines), line 23 with *constitución genética* (genetic make up), and line 27 with *la raza* (the breed of domestic animals). Another case worth commenting on is *constitución genética de las plantas* (genetic makeup of plants) in line 23. This pattern in conjunction with *modificar* is conceptualized unfavorably as the verb *someter* (subdue) *is* preceeding the NP, plus the fact that the sentence is enclosed in the business world and *piratería* (piracy) appears in the previous sentence. The world company in particular Monsanto is also the background of lines 7 and 14 in which *modify* collocates with the most wide-spread transgenic food –soy–.

The last terms to be anlyzed under the lens of semantic prosody are *recombinación genética* and *recombinar.* Like in the English corpus*,* the polilexical term *recombinación genética* is only present in the Spanish *sci corpus* with a frequency of 4 times, that is, similar to that of the English *sci corpus* (6 times).

1	oduce nuevos riesgos debido a que la	**recombinación genética**	de los vectores con virus pued	5MH
2	davía nuevos riesgos, debido a que la	**recombinación genética**	de los vectores con virus resid	5MH
3	azgos que apuntan al potencial de la	**recombinación genética**	entre vectores artificiales que	5MH
4	del ADN o la transcripción inversa, la	**recombinación genética**	y deleciones de pares de base	5MH

Fig. 5.171: *Concordance of 'recombinación genética' in the Spanish sci corpus.*

The context of this pattern appertains to natural and artificial vectors, so that the exclusively scientific behavior is assured. As for the verb, the 31 concordance lines of *recombinar* in the English *sci corpus* have been reduced to 7 in the Spanish *sci corpus*.

1	a capacidad de los virus para adquirir,	**recombinar**	e intercambiar material genético, la utilizació	5MH
2	iles de veces. Se pueden reordenar o	**recombinar**	las secuencias; los genes pueden saltar de	5MH
3	epara una respuesta inmunológica. Al	**recombinar**	diferentes variantes en familias poligénicas	5MH
4	pas patógenas de virus o bacterias al	**recombinar**	genes en el laboratorio. Esto llevó a la Decl	5MH
5	ue les permitieron a sus especialistas	**recombinar**	y manipular el material genético de diferent	5MH
6	cas para aislar, modificar, multiplicar y	**recombinar**	los genes de diferentes organismos. Permit	5MH
7	e los científicos empezaran a cortar y	**recombinar**	genes en moscas de la fruta, ratones, bact	3EG

Fig. 5.172: *Concordance of 'recombinar' in the Spanish sci corpus.*

The immediate surrounding words comprise *genes, secuencias, virus* and *bacterias* in addition to a series of relating verbs such as *manipular, intercambiar, multiplicar* and *modificar.* The same is true for *recombinar* in the *soc corpus,* whose frequency (5 concordance lines) is similar to that of *recombinar* in the *sci corpus* (7)*.*

1	io, que los genes añadidos se podían	**recombinar**	con los virus naturales de las plantas para p	7IB
2	a lo grande, que no paran de corregir,	**recombinar**	y reprogramar los componentes genéticos d	4JR
3	N, que se puede extraer, manipular,	**recombinar**	y programar en un número infinito de nueva	4JR
4	o: la capacidad de aislar, identificar y	**recombinar**	los genes hace que por primera vez podam	4JR
5	nacrónico en cuanto nos ponemos a	**recombinar**	caracteres genéticos más allá de las fronte	4JR

Fig. 5.173: *Concordance of 'recombinar' in the Spanish soc corpus.*

Both *recombinación genética* and *recombinar* have been assigned neutral prosodies or no prosodies on account of their semantic preferences (e.g. *genes, virus, secuencias*). This also happens for verbs as *recombinar,* which refers to the scientific technique of recombinant DNA technology. Its meaning makes the use of *recombinar* more collocationally fixed in specialized languages and this fixation does not allow surrounding lexical items to allocate any type of evaluation. In this vein, terms are supposed to lack prosody as long as the word has a narrower range of use. However, in practice, some terms may convey a type of attitude, as was shown in a few examples in the present section, and that will be shown in the next section of semantic prosodies pertaining *genetically,* the second most frequent term from the English 5-top technical keywords (specialized field) in the *sci* and *soc* corpora (see table 5.13 above). Some of these combinatorial patterns made up of *genetically + Adj* were previously examined in the part devoted to denominative variation. Not only did we study the immediate surrounding of *genetically,* but also the whole sentence.

5.3.5.2. Technical terms (specialized field): *Genetically + Adj*

Corpus research can help us spot collocations but our own interpretation of data results will help us answer why a given combination was associated with a particular semantic prosody. The case of *genetically + adjective + noun* is the pattern selected to study the semantic prosodies for the concept 'genetic modification' in this section. Taking a random sample of the 535 concordance lines of *genetically* for the *sci corpus*, results are shown below:

22	outinely in E. coli containing	**genetically engineered** plasmids. Human growth hormone, c	1ER
23	ctive genes. The release of	**genetically engineered** organisms into the environment could	1ER
24	with the crop plant and so	**genetically engineered** genes might be transmitted from the c	1ER
45	g to use live virus. The first	**genetically engineered** vaccine was for human hepatitis B. Th	2SA
46	enic tomato that is the first	**genetically engineered** food to find its way into the market, ha	2SA
62	lause. The case of the first	**genetically modified** animal to be patented highlights these is	2SA
63	there is a selection step for	**genetically modified** plant cells that depends on the presence	2SA
64	p around the production of	**genetically modified** tomatoes, which have an extended shelf-	2SA
65	public fear of the release of	**genetically modified** organisms. However, there is a great dea	2SA
66	to consumer pressure that	**genetically modified** products such as the Flavr Savr tomato s	2SA
118	k potatoes became the first	**genetically modified, insect-resistant** crop to receive full U.S	3EG
71	ion is to generate new cells,	**genetically altered** stem cells can be a source of healthy blood	3EG
72	ets managers quickly clone	**genetically altered** bacteria and put them to work making horm	3EG
73	red in 1994 describes how	**genetically altered** members of the brassica plant family (famil	3EG
74	ducers be required to label	**genetically altered** food products? Life. A Questionnaire. Chec	3EG
75	rchers, results were mixed.	**Genetically altered** TILs were detectable in his body up to thre	3EG
115	s for ongoing production of	**genetically improved** seeds. The problem with letting conifers	3EG
31	rop plant to a wild species.	**Genetically manipulated** organisms, bacteria, viruses, plants,	1ER
124	ough a series of tests with	**genetically mutated** strains of bread mold. Each strain lacked	3EG
214	n of Ireland by Monsanto's	**genetically 'mutilated** crops' to the Norman invasion and sees	5MH
125	ngineered genes. But while	**genetically novel** organisms establish their place in a culture,	3EG
535	treated with antibiotic, the	**genetically transformed** material is therefore selected from un	3EG

Fig. 5.174: *Concordance of 'genetically + adjective + noun' in the English sci corpus.*

The 535 occurrences from the English *sci corpus* were reduced to 418 in the following manner: 261 occurrences were elegible for *genetically modified*, 136 for *genetically engineered*, 18 for *genetically altered* and 3 for *genetically manipulated.* The occurrences retrieved for the *soc corpus,* which are elegible for the pattern *genetically + Adj + N,* are 706. The table below is a summary of the collocates that are analyzed in terms of semantic prosody, first in the English *sci*, then in the *soc corpus*:

English *sci corpus* GENETICALLY		*Freq*	English *soc corpus* GENETICALLY		*Freq*
1.	Genetically modified	261	*1.*	Genetically engineered	426
2.	Genetically engineered	136	*2.*	Genetically modified	257
3.	Genetically altered	18	*3.*	Genetically altered	18
4.	Genetically manipulated	3	*4.*	Genetically manipulated	5
5.	~~*Others*~~	~~7~~	*5.*	~~*Others*~~	~~5~~
Total: 418			Total: 706		

Table 5.175: *Frequency of the 'genetically' + 'adjective' (+ noun) pattern in both English sci and soc corpora to analyze semantic prosody.*

In the *sci corpus,* the remaining occurrences did not follow the sought pattern (*genetically + adjective + noun)* and were less frequent collocations (10 *happax legomena*). The total number of concordance lines (535) is included in appendix 8, in which the excluded concordance lines (535-415=120) (e.g. *offspring may be genetically abnormal*) are also part of the appendix. The same is true for the *soc corpus.*

In detail, *genetically engineered* is part of each book of the *sci corpus,* being 5MH the volume where a higher frequency of this collocation was encountered. It collocates, *inter alia*, with *organisms, genes, food* and *seeds.* Every node is related to one of these realms: either microorganisms, crops, plants or medicine (e.g. TIL= tumor-infiltrating lymphocytes). More specifically, the semantic sets in which line 22-535 are embedded are the appearance of *human diseases, environmental problems, risks, viruses* and *lab processes*. However, stating that an evaluation is being expressed is in any case a contentious and debatable issue. In fact, a thorough search of R1 and L1 collocates shows a number of interesting findings. There are no hits for this pattern *genetically + Adj + N* in 1ER. The R1 collocates for 2SA are *animals, organisms, plant cells, products* and *tomatoes* (see fig. 5.176); for 3EG, are *alfalfa, insect-resistant crop, mice, organisms* and *species;* for 5MH, there are 4 main collates: *products, crops, food/s* and *organism/s;* and for 9SN, the most frequent R1 collocates are *crop/s, food/s* and *organism/s* and the less frequent are, *inter alia*, *baculovirus, plants, soy* and *soybeans.*

Each hit recalled from the sought pattern (*genetically + adj + noun*) was added several key words from the corresponding sentence, which aided to classify semantic prosodies. For instance, in fig. 5.176 example no. 4, the node *products* is an R1 collocate of *genetically modified* and appears accompanied by *consumer pressure, labeled* and *Flavr Savr.*

SEMANTIC PROSODY_*GENETICALLY*_SCI CORPUS (418 OCCURRENCES)					
Genetically modified + N (sci corpus) (261 occurrences) Neutral: 55; Regulation: 33; Favorable: 22; Concern: 63; Concern (-): 36; Unfavorable: 52					
No.	**R1 collocate**	**Co-text/context**	**Semantic set**	**Book**	**No.**
1.	Animal	Patented/Oncomouse, Harvard Univ/Oncogene	**Neutral**	2SA	1.
2.	Organisms	Release of, public fear	Concern (-)		2.
3.	Plant cells	Selection step, resistant to antibiotic kanamycin	Concern (-)		3.
4.	Products	Consumer pressure, labeled, Flavr Savr	Concern (-)		4.
5.	Tomatoes	Production of, shelf-life	**Neutral**		5.

Table 5.176: *Semantic sets of 'genetically' + 'modified + noun' in 2SA book from the English sci corpus.*

Since *consumer pressure* is exerting a force over the collocation *genetically modified products,* the assessment of GMOs in this sentence entails concern giving GMOs a likely negative evaluation. However, *consumer pressure* needs to show semantic consistency, that is, to take part in a semantic set, in this case of, agents expressing a type of concern or disapproval for the pattern to be subject to negative evaluations. A negative evaluation is marked with the tags *Concern (-)* and *Unfavorable*. The former, *Concern (-),* designates a serious negative concern about GMOs that is usually complemented by bringing about modalization or modulation indicated by, for example, *potential*:

> The major ecological concerns with **genetically engineered crops** are: a) that they *may*, by gaining in vigour or invasiveness, *become* weeds of agricultural or natural habitats, and b) that genes *may be* transferred from them to wild relatives, whose hybrid offspring become detrimental in some way to the existing flora or fauna. (SN7E.s8) (*emphasis added*).

> Aware of my broader interest in **genetically modified food**, Neill told me that he was concerned about the *potential* safety threats from reordering the genetic materials of crops. (BL11E.s239) (*emphasis added*).

The latter, *Unfavorable,* as the name denotes, indicates a negative view of GMOs, primarily from the point of view of environmentalists, consumers and ecologists:

> Today, millions of people are calling for an outright ban on transgenic agriculture, or at least for an immediate moratorium on further releases of **genetically engineered crops**. (MH1E.s172). (*emphasis added*).

Other tags are *Neutral*, *Regulation*, *Concern* and *Favorable*. A *neutral* assessment was granted when a scientific process or experiment (e.g. *splicing, genetic modification, insertion of a gene*) is conveyed. For example, in line 1 and 5 in table 5.176, the scientific experiments are the genetic engineering of the Oncomouse at Harvard University and the production of genetically modified tomatoes. The second type of assessment *Regulation* expresses a neutral evaluation of the GMO in question in the framework of European and American normative:

> A range of other genetically modified crops and foods were also pending approval by the EC by 1998. (SN12E.s215).

As for *Concern*, as the word says implies concern about GMOs but without stating a clear standpoint in favor or against, or also a type of minor concern, such as the announcement of ethical concerns in the book chapter:

> Most UK supermarkets appear not to be opposed to genetically modified food in principle, but say they would like to offer customers a choice by providing guaranteed non-genetically modified produce. (SN13E.s125)).

With regard to *Favorable*, it is common to find occurrences that are in favor of GMOs on the part of governments, a number of scientists, and biotechnology companies, and also, the writer sometimes states his view:

> Genetically modified crops are therefore starting to make major contributions in a number of areas, in addition to food production. (SN6E.s310).

An exhausted register of adjacent keywords was annotated (see 8.8., table 8.28 to 8.31) for the four collocations made up of *genetically + Adj* in every book in the *sci corpus*. Results are extracted and shown in the following tables (5.177, 5.182, 5.187). *Genetically modified* does not appear in 1ER, but it is a term in the rest of the four books in the *sci corpus*. Likewise, 3EG is unique in including *genetically altered* as a word combination as part of the technical vocabulary. The same is true for *genetically manipulated* in 1ER and 9SN.

The option *genetically modified* is mostly used in the *sci corpus* over *genetically engineered, genetically altered* and *genetically manipulated*, although the bulk of examples are retrieved from one book (9SN). Notwithstanding, *genetically engineered* is used more uniformly along the *sci corpus* and it seems to be a less emotive term than *genetically modified,* taking into account that the former copes with a minor amount of negative evaluations (12 concern (-) + 16 unfavorable = 28 occurrences), whereas the latter embraces a higher number of negative evaluations (37 concern (-) + 52 unfavorable = 89 occurrences). Although the number of occurrences of *genetically altered* may not be found significant, it is remarkable to note that there are not unfavorable judgments, meaning that *altered* preserves a neutral meaning. In the case of *genetically manipulated,* the same book 9SN registers 2 occurrences containing a neutral and unfavorable semantic sets and it seems that terms are used indistinctively regardless of the context of situation.

ENGLISH SCI CORPUS							
Genetically modified + N (261 occurrences)							
Book	Neutral	Regulation	Favorable	Concern	Concern (-)	Unfavorable	*Total*
2SA	2	-	-	-	3	-	5
3EG	4	-	-	-	1	-	5
5MH	1	-	-	-	4	7	12
9SN	48	33	22	62	29	45	239
TOTAL	55	33	22	62	37	52	261
Genetically engineered + N (136 occurrences)							
Book	Neutral	Regulation	Favorable	Concern	Concern (-)	Unfavorable	*Total*
1ER	3	-	-	11	2	-	16
2SA	4	-	11	2	-	-	17
3EG	6	-	1	4	3	-	14
5MH	2	3	2	22	5	14	48
9SN	19	5	2	11	2	2	41
TOTAL	34	8	16	50	12	16	136
Genetically altered + N (18 occurrences)							
Book	Neutral	Regulation	Favorable	Concern	Concern (-)	Unfavorable	*Total*
3EG	10	-	2	5	1	-	18
TOTAL	10	-	2	5	1	-	18
Genetically manipulated + N (3 occurrences)							
Book	Neutral	Regulation	Favorable	Concern	Concern (-)	Unfavorable	*Total*
1ER	-	-	-	-	1	-	1
9SN	1	-	-	-	-	1	2
TOTAL	1	-	-	-	1	1	3
						Total	418

Table 5.177: *Semantic sets of 'genetically' + 'modified + noun' in the English sci corpus.*

Even though not very abundant, the occurrences of 5MH show this is the book with more negative evaluations about GMOs. It was not hard to spot unfavorable opinions about GMOs, since key adjunct collocates comprise *unacceptable, unsustainable, hazardous* and *banning* but also collocates that do not constitute unpleasant aspects *per se,* such as *promises* and *no need to feed the world*. These collocates are statistically significant, as they are encountered in the surrounding context of other hits marked as *unfavorable.* Therefore, it may be argued that a negative semantic prosody is suggested when the collocates from the *unfavorable* semantic set are found in the collocational profile of the keyword object of study.

Another key adjunct collocate (L4), the term *release* is interesting to look into. The behavior for the pattern *release(s) of* + *genetically* + *modified* + *noun* is examined through the concordance lines shown in figs. 5.178, 5.179 and 5.180. It seems that *release/s* has a typical usage with no extra shade of meaning intended. Notwithstanding, the node *release/s* is an example of a lexical item with a semantic prosody. The singular *release of* suggests a negative semantic prosody, since the node is impregnated by aspects that raise somewhat disquiet, such as *public fear, raise concern, banning, risk assessment,* and *damage.* The proposed unfavorable semantic prosody for *release of* has some key semantic collocates highlighted in red (*unfavorable*) and purple (*concern -*). The plural form *releases of* implies a neutral/favorable semantic prosody and mainly refers to regulation or lab processes though *massive investment, ice minus bacteria, application, Secretary of State, monitoring, guidelines, control* and *major contributions*.

Some words have been enhanced in italics to indicate that they have been abbreviated for space reasons so that the words that motivated the semantic prosody –those highlighted– are shown in the concordance lines. A stop was used to be a sign of the abbreviation. These truncated words are easily deduced (e.g. *environ.* is *environment, g.m.* is *genetically modified*):

Unfavorable

1	banning of g. e. foods, the deliberate	**release of** genetically modified organisms, and the patent	5MH
2	damage to the *environ.* [...] from the	**release of** genetically modified organisms. The escape of	9SN

Concern (-)

1	t are driven partly by public fear of the	**release of** genetically modified organisms. However, the	2SA
2	escape of *g.* modified species and the	**release of** medical drugs into the *environ.* raise the conce	3EG
3	risk assessment be carried out. In [...]	**release of** a genetically modified baculovirus (see Chapte	9SN

Neutral/Favorable

1	riculture. The scale of experimental	**releases of** genetically modified crops during the mid-19	9SN
2	the ice minus bacteria, one of the first	**releases of** a genetically modified organism into an agric	9SN
3	t for field-testing, or the environmental	**release, of** a genetically modified organism. The applica	9SN
4	ironment is needed before any actual	**releases of** genetically modified organisms are made to	9SN
5	details of the proposed experimental	**releases of** genetically modified organisms, the facilities	9SN
6	a statuary framework for the control of	**releases of** genetically modified organisms to the enviro	9SN
7	major contributions [...] has [...] for the	**release of** all genetically modified organisms into the envi	9SN

Fig. 5.178: *Favorable and unfavorable semantic prosodies of 'release(s) of' + 'genetically modified + noun' in the English sci corpus.*

The following results were extracted from studying the *genetically engineered + noun* patterns in the company of *release(s) of*, as shown below:

Unfavorable

3	ban on [...] moratorium on further	**releases of** genetically engineered crops. [...] risks and h	5MH
4	and to infect all other organisms. The	**release** of *g. e.* micro-organisms is especially hazardous.	5MH
5	ritics are concerned [...] uncontrolled	**release of** transgenic organisms in [...]guinea-pigs for test	5MH

Concern (-): Release of + release(d/s)

1	The major ethical issues are [...]. The	**release of** genetically engineered microbes, plants and a	1ER
2	cause a catastrophe? The [...] the	**release of** genetically engineered organisms that has to b	1ER
3	uestion that we were to think it safe to	**release** *g.e.* organisms into the *environm*., [...] 'crippled'	5MH
4	(or 'transgenics') that are deliberately	**released** on a [...] potentially much more hazardous, than	5MH
5	ium should be imposed on any further	**release** or marketing of *g.e.* products, [...] hazards and ris	5MH
6	*G. e.* baculovirus were 'crippled', [...]	**releases** against insect pests, by removing their coat prot	9SN

Fig. 5.179: *Unfavorable and 'negative concern' semantic prosodies of 'release(s) of' + 'genetically engineered + noun' in the English sci corpus.*

In this case both *release* and *releases* indicate either an unfavorable state of affairs and negative concern about GMOs. As previously seen, a span of more than two lexical items to both sides of the node was taken into account as a sufficient criterion to suggest a prosody. The force to suggest a prosody is minor in the first two lines of the second semantic set (*concern* -) since the key co-occurrences are located in adjacent sentences and they do not necessarily suggest unfavorable verdict, but merely concern. Yet most of the concerns expressed in fig. 5.180 refer to wary attitudes against GMOs especially conveyed by 5MH.

By examining the whole utterance of *genetically manipulated,* the 3 concordance lines encountered in the English *sci corpus* show collocates that express (1) the *production of additional proteins in the milk of mammals,* (2) *a referendum in Austria* (in which a famous statement was made by means of the adverb *no*)*,* and (3) the *concern of releasing GMOs into the environment*. This last one is shown below:

1	cies, since there is concern over the	**release of** *g.* altered microbes into the environment.	3EG

Fig. 5.180: *'Concern' semantic prosody of 'release(s) of' + 'genetically altered + noun' in the English sci corpus.*

With this in mind, the conveyance of *concern* has increased in the *soc corpus*. There are lexical items in the profile of the collocation *genetically + Adj + Noun* such as *warning, labeling, poses threat, profits, GE-free, opposing, remove, pressure, raise the cost, public opinion, unexpected, moratorium, segregation, banned, problems*, that are semantically consistent and therefore belong to the same semantic set, in this case, *unfavorable*. This is by no means to imply that every time *moratorium* is encountered, it will belong to an *unfavorable* semantic set. There is usually a *concatenation* of key collocates that conform a particular meaning, such as *unfavorable.* The concatenation of collocates exerts a force that makes them belong to a semantic set. For example, *increased health problems* and *angry* are part of the semantic set of *negative concern* in example 7 from table 5.181, inasmuch as *threat, security* and *nuclear weapons* fit in the *negative concern* semantic group in example 4:

SEMANTIC PROSODY_*GENETICALLY*_SOC CORPUS (706 OCCURRENCES)					
Genetically engineered + N (soc corpus) (426 occurrences) Neutral: 77; Regulation: 17; Favorable: 32; Concern: 80; Concern (-): 102; Unfavorable: 118					
No.	**R1 collocate**	**Co-text/context**	**Prosody**	**Book**	**No.**
1.	Animals	Patented, approval, genetically modified	Neutral	4JR	1.
2.	Animals	To release, into the environment,	Neutral		2.
3.	Biological warfare agents	Deliberate release of, deadly, mundane, catastrophic	Unfavorable		3.
4.	Biological warfare agents	Threat, security, nuclear weapons	Concern (-)		4.
5.	Bollworms	Release, environment, to mate with	Neutral		5.
6.	Corn	Genetically engineered soy, acres	Neutral		6.
7.	Drug	Increased health problems, angry	Concern (-)		7.
8.	Drugs	Beginning, vast possibilities, researchers	Favorable		8.
9.	Drugs	Range, substances, untold consequences	Concern (-)		9.

Table 5.181: *Extract of semantic sets of 'genetically' + 'engineered + noun' in 4JR book from the English soc corpus.*

Furthermore in fig. 5.182, a higher number of *unfavorable* (118, 82, 2 and 1) and *negative concern* co-occurrences (101, 83, 4 and 1) was registered for *genetically engineered,* compared to those hits of the *sci corpus.*

ENGLISH SOC CORPUS							
Genetically engineered + *N* (426 occurrences)							
Book	Neutral	Regulation	Favorable	Concern	Concern (-)	Unfavorable	*Total*
4JR	28	2	4	16	13	13	76
6LA	17	12	8	14	16	27	94
7IB	9	2	9	29	28	36	113
8BL	16	1	11	17	24	27	95
10JS	7	-	-	4	21	15	47
TOTAL	77	17	32	80	102	118	426
Genetically modified + *N* (257 occurrences)							
Book	Neutral	Regulation	Favorable	Concern	Concern (-)	Unfavorable	*Total*
4JR	3	-	1	1	10	4	19
6LA	-	-	-	-	1	1	2
7IB	2	1	-	4	6	9	22
8BL	14	-	10	30	62	50	166
10JS	6	-	8	12	4	18	48
TOTAL	25	1	19	47	83	82	257
Genetically altered + *N* (18 occurrences)							
Book	Neutral	Regulation	Favorable	Concern	Concern (-)	Unfavorable	*Total*
4JR	2	-	-	1	2	1	6
7IB	2	-	-	1	-	-	3
8BL	1	-	-	4	3	-	8
10JS	-	-	-	-	-	1	1
TOTAL	5	-	-	6	5	2	18

Genetically manipulated + N (5 occurrences)							
Book	Neutral	Regulation	Favorable	Concern	Concern (-)	Unfavorable	*Total*
7IB	1	-	-	2	1	1	5
TOTAL	1	-	-	2	1	1	5
						Total	706

Table 5.182: *Semantic sets of 'genetically' + 'modified + noun' in the English soc corpus.*

However, *genetically engineered* is also in the lexical environment of *neutral, favorable* and *concern* semantic sets. There seems to be no rule to distinguish why *genetically engineered* sometimes implies a favorable statement and some other times indicates an unfavorable state of affairs, unless we assume that terms are posed to the whims and standpoints of writers in different contextual situations. And therefore, there is no other way to differentiate whether *genetically engineered + Noun* is favorable or unfavorable, unless we study the corresponding collocational semantic sets.

Apart from the semantic sets expressing *unfavorable* and *negative concern*, the rest of the semantic sets of the *soc corpus* from table 5.182 deserve further explanation. As in the *sci corpus,* examples marked with the *neutral* tag in the *soc corpus* include sentences that lack either a favorable or an unfavorable semantic prosody, but the sentences in the *soc corpus* under this label do not exclusively refer to scientific genetic engineering processes as in the *sci corpus.* Just a few sentences do, but the bulk of examples represent other associated issues, such as projects and quotations from biotechnology-related personalities:

> Steve Wilson and Jane Akre were hired by a Florida TV station to make a series on a genetically engineered hormone called rBST (also called rBGH). (LA6E.s2).

In some cases, this type of 'neutrality' was not textually enhanced with the underlying of *neutral* any longer. The *patents* that belonged to the *neutral* semantic set in the *sci corpus* primarily convey a type of concern or worry in the *soc corpus:*

> The prevailing logic becomes even more strained when consideration turns to patenting a cell line, or a genetically modified organ, or a genetically modified whole animal. Is a pancreas or kidney patentable simply because it's been subjected to a slight genetic modification? (JR2S.s136-7).

In addition to this, examples of favorable semantic prosody in the *soc corpus* that contain *genetically + adjective + noun* frequently co-occur *inter alia* with *Monsanto, industry, companies,* as was suggested by means of the fuchsia group in table 5.10:

> * In trials used to assess the safety of herbicide-resistant soybeans made by Monsanto, 36 cows were divided into different groups; for four weeks some were fed transgenic soybeans, and some fed with ordinary ones. When the data from the trials were examined, it was found that the cows that were fed the normal soybeans produced 1.19 kg of milk fat a day, whereas those fed with genetically engineered soybeans produced 1.29 kg — an increase of over 3% (LA1E.s81-2).
>
> Within five years — and certainly within ten — some 90-95% of plant-derived food material in the United States will come from genetically engineered techniques. —Val Giddings, Vice President for Food and Agriculture of the Biotechnology Industry Organisation. (LA5E.s179)

In overall terms, a larger number of co-occurrences confirm consistency of semantic collocates conveying more *unfavorable/concern-* state of affairs (220 for *genetically engineered* (118+102) and 165 for *genetically modified* (82+83)) than neutral/favorable (126 for *genetically engineered* and 45 for *genetically modified*) aspects of GMOs. The preferred option in the *soc corpus* *–genetically engineered–* contains elements in its profile that are shared by that of *genetically modified* in each one of the semantic sets. For instance, they share a *concatenated* collocate *–release (of)–* that suggests an unfavorable semantic prosody, especially when it is qualified by *deliberate.* When *into the environment* is in the collocational profile, it also suggests unfavorable semantic prosody when it addresses to assess potential risks:

> The environmental impact statement eventually was completed and the field experiment took place, despite the fact that there existed little in the way of a risk assessment science to judge the potential impact of releasing ice-minus, or for that matter, any other genetically modified organism into the open environment. (JR3E.s146).

Unfavorable / Concern (-)

1	tentially catastrophic [...] or deliberate	release of	deadly g. engineered biological warfare agen	4JR
2	tion, mass production, and wholesale	release of	[...] *g. e.* [...] into the *environ.* cause [...] dama	4JR
3	ing a risk assessment [...]. Every [...]	release of	a *g. e.* organism [...] investment funds into cor	4JR
4	raised the question of risks [...] the	release of	*g. e.* organisms into the environment in a spec	4JR
5	t be known that it would not insure the	release of	*g.e.* [...] *environ.* [...] damage [...] risk asse	4JR
6	he environmental threat posed by the	release of	g. e. organisms is likely to be compounded-	4JR
7	oncern that an accidental or deliberate	release of	dangerous genetically engineered viruses, ba	4JR
8	environmental consequences of [...]	releases of	genetically engineered bacteria, animals, l	6LA
9	to ban *g.* engineered foods, deliberate	releases of	GE organisms and the patenting of life. A t	6LA
10	tential ecological consequences of the	release of	a genetically engineered microorganism cal	6LA
11	an-wide moratorium on all commercial	releases of	genetically engineered organisms and an	6LA
12	engineering and biodiversity. Some	releases of	g. e organisms pose the same risks to bio	6LA
13	dy ample evidence to suggest that the	release of	*g. e.* crops into the *environ.* [...] premature	7IB
14	ban test-tube foods, [...]the deliberate	release of	*g. e.* organisms and the patenting of life. G	7IB

15	sts warning of potential dangers in the	**release of** genetically modified organisms. Developing a		4JR
16	mental issues posed by the deliberate	**release of** genetically modified organisms into the enviro		4JR
17	catastrophic [...] unresolved, [...]	**releases of** *g.m*. organisms are now being approved for		4JR
18	easure "the risks," [...] regulatory safe	**release of** genetically modified organisms. For the most		4JR
19	ventuality which might result from the	**release of** genetically modified viruses; every virus const		6LA
20	appropriate [...] to vote in favor of the	**release of** g. *m.* organisms on foot of lobbying from the U		8BL
21	ades, the biotech industry proposes to	**release** thousands **of** *g. e.* products *into the e*. [...] dang		7IB
22	dangerous aspect [...]. Once a *g. m. o.*	**is released** into the environment, it can never be recalled.		10JS

Positive

1	sider the first government-approved	**release of** a *g. e.* organism into the open environment. In	4JR
2	conducting the first licensed, open-air	**release of** a genetically engineered bacteria. St Charles	8BL
3	e first time that Ireland had supported	**release of** a genetically engineered corn product. The Co	8BL

Fig. 5.183: *Unfavorable, 'negative concern' and favorable semantic prosodies of 'release(s) (of)' + 'genetically engineered/modified + noun' in the English soc corpus.*

Not every *into the environment* activates negative semantic prosodies. Intensifiers may change the course of semantic prosodies, as in the case of *open,* which reinforces the notion of *environment.* Although *release of* + *genetically* + *adjective* + *noun* seems to trigger an unfavorable semantic prosody, we should also observe a few examples in which a favorable semantic prosody may take place, for example in the second concordance line in 5.183:

> Monsanto […] might win the distinction of conducting the first licensed, open-air release of genetically engineered bacteria (8BL).

To clarify that line 2 expresses a positive viewpoint about the release of GMOs, the sentence is completed by *first government-approved, first licensed* and *for the first time* giving the idea that the previous amount of releases were not previously licensed or approved. In general terms, the collocational behavior of *release* in the company of *genetically engineered/modified* + *N* confirms the negative nature of the whole unit attributed in the *unfavorable / concern (-)* part in fig. 5.183. The negative scenario is also true for *genetically altered,* in which *altered* may add the GL meaning of *alteration* or *change;* however, we should not forget that two hits are not considered statistically significant in order to draw and extrapolate conclusions*:*

1	observers worried, [...] commercial	**release of** a *g. a.* organism were to result in a catastroph	4JR
2	concern about possible[...] effects of	**releases of** genetically altered organisms is vindicated....	4JR

Fig. 5.184: *Unfavorable semantic prosody of 'release(s) of' + 'genetically altered + noun' in the English soc corpus.*

Another *concatenated* collocate is *increase* (and near-synonyms, such as *improve, raise*), as in 5.185. The very item *–increase–* can be applied negative or positive meaning, depending on the internal argument it refers to:

Positive

1	fed with *g.e.* soybeans produced […]	**increase** of over 3%. This shows that a genetic change	6LA
2	a *g.e.* microorganism […] this would	**increase** nitrogen fixation. At the end of the season the	6LA
3	*g. e.* microorganism, […] hoped would	**improve** nitrogen fixation, thereby improving soil fertility.	7IB
4	*G.e*, extra-hardy animals […] agents,	**improved** health of the livestock, and less risk to consum	7IB
5	*g. engineered* canola that it claims	**increases** by 10 percent or more the level of stearidonic	8BL
6	ecombinant (*g.e.*) […] into dairy cows,	**increases** milk production by 10 to 15 percent. Their job	10JS

Negative

1	ountry, many of whom were reporting	**increased** health problems in their herds […] *g.e.* drug.	4JR
2	rfly suffered from retarded growth and	**increased** mortality […] widely grown variety of *g.e.*corn	6LA
3	lement labeling schemes. This would	**raise** the cost of *g.e.* ingredients, [….] uneconomical for	6LA
4	lready received permits for a threefold	**increase** in herbicide residues on *g. engineered* soybean	6LA

Fig. 5.185: *Positive and negative semantic sets for 'genetically engineered + noun' in the company of key adjacent collocates (e.g. increase) in the English soc corpus.*

A prosody –whether positive or negative– is inferred when the core item –*genetically engineered + N*– and its surroundings –*increase*– establish a collocational relationship through proximity. It seems that *release of* spreads its unfavorable attribute evenly along the *soc corpus,* whereas the *sci corpus* exhibited some books more prone to show this negativity concerning *release of* (especially 5MH) than others.

Likewise, we examined the Spanish corpora in order to account for semantic associations in prosodic terms. 206 occurrences in the *sci corpus* and 450 in the *soc corpus* were elegible for satisfying the pattern *N + Adj + genéticamente* / N + *genéticamente + Adj* (table 5.186). It is clear that the hits found in the English corpora have been reduced in mumber in the case of the Spanish corpora. Yet we should bear in mind that hits in the Spanish corpora for *genéticamente* are not the direct translation of those found in the English corpora.

Once *release* and *increase* have been analyzed in the English corpora, we will go back to evaluate the meaning of the previous structure containing *genéticamente,* with explicit reference to its relationship with the other co-occurrences of the node in question, in the Spanish corpora.

Spanish word combinations including *genéticamente* comprise *modificado/s genéticamente* and *genéticamente modificado/s.* The former is much more frequent than the latter. In addition, *genéticamente manipulado/s, manipulado/s genéticamente, alterado/s genéticamente, genéticamente alterado/s* and *transformado/s genéticamente* constitute the least frequent occurrences for the pattern to be studied:

Spanish *sci corpus* *GENÉTICAMENTE*		*Freq*	Spanish *soc corpus* *GENÉTICAMENTE*		*Freq*
1.	Modificado/s genéticamente	119	*1.*	Modificado/s genéticamente	248
2.	Genéticamente modificado/s	46	*2.*	Genéticamente modificado/s	136
3.	Manipulado/s genéticamente	19	*3.*	Alterado/s genéticamente	38
4.	Genéticamente manipulado/s	9	*4.*	Genéticamente manipulado/s	18
5.	Alterado/s genéticamente / genéticamente alterado/s	8	*5.*	Manipulado/s genéticamente	11
6.	Transformado/s genéticamente	4	*6.*	Genéticamente alterado/s	9
7.	*~~Others~~*	~~6~~	*7.*	*~~Others~~*	~~6~~
Total: 205			Total: 450		

Table 5.186: *Frequency of the 'genéticamente' + 'Adj' (+ Noun) / 'Adj' + 'genéticamente' (+ Noun) pattern in both Spanish sci and soc corpora to analyze semantic prosody.*

The claim is once more that the dichotomy *favorable* and *unfavaurable* implies supporters and protesters in favor and against the technology. We depend upon lexical profiles that help the researcher to identify semantic prosodies (table 5.187). The same conceptual headings for the semantic sets were used:

SPANISH SCI CORPUS							
N + Adj + genéticamente / N + *genéticamente + Adj* (206 occurrences)							
Book	Neutral	Regulation	Favorable	Concern	Concern (-)	Unfavorable	*Total*
1ER	2	-	-	4	7	-	13
2SA	1	-	-	1	2	1	5
3EG	20	3	3	2	7	3	38
5MH	5	1	5	2	7	37	57
9SN	19	15	28	6	19	6	93
TOTAL	47	19	36	15	42	47	206
SPANISH SOC CORPUS							
N + Adj + genéticamente / N + *genéticamente + Adj* (450 occurrences)							
Book	Neutral	Regulation	Favorable	Concern	Concern (-)	Unfavorable	*Total*
4JR	1	1	2	1	10	7	22
6LA	14	7	14	9	22	28	94
7IB	5	2	3	7	8	6	31
8BL	15	3	40	26	41	63	188
10JS	21	2	21	11	22	38	115
TOTAL	56	15	80	54	103	142	450

Table 5.187: *Semantic sets of 'N + Adj + genéticamente* / N + *genéticamente + Adj' in the Spanish sci and soc corpora.*

Whereas the term is a combinatorial pattern made up of *genéticamente,* the co-text around can vary considerably. No matter if *genéticamente* is postponed after the adjective or not in the Spanish collocation, the key aspect is that the keyword is influenced by its immediate environment (and the book it belongs to). The fact is that *genéticamente* likely displays a more unfavorable point of view about GMOs in the Spanish *soc corpus* (245 occurrences (142+103)) than the *sci corpus* (89 (47+42)) taking into account that 5MH makes half of the negative semantic prosodies (44) of the *sci corpus*.

The lexical elements *vectores, células, proteína, kanamicina, somatotropina (BST), (BGH), patente, enzima, plámido Ti, recombinación, manipulación genética, investigación* (*research*), *resistencia a herbicidas, transgén, genoma, liberación(es)* (*release/s of*) co-occur frequently with *N + Adj + genéticamente* / N + *genéticamente + Adj* to indicate an absence of prosody or a neutral prosody. The very same collocates can appear next to other items such as *riesgos* (*risks*), *indeseable* (*undesirable*), *preocupación* (*concern*), and *problemas inesperados* (*unexpected problems*) that ensure an unfavorable reading, as shown in table 5.188.

SEMANTIC PROSODY_*GENÉTICAMENTE*_SCI CORPUS (286 OCCURRENCES)					
N + Adj + genéticamente* / N + *genéticamente + Adj (sci corpus) (206 occurrences) Neutral: 47; Regulation: 19; Favorable: 36; Concern: 15; Concern (-): 42; Unfavorable: 47					
No.	**L1-2 collocates**	**Co-text/context**	**Prosody**	**Book**	**No.**
1.	Planta modificada*	Actividad, proteína, diferente	**Neutral**	1ER	1.
2.	ADN modificado*	Llevar, vectores, virus, positives, células	**Neutral**	1ER	2.
3.	Organismos modificados*	Introducción, bacterias, riesgos, discutidos	Concern (-)	1ER	3.
6.	Organismos manipulados*	Casos, ninguno, citados	Concern	1ER	4.
8.	Planta modificada*	Posibilidades, mismo cuidado, espacio	Concern (-)	1ER	5.
9.	Organismos modificados*	Pesimistas, liberación, riesgos, insensato, detenerse	Concern (-)	1ER	6.
10.	Organismos modificados*	Estimación, riesgos, probabilidad, falle	Concern	1ER	7.
14.	Organismos modificados*	Aspect, liberación, vivos/indeseables	Concern	1ER	8.
15.	Animal modificado*	Patente, concedida, Harvard, Oncorratón/preocupación	Concern (-)	1ER	9.
18.	Animales modificados*	Liberación al ambiente/cuestiones éticas	Concern (-)	1ER	10.
19.	-			1ER	
20.	Bacteria modificada*	Ocurrir, se convirtiera, patógeno de genes	Concern (-)	1ER	11.
21.	Organismos modificados*	Liberación al ambiente, problemas inesperados	Concern (-)	1ER	12.
22.	Organismos manipulados*	Podrían, destruir, entorno ecológico	Concern	1ER	13.

Table 5.188: *Semantic sets of 'N + Adj + genéticamente* / N + *genéticamente + Adj' in 1ER book from the Spanish sci corpus.*

It it relatively easy to distinguish a negative semantic prosody when adjectives with unfavorable meaning, such as *riesgos* and *problemas,* are around. As for the Spanish *soc corpus,* a high percentage of results show that *risks* are brought up in the concordance (table 5.189). These conventionally undesirable things such as *riesgos,* qualified by *daño* (damage), *impacto, amenaza* (threat), are located in the immediate environment and, impregnate the node with an extra shade of meaning, even though the node term is, in principle, devoid of intended meaning:

SEMANTIC PROSODY_*GENÉTICAMENTE*_SOC CORPUS (537 OCCURRENCES)					
N + Adj + genéticamente* / N + *genéticamente + Adj (soc corpus) (450 occurrences) Neutral: 56; Regulation: 15; Favorable: 80; Concern: 54; Concern (-): 103; Unfavorable:142					
No.	**L1-2 collocates**	**Co-text/context**	**Prosody**	**Book**	**No.**
8.	Organismos modificados*	Consecuencias kafkianas, introducidos en el entorno, aseguradoras	Unfavorable	**1ER**	2.
9.	Organismos modificados*	Liberación, seguridad, riesgos	Concern (-)	**1ER**	3.
10.	Organismos modificados*	Introducidos rápidamente, medio ambiente, corrompe	Unfavorable	**1ER**	4.
11.	Animal entero, modificados*	Riesgo, quebrarse, patenta	Unfavorable	**1ER**	5.
12.	Organismos modificados*	Daño, liberación, ecosistema, impacto	Unfavorable	**1ER**	6.
13.	Animales modificados*	Sometidos, patentados, patentes	Concern	**1ER**	7.
14.	Organismos modificados*	Deficiencias, pruebas de campo	Unfavorable	**1ER**	8.
15.	Organismos modificados*	Peligros potenciales, liberación	Concern (-)	**1ER**	9.
16.	Organismos modificados*	Contaminación, medio ambiente / Amenaza	Unfavorable	**1ER**	10.
17.	Organismos modificados*	Efectos potenciales adversos, liberación	Unfavorable	**1ER**	11.
18.	Organismos modificados*	Suelta deliberada, una sola	Concern (-)	**1ER**	12.

Table 5.189: *Extract of semantic sets of 'N + Adj + genéticamente* / N + *genéticamente + Adj' in 1ER book from the Spanish soc corpus.*

Other collocates not easily identifiable as *unfavorable* appear as neutral items in principle, like *liberación(es),* that make contact with other collocates in the immediate environment of a search word, like *genéticamente,* that is said to 'color' and 'affect' the meaning of that central word or term. A collocational relationship between *liberación(es)* and *genéticamente* is observed in both Spanish corpora (fig. 5.190).

Negative prosodic status to the sequence *liberación(es)* on account of its frequently right- and left-handed occurrences, such as, *the presence of detractors, the number of GMO liberations into nature, a statement of protest, risks, debates, plague control, the destruction of the environment* and *consequences of killing species* shows the most controversial and darker side of genetic modification.

Meanwhile, this prosody turns positive in just one book of the sci corpus (9SN), when *liberación(es)* co-occurs with *organismo modificado genéticamente* in the company of regulatory laws. Even *liberación* is qualified by *intencional* in the context of European regulations, meaning that certain keywords are ideologically charged depending on the co-text in which they are embedded (see table 5.190).

Unfavorable / Concern (-) (sci corpus)

1	culo de riesgos es insensato y que la	**liberación de** *o.m.g* debe detenerse hasta que tengamo	1ER
2	hay que tener en cuenta de cara a la	**liberación de** *o. m. genéticamente* es que están vivos.	1ER
3	cuestiones éticas […] genético. La	**liberación** al ambiente de microbios, […] y *animales m.g.*	1ER
4	el portador de un gen defectuoso. La	**liberación** *al a* de o.m.g podría producir *probls amb. ines*	1ER
5	por la opinión pública temerosa de la	**liberación de** *organismos modificados genéticamente*. Si	2SA
6	por petróleo. Sin embargo, el miedo a	**liberar** «*bm*» en el medio […] a prohibir […] *microbios g.a*	3EG
7	ales, puesto que persiste el temor a la	**liberación** en el entorno de *microbios g. alterados*. En e	3EG
8	gente siente preocupación porque se	**liberen** *o.g. manipul.* en la Natur. […] seguridad […] confir	3EG
9	osibilidad de creer que fuera seguro	**liberar** o. manipulados genéticamente al ambiente, aun c	5MH
10	prohibir […] manipulados g. [..]	**lanzamiento** deliberado de *o.g.m.* y el patentamiento de	5MH
11	*o.manip. g.* (o «transgénicos») que se	**liberan** deliberadamente […] peligrosos que los microo	5MH
12	ten a todos los otros organismos. La	**liberación de** *microorganis. g.m* es especialmente peligro	5MH
13	*icroorganismos g.m* (GMM en inglés)	**liberan** rutinariamente grandes cantidades de desechos	5MH
14	n preocupados con justificación por la	**liberación** descontrolada […] vacunas g. procesadas.	5MH

Favorable (sci corpus)

15	0, a la Directiva 90/220/EEC sobre la	**liberación intencional** en el medio ambiente de *o.m.g.*	9SN
16	Oriente Medio (véase la nota 6). Las	**liberaciones** sobre el terreno de *cultivos manipulados g.*	9SN
17	teria ice minus, una de las primeras	**liberaciones** de un *organismo modificado genéticamente*	9SN
18	ente de organismos transgénicos. Las	**liberaciones** se rigen por los reglamentos «*O. m.g.* (ut	9SN
19	aron por vez primera en 1986, con la	**liberación de** un *baculovirus modificado genéticamente*	9SN

Unfavorable / Concern (-) (soc corpus)

1	«riesgos» […] seguridad que […]	**liberación** de los *organismos modificados genéticamente*	4JR
2	*o. m. g.* podría […] el daño […] por la	**liberación** de productos petroquímicos en el ecosistema	4JR
3	rtían de los peligros potenciales de la	**liberación** de *organismos modificados genéticamente*. H	4JR
4	fectos potencialmente adversos de la	**liberación** de *organismos modificados genéticamente* en	4JR
5	problemas medioambientales que […]	**suelta deliberada** de unos *o.m.g.* en el medio ambiente.	4JR
6	ría genética y biodiversidad. Algunas	**liberaciones** de *o.m.g.* suponen los mismos riesgos para	6LA
7	prohibir los alimentos m.g., las	**liberaciones** de *organismos transgénicos* y las patentes	6LA
8	consecuencias ambientales de la	**liberación** y puesta en circulación de *organismos m.g.*, c	6LA
9	riesgos que puedan ser […] de la	**liberación** de *virus modificados genéticamente*; cada viru	6LA
10	cuencias ecológicas potenciales de la	**liberación** de un *microorganismo m.g.* llamado Klebsiella	6LA
11	funcionarios que votasen a favor de la	**liberación** de *o.m.g.* tras ser presionado por el gobierno	8BL
12	ta escribí sobre «los experimentos de	**liberación**», […] *cosechas enteras alteradas genéticame*	8BL

Fig. 5.190: *Unfavorable and favorable semantic prosodies of 'liberación(es) (de)' + 'N + (genéticamente + Adj / Adj + genéticamente)' in the Spanish corpora.*

The last neutral collocate that may indicate a favorable or unfavorable semantic prosody is the systematic appearance of *resistenci*a, as part of the co-text, both in the *sci* and *soc* corpora. When *resistencia a los herbicidas* (see 8.7., table 8.14 of the Spanish *soc* corpus) is in the immediate environment, the co-text supplies a neutral prosody, whereas *resistance*, when it is isolated from *herbicidas* tends to recover the GL meaning of 'being resistant against a given opinion' (e.g. *resistance to GMOs*):

> Con lo sucedido en Seattle el mundo entendió que la resistencia a los alimentos modificados genéticamente era un factor unificador en la política del nuevo mundo. (BL20S.s112).

5.4. Norm-searching: Comparison of English-Spanish data sets (ideological aspects)

So far we have identified denominative variants of the collocates of four English terms (*DNA, gene, food* and *crop*) and their Spanish translations, altogether with the study of semantic prosodies of two English terms (*genetic* and *genetically),* along with their collocates (e.g *cells, risks, release of, resistence*). This section is devoted to the comparison of both data sets –the *sci* and the *soc*– in the two working languages. In other words, denominative variants and semantic prosodies will be matched as TUs for further analysis concerning general strategies of translators (*translation norms*).

5.4.1. General strategies about the translation of DVs

Denominative variants from each book registered the following results for each corpus, as shown below:

No. of DVs	DNA		Gene/s		Food/s		Crop/s	
	English	Spanish	English	Spanish	English	Spanish	English	Spanish
Sci corpus	**6**	7	**8**	9	**7**	8	**14**	16
Soc corpus	**9**	9	**11**	10	**15**	16	**14**	15
TOTAL TOKENS	15	16	19	19	22	24	28	31

Table 5.191: *Number of DVs in the English and Spanish sci and soc corpora.*

A higher number of denominative variants in the Spanish TTs may well respond to one of the translation universals identified by Baker (1993: 176-7) that are, amongst others, explicitation, simplification and normalization. We first refer to the phenomenon of explicitation, which could be understood in terms of text length, so that we will look at the English corpus size compared to the Spanish:

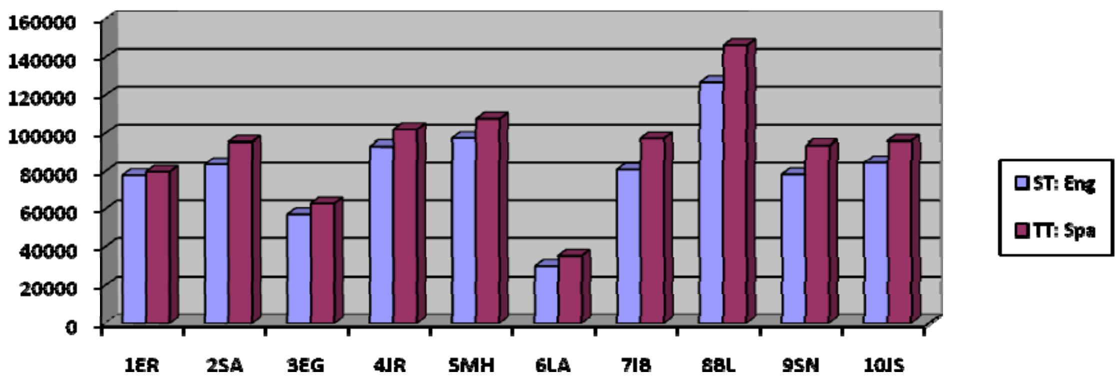


Fig. 5.192: *Corpus size of every book (ST) and their TTs.*

Text-length in the TTs does not only depend on the lexico-grammatical differences between English and Spanish, which is the case of translators when they render the STs with more words than the original following the target language grammar (*obligatory explicitation*). But it also depends on the translators when they make explicit information that is not part of the originals (*voluntary explicitation*), as soon as a concept is not very common, inexistent or understood differently in the target language. The former case –explicitation– is responsible for a larger text length in the TTs when examples such as *herbicidide resistance gene/s* (3 words) are encountered and whose translation is dictated by Spanish syntax into *gen/es de resistencia a los herbicidas* (6 items) (see table 5.202). The latter –voluntary explicitation– is the case of *genetically engineered food/s* (25 occurrences) in the English *sci corpus* and the rest of denominative variants that have been rendered as a paraphrasis into Spanish (see table 5.204).

The reverse case, simplification, is also an intrinsic feature of translation. Such is the case of *transgénicos* whose ST is either *genetically modified food* (98) or *genetically engineered food* (76) in the *soc corpus* (table 5.205).

An example of normalization –mechanism that makes a text idiomatic in the target language– is *transgénicos* (38) that functions as a nominalized adjective (table 5.206) and that will merit further explanation below. These strategies of explicitation and simplification are indicated by a figure in brackets, bearing in mind the number of total hits corresponding to the denominative variants (left column) studied, as summarized below:

No. of DVs (by book + total tokens) and No. of explicit/simplified DVs									
Corpus	*Book*	***DNA***		***Gene/s***		***Food/s***		***Crop/s***	
Sci corpus	***1ER***	3	(1)	4	(2)	2	(2)	1	(1)
	2SA	2	-	1	(1)	6	(5)	0	-
	3EG	17	-	11	(2)	3	(1)	20	(9)
	5MH	18	-	4	(2)	23	(7)	49	(10)
	9SN	2	-	13	(10)	145	(93)	249	(97)
TOTAL TOKENS	574	**42**		**33**		**179**		**319**	
Soc corpus	***4JR***	5	(1)	18	(4)	4	(3)	20	(1)
	6LA	4	-	2	(1)	23	(3)	12	(1)
	7IB	4	-	6	(1)	99	(56)	9	(4)
	8BL	5	-	5	(1)	164	(117)	85	(18)
	10JS	4	-	7	(1)	232	(8)	9	-
TOTAL TOKENS	717	**22**		**38**		**522**		**135**	

Table 5.193: *Number of DVs in the English and Spanish sci and soc corpora, along with the number of explicit and simplified DVs.*

The majority of figures in brackets refer to explicit forms of DVs rather than simplified ones. If we remember, except for *gene/s,* the rest of the terms in the *sci corpus* reveal that more than half of the total ocurrences represent one denomination, which means that one single term is the most frequent one in the books written by scientists, while discourse is more prone to terminological variety in the *soc corpus,* which may indicate a purpose of entertaining the general public:

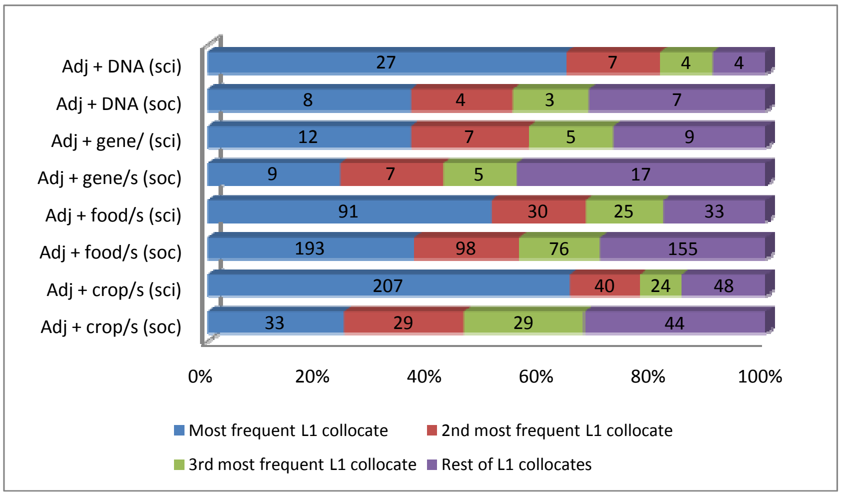


Fig. 5.194: *Percentage of DVs for technical and subtechnical terms in the English corpora.*

The percentages of occurrence for R1 collocates conforming DVs in Spanish are similar to their English counterparts:

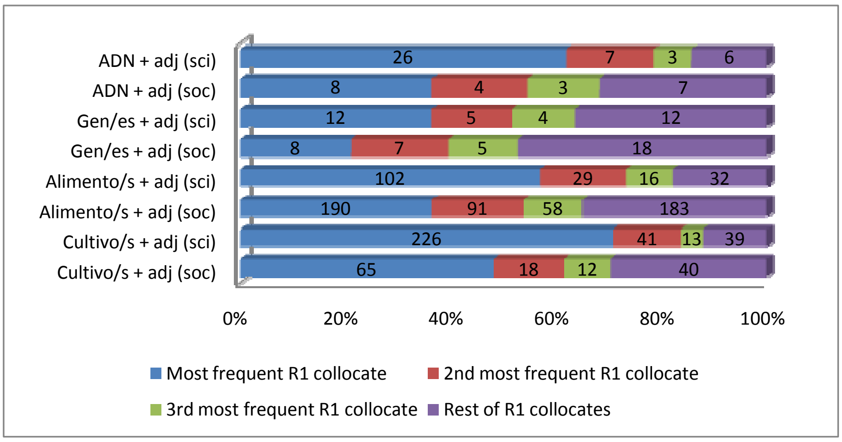


Fig. 5.195: *Percentage of DVs for technical and subtechnical terms in the Spanish corpora.*

The first 3 figures in every bar of fig. 5.194 correspond to the percentage of the most frequent L1 collocates of the four analyzed terms in English. Fig. 5.195 shows the translated versions or R1 collocates in Spanish. Some of these denominative variants include a different type of variation:

- lexical variation (*herbicide resistance genes, herbicide resistant genes*)
- orthographic (*recombinant DNA, rDNA*)
- simplified (*biotech food, modified food →genetically modified →GM)*
- semantic (*insicitide gene, bug-proof gene*)

The translation of DVs sometimes preserves the type of variation. An interlinguistic comparison of the translated version of denominative variants for *DNA, gene/s, food/s* and *crop/s* is incorporated to this section (see subsequent tables). The analysis of Spanish denominative variants (target translations) has little to do with the translation of culture-specific concepts, in which cultural concepts may be radically different from one another.

In table 5.196, the 6 collocates of *DNA* are rendered into Spanish following a faithful translation approach including the orthographic variant *rADN*. This means that the level of fixation of the translated terms is high and assures lack of polysemy, characteristic proper of scientific registers.

ST-TT segments (*sci corpus*) for DV: *Adj + DNA*			
English (ST)		**Spanish (TT)**	*Tokens*
1.	*Recombinant DNA (27)* *(2 recombinant DNA (rDNA))* *(1 rDNA)*	ADN recombinante	24
		ADN recombinante (rADN)	1
		rADN	1
		Moléculas recombinantes de ADN	1
2.	*Transgenic DNA (7)*	ADN transgénico	7
3.	*Manipulated DNA (4)*	ADN manipulado	3
		ADN extraño	1
4.	*Modified DNA (2)*	ADN modificado	2
5.	*Genetically engineered DNA (1)*	ADN modificado genéticamente	1
6.	*Novel DNA (1)*	ADN nuevo	1
T O T A L			**42**

Table 5.196: *ST-TT segments for DV of the pattern 'Adj + DNA' in the sci corpus.*

As commented in previous sections, the adjective *engineered* does not have a direct translation into Spanish, and *ADN modificado genéticamente* fulfills the requirement of Nida's both formal (*genetically*) and dynamic equivalence (*engineered*). Formal equivalence is achieved in the entire table through the imitation of the original forms (*recombinant DNA = ADN recombinante, transgenic DNA = ADN transgénico*, etc). Dynamic equivalence is seen in *ADN extraño* (from *manipulated DNA*), and as a result, a new sense is conveyed. *Foreign DNA* (*ADN extraño*) implies the presence of new genetic material. Even though *foreign DNA* does not assume any process of genetic modification, is often used in the context of explaining the insertion of foreign genetic material into organisms so as to undertake genetic modification. The translator may have avoided the translated version *manipulated* to steer clear of a possible biased meaning and this way, the professional may have attached to the scientific term *extraño* that can be applied to *transgenesis*.

Formal equivalent target forms are also provided in the *soc corpus:*

ST-TT segments (*soc corpus*) for DV: *Adj + DNA*			
	English (ST)	**Spanish (TT)**	*Tokens*
1.	*Recombinant DNA (8)*	ADN recombinante	8
2.	*Altered DNA (4)*	ADN alterado	4
3.	*GM/GMO DNA (3)*	ADN GM (2) / de los OMG (1)	3
4.	*Genetically modified DNA (2)*	ADN modificado genéticamente	1
		ADN genéticamente modificado	1
5.	*Genetically engineered DNA (1)*	ADN modificado genéticamente	1
6.	*Manipulated DNA (1)*	ADN manipulado	1
7.	*Modified DNA (1)*	ADN modificado	1
8.	*Transgenic DNA (1)*	ADN transgénico	1
9.	*New DNA (1)*	Nuevo ADN	1
T O T A L			**22**

Table 5.197: *ST-TT segments for DV of the pattern 'Adj + DNA' in the soc corpus.*

The 9 DVs for *DNA* preserve one faithful target form in the translation, except for *genetically modified DNA*. The lexical denominative variants, *modificado genéticamente* and *genéticamente modificado*, entail terminological instability, as expected in a relatively new science like GE. Both polilexical terms are formed by a specialized term *genéticamente* and a subtechnical term *modified*. Terms were checked online, in the so-called *IATE* terminological databank *(InterActive Terminology for Europe)*, and results retrieved *modificado genéticamente* with a high level of terminological stability indicated by three and four green stars:

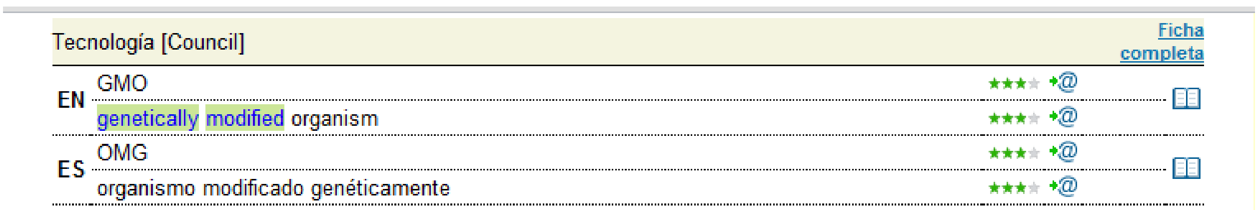


Fig. 5.198: *Search for 'genetically modified' (ST) in IATE databank website.*

The result is that *modificado* appears in front of *genéticamente.* We also checked in *TermsSiences* termbank that *modificado genéticamente,* unlike *genéticamente modificado*, is the only term that appears elegible as a translation choice for the adverbial compound *genetically modified:*

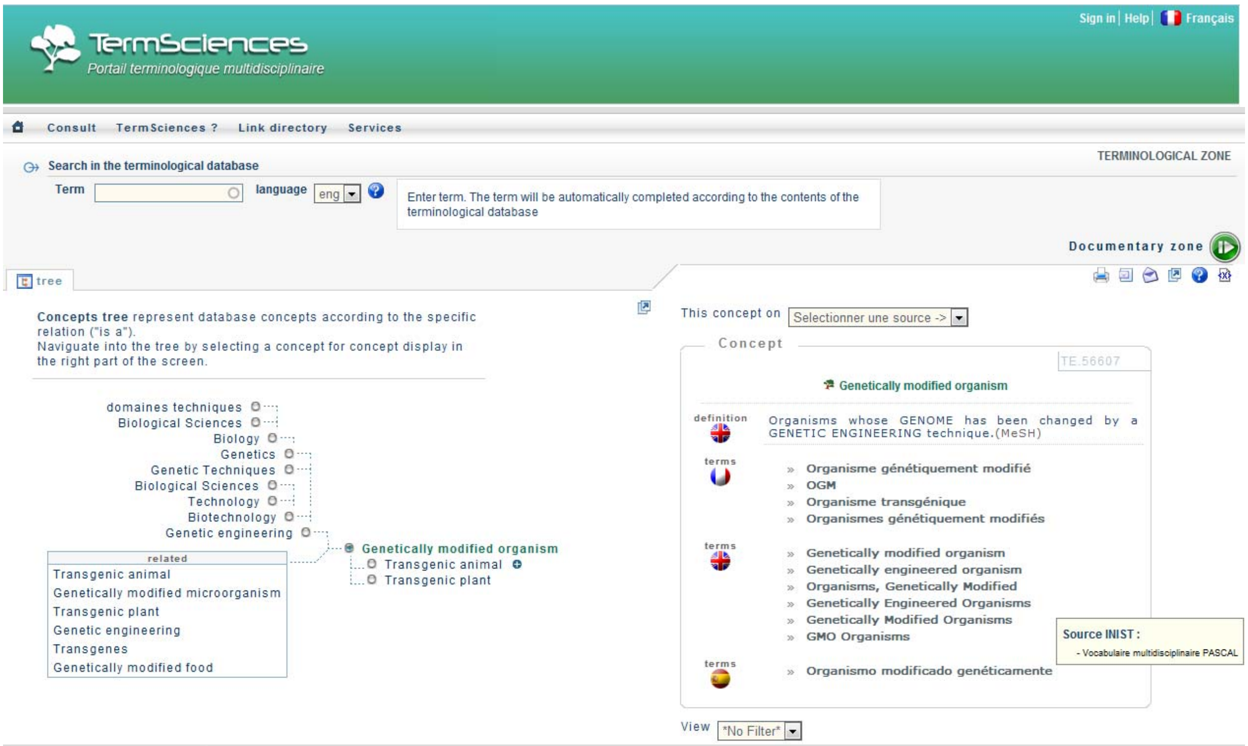


Fig. 5.199: *Search for TTs corresponding to 'genetically modified' in TermSciences website.*

It is particularly interesting that English term choices only include *genetically modified* and *genetically engineered* when they collocate with *organism.* It is also worth mentioning that both *IATE* and *TermSciences* list *recombinant* as the only suitable collocate for *DNA,* provided that *recombinant* unequivocally refers to the laboratory technique. It seems clear that one reasonable translator strategy, seen in the translation of *adj + DNA,* was to follow the ST faithfully for the bulk of examples extracted for the study of denominative variation. This strategy was also pursued in the case of *adj + gene/s:*

ST-TT segments (*sci corpus*) for DV: *Adj + gene/s*			
English (ST)		**Spanish (TT)**	*Tokens*
1.	*Herbicide resistance gene/s (12)*	Gen/es de resistencia a los herbicidas	12
2.	*Engineered gene/s (7)*	Gen/es manipulado/s	4
		Gen/es modificado/s	2
		Gen/es alterado/s	1
3.	*Altered gene/s (5)*	Gen/es alterado/s	4
		Paraphrasis: Alimentos producidos mediante manipulación genética	1
4.	*Genetically engineered gene/s (2)*	Paraphrasis: Gen modificado por ingeniería genética Genes introducidos por manipulación genética	2
5.	*Herbicide-tolerance gene/s (2)*	Gen/es de tolerancia a los herbicidas	2
6.	*Insecticide GROUP gene/s (2)* *(1 Bt insecticidal)*	Gen/es insecticidas	2
7.	*Roundup Ready gene/s (2)*	Gen/es Roundup Ready	2
8.	*Biopesticide genes (1)*	Genes biopesticidas	1
T O T A L			**33**

Table 5.200: *ST-TT segments for DV of the pattern 'Adj + gene/s' in the sci corpus.*

The term that displays more lexical variation is *engineered gene/s* (10). As emphasized earlier, there is no direct translation of *engineered* into Spanish. Therefore, a number of denominative variants are supplied in the TT. The most frequent variant was *gen/es manipulado/s,* as a result of an *intrasystem shift* in Catford's terms (1965: 73) (quoted in Baker 2001: 229) (see table 5.201).

In table 5.201, the first ST-TT segment appears to have a neutral semantic prosody, due to the fact that the subsequent sentence tells us about the common technique of attaching a genetic marker to recombinant DNA. The second ST-TT segment shows a certain degree of concern about the spread of GM plants into populations of wild species, since *environmental front* and *concern* pervade the collocation *genes manipulados*, which is not qualified by *genetically* in the ST. The rest of the segments are devoid of ideological load by the surrounding neutral elements, such as *spread* and *introduction* (cf. *release*). Without undertones, *genes manipulados* supplies neutral semantic prosodies, except for the second case in table 5.201, in which *environmental front* and *concern* motivate the choice for *manipulados* with a negative load in prosodic terms.

Keeping track of **engineered genes**. (EG3E.s500)	Siguiendo el rastro de los **genes manipulados**. (EG3S.s494)	Neutral
Also on the environmental front, there is the concern that **engineered genes** for herbicide resistance may spread from crop plants to wild species through crosspollination. (EG4E.s132)	En el frente medioambiental existe también la preocupación de que los **genes manipulados** para la resistencia a los herbicidas se transmitan de los cultivos a especies silvestres por medio de la polinización cruzada. (EG4S.s133)	Concern (-)
Since 1986 there have been over 2,000 field trials of trials of transgenic crops around the world, exposing natural ecosystems to the introduction of **engineered genes**. (EG4E.s140)	Desde 1986 ha habido más de dos mil pruebas sobre el terreno de cultivos transgénicos en todo el mundo, con la consiguiente exposición de los ecosistemas naturales a la introducción de **genes manipulados**. (EG4S.s141)	Neutral
<s id="EG5E.s68" >In controlled field experiments using microbes engineered with lux genes, it is possible to literally watch the spread of **engineered genes** through the population as the microbes multiply, and to monitor the degree of transfer of these genes from the lab strain to native varieties.</s>	<s id="EG5S.s68" >En experimentos sobre terrenos controlados utilizando microbios con genes lux añadidos, es posible ver, literalmente, la expansión de los **genes manipulados** a través de la población a medida que los microbios se multiplican, lo que permite seguir el grado de transferencia de dichos genes desde la cepa proveniente del laboratorio a las variedades autóctonas.</s>	Neutral

Table 5.201: *Complete ST-TT segments for 'engineered gene/s' translated as 'gen/es manipulado/s' in the sci corpus.*

The case of *(genetically) engineered gene/s* in the *soc corpus* presents a neutral translation of *gen/es modificado/s* and a less neutral *gen/es sometidos a la ingeniería genética:*

ST-TT segments (*soc corpus*) for DV: ***Adj + gene/s***			
	English (ST)	**Spanish (TT)**	*Tokens*
1.	**-resistant gene/s (9)*	Gen/es resistente/s a * / resistentes (2)	8
		Paraphrasis: Genes que indujesen la resistencia al virus	1
2.	*Transgenic gene/s (7)*	Gen/es transgénico/s	7
3.	*Insecticide GROUP (5)* *(1 insecticidal)* *(1 bug-proof)*	Gen/es insecticida/s (1)	4
		Paraphrasis: Gen con propiedades insecticidas	1
4.	*Roundup Ready gene/s (4)*	Gen/es Roundup Ready / Roundup	4
5.	*Modified gene/s (4)*	Gen/es modificado/s	4
6.	*Engineered gene/s (2)*	Gen/es modificado/s	1
7.	*Altered gene/s (2)*	Gen/es alterado/s	2
8.	*Terminator gene/s (2)*	Gen/es Terminator	2
9.	*Genetically engineered genes (1)*	Paraphrasis: Gen sometido a la ingeniería genética	1
10.	*GM genes (1)*	Genes GM	1
11.	*Pesticide gene (1)*	Gen pesticida	1
T O T A L			**38**

Table 5.202: *ST-TT segments for DV of the pattern 'Adj + gene/s' in the soc corpus.*

The adjective *sometido* comes from the verb *subdue* [back translation], when it refers to an object that is subject or dependent upon another element. In Spanish it frequently carries a negative semantic load, which is boosted by *matado* (killed) and *verdaderamente* (merely) (fig. 5.203).

Up to here, *congruency* (formal equivalence) is the main strategy found in the translated terms corresponding to the original combinatorial patterns *adj + DNA* and *adj + gene/s,* in which the majority of terms fully correspond to their originals. Some of the denominative variants, particularly *engineered gene/s,* whose translation has a non-existent direct equivalent in the target language, was rendered by *manipulados* and *sometidos* in the *sci* and *soc* corpora, respectively. The second analyzed case of *manipulados* (fig. 5.201) and the two examples of *sometidos* (fig. 5.203) accomplish partial terminological equivalence, since a negative semantic prosody affects the two denominative variants.

Even in field tests, the **genetically engineered gene** had killed only 80 percent of the bollworms. (JR3E.s251)	Hasta en las pruebas de campo, el **gen sometido a la ingeniería genética** había matado sólo el 80 por 100 de los gusanos del algodón. (JR3S.s251)	Concern (English)/ Unfavorable (Spanish)
At the very heart of the issue of patentability is the question of whether **engineered genes**, cells, tissues, organs, and whole organisms are truly human inventions or merely discoveries of nature that have been skillfully modified by human beings. (JR2E.s126)	En el centro mismo del problema de qué puede ser patentado está la pregunta de si los **genes**, células, tejidos, órganos y organismos enteros **sometidos a ingeniería genética** son verdaderamente invenciones humanas, o sólo descubrimientos de la naturaleza que los seres humanos han modificado con habilidad. (JR2S.s125)	Concern

Table 5.203: *Complete ST-TT segments for '(genetically) engineered gene/s' translated as 'gen/es sometidos a la ingeniería genética' in the soc corpus.*

We can sum up the results extracted from the study of *engineered* by putting terminology, phraseology and translations studies together. The fact that a particular denominative variant –*engineered* (regarding terminology)– does not have a direct equivalent prevents a formal equivalence to take place in the translation of *engineered* into Spanish. Therefore, a dynamic equivalence arises in the form of a complete equivalence, in the case of *modificado* (see *engineered* in table 5.202) and a partial equivalence, in the case of *sometido a la IG* (table 5.202), since a negative semantic prosody (in terms of phraseology) refrains a complete functional equivalence from developing in the TT (as for translation studies).

Based on these findings, one could think that formal equivalence is likely to appear in specialized texts over dynamic equivalence, except in those cases where there is no direct translation for the term in the TT. However, this is not always the case. For example, in the following table (5.204), *genetically modified food,* following a dynamic equivalence, is mainly rendered by *alimento/s transgénico/s.* Other translational choices have pursued formal equivalence by means of *alimento/s modificado/s genéticamente* and *alimento/s genéticamente modificado/s,* which are less frequent options. This shift of translation from *genetically modified* to *transgénico* is owing to the fact that it is shorter than the original polilexical term as a result of the economy of language. But also this is so because the latin-rooted *transgénicos* has been well received in popularized discourse. The translator may have not been aware of the fact that it was born as a denomination to express a slightly different concept from *genetically modified* (not every *genetically modified organism* is transgenic, but every *transgenic organism* is genetically modified; the truth is that both signifiers are used interchangeably). Thus, *transgénicos,* in the *sci corpus,* is a prominent option of translation not only when the ST is *genetically modified food/s* and *genetically engineered food/s,* but also *GE food/s, gene-spliced, gene-altered food/s, transgenic food/s* and *(genetically altered) food/s,* as seen in the next table 5.204:

ST-TT segments (*sci corpus*) for DV: *Adj + food/s*			
English (ST)		**Spanish (TT)**	*Tokens*
1.	*Genetically modified food/s (91)*	Alimento/s transgénico/s	84
		Alimento/s genéticamente modificado/s	4
		Alimento/s modificado/s genéticamente	3
2.	*GM food/s (30)*	Alimentos MG	29
		Cultivos trangénicos	1
3.	*Genetically engineered food/s (25)* *(1 genetically engineering foods)* *(1 engineered food/s)* *(4 bioengineered food/s)*	Alimento/s transgénico/s	4
		Alimento/s genéticamente modificado/s	2
		Alimento/s modificado/s genéticamente	2
		Alimento/s manipulado/s genéticamente	1
		Paraphrasis: Alimentos producidos por ingeniería genética (1) producidos por manipulación genética (1) fabricado por ingeniería genética (2) elaborados por ingeniería genética (2) modificados por ingeniería genética (3) producidos por ingeniería genética (3) alterados por ingeniería genética (1) modificados mediante ingeniería genética (2)	15
4.	*New/novel food/s (16)* *(1 new)*	Nuevo/s alimento/s	3
		Alimento/s nuevo/s	5
		Novel Food/s	6
		Alimento novedoso	1
5.	*Transgenic food/s (10)*	Alimento/s transgénico/s	10
6.	*Modified food/s (6)*	Alimento/s modificado/s	5
		Alimentos transgénicos	1
7.	*Genetically altered food (1)*	Alimento/s transgénico/s	1
T O T A L			**179**

Table 5.204: *ST-TT segments for DV of the pattern 'Adj + food/s' in the sci corpus.*

In the *soc corpus,* Spanish equivalents from table 5.205 reveal that *transgénicos* is also a frequent translational choice for the Spanish translation of *Adj + food/s,* even when *transgenic* is not the ST. In fact, the most frequent term is *GM* from the original *GM food,* which preserves the English acronym into Spanish without any shift in the initials in capitals, and this way it follows a formal equivalence procedure. Another remarkable finding was that equivalence is either formal or dynamic depending on the author:

ST-TT segments (*soc corpus*) for DV: *Adj + food/s*			
English (ST)		Spanish (TT)	*Tokens*
1.	*GM food/s (193) (2 GMO food/s)*	Alimento/s GM (1 comida, 11 productos, 1 maíz, 1 cultivos)	183
		Alimento/s MG	4
		OMG / Comida con OMG	3 (2 GMO)
		OGM	2
		Alimento/s modificado/s genéticamente (1 productos)	1
2.	*Genetically modified food/s (98)*	Alimento/s modificado/s genéticamente	41
		Alimento/s transgénico/s (3 comida)	33
		Alimento/s genéticamente modificado/s	17
		Alimento/s alterado/s genéticamente	4
		Producto/s GM	1
		Alimento/s modificado/s	1
		Paraphrasis	1
3.	*Genetically engineered food/s (76) (1 genetically engineering foods) (2 engineered food) (4 bioengineered food/s)*	Alimento/s transgénico/s (1 productos, 1 ingredientes)	18 (1 engineered)
		Alimento/s genéticamente modificado/s	14 (1 bioengineered)
		Alimento/s modificado/s genéticamente	12
		Alimento/s genéticamente manipulado/s	2 (1 bioengineered)
		Alimentos alterados genéticamente (1 comida)	2 (1 engineering)
		Alimentos GM	2 (1 engineered)
		Genetically Engineered Foods	1
		Alimentos biomanipulados	1 (1 bioengineered)
		Paraphrasis (see 8.7., table 8.18.)	24 (1 bioengineered)
4.	*Modified food/s (43)*	Alimento/s modificado/s (1 cultivos)	26
		Alimento/s transgénico/s (1 comida)	14
		Alimento/s modificado/s genéticamente	2
		Alimentos alterados genéticamente	1
5.	*Test-tube food/s (25)*	Alimento/s (salidos) de tubo de ensayo (1 Productos, 1 paraphrasis)	23
		Alimento/s transgénico/s	2
6.	*Functional food/s (14)*	Alimento/s funcional/es (1 paraphrasis)	14
7.	*GE food/s (13)*	Alimento/s transgénico/s	9
		Alimento/s GM	4

8.	*New food/s (10)*	Alimento/s nuevo/s	4
		Nuevos alimento/s	6
9.	*Novel food/s (3)*	Alimento/s nuevo/s	2
		Nuevos alimento/s	1
10.	*Gene-spliced food/s (6)*	Alimento/s transgénico/s	3
		Paraphrasis: Alimento/s obtenido/s mediante *	2
		Alimento/s genéticamente manipulado/s	1
11.	*Gene-altered food/s (5)*	Alimento/s transgénico/s	2
		Alimento/s con gene/s alterado/s	2
		Alimento/s genéticamente modificado/s	1
12.	*Biotech food/s (9)*	Alimento/s biotecnológico/s	9
13.	*Frankenstein food/s (8)*	Frankencomida/s	5
		Comida Frankenstein	1
		Alimentos Frankenstein	1
		Monstruo de la comida	1
14.	*Transgenic food/s (6)*	Alimento/s transgénico/s	5
		Los transgénico/s	1
15.	*(Genetically) altered food/s (6)*	Alimento/s transgénico/s	3
		Alimento/s modificado/s genéticamente	2
		Alimento/s modificado/s	1
16.	**-enhanced food (2)*	Alimento/s mejorados genéticamente	1
		Paraphrasis: Alimento/s potenciados mediante IG	1
17.	*Manipulated food (1)*	Alimento/s manipulado/s	1
		T O T A L	**518 (522)**

Table 5.205: *ST-TT segments for DV of the pattern 'Adj + food/s' in the soc corpus.*

The number of translational variants corresponding to a single English signifier has gradually increased in the Spanish translation of subtechnical terms. There are usually one or two prominent choices that have followed formal equivalence whereas the rest, which tend to be a minor group, are under the influence of dynamic equivalence. A very different term from *transgénicos* is *Frankencomida* ('Frankenfood' after Mary Shelly's character and coined in 1992 by Paul Lewis, a professor at Boston College) frequently used by opponents of genetically modified food and that, unlike the *sci corpus,* only appears in the *soc corpus*. Several hits of *Frankenstein food* appear in inverted commas to signal a connotative and metaphoric use of the word. It has been rendered into Spanish as *Frankencomida,* a blending that already exists in English (*Frankenfood*), accomplishing formal equivalence in the majority of hits, and dynamic in the rest of minor examples.

The vast majority of denominative variants are class-maintaining so that terms do not change their nominal grammatical category. The exception is *los transgénicos* (fig. 5.205 in the *soc corpus* and 5.206 in the *sci corpus*). In such a case, this is an example of the evolution of terminology, since the term was first used as *transgenic food*.

ST-TT segments (*sci corpus*) for DV: *Adj + crop/s*			
	English (ST)	**Spanish (TT)**	*Tokens*
1.	*Transgenic crop/s (207)* *(10 *-transgenic crop/s)*	Cultivo/s transgénicos (1 cereales, 1 especies, 3 cosechas, 3 cultivo de transgénicos, 1 vegetales)	168
		(El/los) transgénicos	38
		Paraphrasis: Cultivo destinado a transgénicos	1
2.	**-resistant crop/s (41)*	Cultivo/s resistentes a * (1 semilla, 1 cosecha)	40
		Paraphrasis: Cultivos resistentes a estas sustancias	1
3.	*Genetically modified crop/s (24)*	Cultivos/s transgénico/s	13
		Cultivos/s modificados genéticamente	10
		Cultivos/s genéticamente modificados	1
4.	*Bt crop/s (13)*	Cultivo/s Bt (1 cosechas)	6
		Cultivo/s manipulado/s genéticamente (2 semillas)	3 (2 Bt-engineered) (1 Bt-expressing)
		Algodón tratado con Bt	2
		Cultivo/s transgénicos	1
		Cosecha/s modificada/s	1
5.	*Genetically engineered crop/s (8)*	Cultivos/s transgénico/s	3
		Cultivos/s modificados genéticamente	2
		Cultivos/s genéticamente modificados	1
		Paraphrasis: Cultivos modificados por ingeniería genética	2
6.	*Genetically-* crop/s (5)*	Cultivos/s manipulado/s genéticamente	2
		Cultivos/s genéticamente modificados	1
		Cultivoss genéticamente mutilados	1
		Paraphrasis: Cultivos diversos desde el punto de vista genético	1
7.	*Modified crop/s (4)*	Cultivos/s modificados	3
		[…] Plantas transgénico/s	1
8.	*Engineered crop/s (4)*	Cultivos/s genéticamente manipulado/s	1
		Cultivos/s transgénico/s	1
		Paraphrasis: Cultivos modificados mediante ingeniería genética	2
9.	*Herbicide-tolerant crop/s (3)*	Plantas resistentes a los herbicidas	2
		Cultivos/s tolerantes a los herbicidas	1
10.	*New crop/s (3)*	Nuevos cultivos / nuevas plantaciones	3
11.	*GM crop/s (2)*	Cultivos MG	2
12.	*Nitrogen-fixing crop/s (2)*	Plantas/cultivos fijadores de nitrógeno	2
13.	*Roundup Ready crop/s (2)*	Cultivos/s Roundup Ready	2
T O T A L			**318 (320)**

Table 5.206: *ST-TT segments for DV of the pattern 'Adj + crop/s' in the sci corpus.*

Thus, transgénicos has undergone some terminological stages:

– L1 (English): CREATION	(word coinage):	*transgenic food*
– L2 (Spanish): TRANSLATION	(adaptation + creation):	*alimentos transgénicos*
– L1 (Spanish): CREATION	(adaptation + creation):	*los transgénicos*

In the first place, the term is created in English (e.g. transgenic food) and easily rendered into Spanish (e.g. *alimento transgénico*) because of the latinized roots that scientific language shares in both working languages. A final stage is the adaptation of the term to intrinsic usage in the target language (although the usage in English has also created the term *transgenics*).

The nominalization of an adjective (*transgénicos*) by means of the definitive article *los* is a common linguistic procedure in Spanish (fig. 5.206). Another case of a nominalized adjective is *nitrogen-fixing.* The case of *nitrogen-fixing crop/s* has a fixed translated term, *plantas* or *cultivos fijadores de nitrógeno,* in fig. 5.206. However, a term loses specificity when their elements do so. For example, *nitrogen-fixing bacteria,* in the entire *sci corpus,* registers seven translations as *bacteria fijadora de nitrógeno.* There are a number of cases (4) in 5MH, in which the Spanish term has been rendered by a nominalized adjective, *fijadores de nitrógeno*; but it has also been translated by means of a paraphrasis (2), *que fija el nitrógeno,* which makes the term explicit, less high specialized and condensed than the original. We should not forget that the multiple choices on the part of the translator are in direct relation to equivalence and purpose.

The concept of equivalence is dependent upon the notion of purpose. It is the *skopos* theory of translation the one that assumes that the translator's strategies are determined by the purpose of the translation. The intentionality, the overall meaning of the text and situationality (e.g. formal or informal registers) is of primary importance to establish the purpose of the translation. In scientific registers, a TT must preserve the informative character of the ST. The intended purpose for the translation of popular science is two-fold. On the one hand, the *GE_P-ACTRES corpus* is an informative and descriptive text and, as such there are no major acceptability differences (the informativeness of science is never culture-bounded) for the target language and culture, apart from those of syntax (e.g. the tendency to have longer sentences in Spanish). On the other hand, especially the *soc corpus* and book 5MH from the *sci corpus* exhibit an emotive function (cf. Bühler 1934/2011) when value judgements are brought up in narrative passages, as were shown in the pilot study. These excerpts deal with a subjective description of the popular science book:

> I have felt obliged, ever since, to tell the other side of the story, in the interest of promoting real public understanding of science in general, and of genetic engineering biotechnology in particular. (MH1E.s16).

Without forgetting the rules governing the target language, the search for different synonyms or synonymic expressions to maintain the reader's attention is a case in point in Spanish (fig. 5.207). This is especially true for those terms that generate debate in public opinion, as it is the case of the last term analyzed *–crop/s–*. Both in the *sci* and *soc* corpora, the polilexical term *cultivo/s transgénicos* is the preferred translation option, followed by *resistentes* and *modificados genéticamente* but the choice very much depends on the writers. In the case of *Adj + DNA,* the tendency to follow the ST by means of using one or a few variants was congruent. In addition, the same tendency was observed for the translation of a part of the subtechnical terms (*food/s* and *crop/s*), with the particularity that the other part of semitechnical terms reveals translation choices that comprise a wider and more open tendency to dynamic equivalence. In other words, both the original author and translator tend to employ a limited number of DVs whenever the term in question, as with *DNA,* is not very much prone to debate. However, if the term is likely to provoke hot debate, then DVs proliferate, especially the most frequent Spanish DVs, such as, *transgenic, genetically modified, modified* and *genetically engineered* (table 5.207).

ST-TT segments (*soc corpus*) for DV: *Adj + crop/s*			
English (ST)		**Spanish (TT)**	*Tokens*
1.	*Transgenic crop/s (33)*	Cultivo/s transgénicos (1 algodón, 1 cosechas)	32
		Nuevos cultivos	1
2.	*Genetically modified crop/s (29)*	Cultivo/s genéticamente modificado/s	8
		Cultivo/s modificado/s genéticamente	7
		Cultivo/s transgénico/s	6
		Cultivo/s alterado/s genéticamente	4
		Cultivo/s modificado/s	3
		Cultivo/s manipulado/s genéticamente	1
3.	*Modified crop/s (29)*	Cultivos/s transgénico/s (1 plantaciones)	14
		Cultivos/s modificado/s (1 cosechas)	13
		Cultivo/s genéticamente modificado/s	1
		Cultivos/s alterado/s	1
4.	*Genetically engineered crop/s (11)*	Cultivo/s genéticamente modificado/s	3
		Cultivos/s transgénico/s	2
		Cultivo/s modificado/s genéticamente	2
		Cultivo/s manipulado/s genéticamente	1
		Cultivo/s alterado/s genéticamente	1
		Paraphrasis	2

5.	*Engineered crop/s (9)*	Cultivo/s transgénicos (1 plantaciones, 1 productos)	6
		Semillas modificadas	2
		Cultivo/s alterado/s genéticamente (1 cosechas)	1
6.	*GM/GMO crop/s (9) (1 GMO)*	Cultivo/s MG/OMG	5 (1OMG)
		Cultivo/s GM (1 cosecha)	4
7.	*Gene-altered/spliced crop/s (5) (1 gene-spliced)*	Cultivo/s transgénico/s (1 vegetales)	4
		Cultivo/s alterado/s genéticamente	1
		Plantas genéticamente alteradas	1
8.	**-Resistant crop/s (2)*	Cultivo / planta resistente (a los herbicidas)	2
9.	*Bt crop/s (2)*	Cultivo/s con Bt / dotados de Bt	2
10.	*Genetically altered crop/s (1)*	Plantas genéticamente alteradas	1
11.	*Herbicide-tolerant crop/s (1)*	Paraphrasis: Cultivos que toleren los herbicidas	1
12.	*GE crop/s (1)*	Cultivo/s transgénico/s	1
13.	**-engineered crop/s: Better-*	Paraphrasis: Cultivo mejorado con la ingeniería	1
		T O T A L	**133 (135)**

Table 5.207: *ST-TT segments for DV of the pattern 'Adj + crop/s' in the soc corpus.*

In view of the fact that decision-making strategies have recorded a tendency for formal equivalence, the probability to preserve the same semantic prosody as in the ST is presumably high. The study of the semantic projection of DVs in the two working languages will reveal whether the semantic prosody of a term is preserved in the Spanish translation.

5.4.2. General strategies about the translation of Semantic Prosodies (SPs) for DVs: *Adj + N (DNA, gene/s, food/s* and *crop/s)*

In order to demonstrate the collocative power of the denominative variants following the pattern *Adj + N* studied in the previous sections, the type of semantic set in fig. 5.208 has been assigned to each one of the variants with a corresponding letter: *N* for *neutral, F* for *favorable, C* for *concern* and *U* for *unfavorable.*

In fig. 5.208, right after the denomination (DV) is the frequency of the variant in the *sci corpus*, indicated by the first numeral quantity (27 for *recombinant DNA*), followed by that of the soc corpus (8 for *recombinant DNA*). When only one figure is shown the type of corpus is also specified (*sci* or *soc*).

The *sci corpus* has assigned a neutral semantic prosody or no prosody at all to the majority of occurrences for *recombinant DNA,* since ST-TT pair segments refer mainly to genetic processes:

> The second technique is making recombinant DNA (rDNA) in the test-tube, using enzymes isolated from microorganisms to cut and join pieces of DNA together. (MH3E.s22).

Every book in the *sci corpus* shows at least one neutral occurrence, indicated by the capital letter 'N' ("The first requirement for making recombinant DNA is to create small DNA fragments". (EG2E.s69)). The 'N' appears also underlined, so as to point out that the co-text only addresses to explaining genetic engineering techniques and not any other related issue. The 'N' is not underlined when a neutral statement deals with any other fact that is not necessarily scientific lab methods but labeling and regulation:

> The tone for the regulatory processes in North America was set in 1992 when the FDA determined recombinant DNA was not a food additive. (IB11E.s53).

No.	DVs (*DNA*)	1ER	2SA	3EG	5MH	9SN	4JR	6LA	7IB	8BL	10JS
1)	*Recombinant (27/8)*	1N	2N	16N	3N 2U 1C-	1N 1C	1F 1N 1C 2C-		1N 1N 1C		
2)	*Transgenic (7/1)*				2N 1C- 4U			1U			
3)	*Manipulated (4/1)*	1N			2N 1U				1N		
4)	*Modified (sci 2)*				1C- 1U						
5)	*Genetically engineered (1/1)*	1N						1F			
6)	*Novel (sci 1)*			1N							
7)	*Altered (soc 4)*									1N 1C 1C- 1U	
8)	*GM/GMO (soc 3)*									1N	1C 1C-
9)	*Genetically modified (soc 2)*										1C 1U
10)	*Modified (soc 1)*							1F			
11)	*New (soc 1)*							1N			
	T O T A L	**3**	**2**	**17**	**18**	**2**	**5**	**4**	**4**	**5**	**4**

Table 5.208: *SPs of DVs for 'Adj + DNA' in the sci and soc corpora.*

In the *soc corpus* (JR, LA, IB, BL and JS)*, recombinant DNA* is both positive and negative for the same author (4JR, 7IB) inasmuch as 5MH in the *sci corpus.* This ambivalence is seen in *recombinant DNA, transgenic DNA* and *manipulated DNA* from the last writer 5MH. However, this viewpoint is not shared by the rest of the authors, which also make use of these three terms. *Manipulated DNA* is neutral for a scientist writer (1ER) and *transgenic DNA* is negative for the activist 6LA. The term that retains a neutral and even favorable semantic prosody is *genetically engineered* (1ER and 6LA). The two favorable occurrences, *genetically engineered DNA* and *modified DNA,* in 6LA correspond to two statements uttered by a supporter (Professor John Beringer, Chairman of the UK's Advisory Committee on Releases to the

Environment) and by the industry. *Novel, new* and *modified* are also favorable and neutral. The remaining terms *–altered, GM/GMO* and *genetically modified–* hold one neutral occurrence and the rest of the DVs expresses concern and an unfavorable state of affairs.

The fact that *recombinant DNA* co-occurs significantly with, amongst others, *bacteria, technique, virus, genes, probes, phages* and *making* implies conventional genetic recombination. Contrastively, a number of co-occurrences representing unpleasant aspects of *recombinant DNA* (5MH) are located when surrounding collocates such as *untenable, none of us was prepared for the surprise, be on their guard against* are found in the company of the searchword *DNA*. Semantic prosodies are not only suggested because unfavorable adjectives (e.g. *untenable*) impregnate the node of the collocation (*adj + N),* but also because previously studied patterns, such as *the release of,* have a negative semantic prosody and were found in the surrounding co-text of *transgenic DNA* (5MH) (e.g *field release*). In such unfavorable semantic prosodies, the letter U was employed preceded by the number of occurrences.

In the *gene/s* data, the vast majority of occurrences in the *sci corpus* are assigned other than unfavorable prosodies*:*

No.	DVs (*Gene/s*)	1ER	2SA	3EG	5MH	9SN	4JR	6LA	7IB	8BL	10JS
1)	*Resistance GROUP (12/9)*		1C	1N		6N 4C	1N 1NC 3C		1C 1CC-	1N	1C
2)	*Engineered (7/2)*	1N		2N 2N 1C 1C-			1C			1C	
3)	*Altered (sci 5/2)*	1N		1N 1N 2C			1F			1C	
4)	*Genetically engineered (2/1)*	1N 1C					1CU				
5)	*Herbicide-tolerance (sci 2)*				1F 1C-						
6)	*Insecticide GROUP (2/5)*				1F	1N		1N	1N		1N 1C 1C-
7)	*Roundup Ready (2/4)*					1N 1C			1N	1C	2C
8)	*Biopesticide (sci 1)*				1C-						
9)	*Transgenic (soc 7)*						1N 2C 2C- 2U				
10)	*Modified (soc 4)*						2N 1C	1N			
11)	*Terminator (soc 2)*								1N	1U	
12)	*GM (sci 1)*										1C-
13)	*Pesticide (soc 1)*								1C		
T O T A L		**4**	**1**	**11**	**4**	**13**	**18**	**2**	**6**	**5**	**7**

Table 5.209: *SPs of DVs for 'Adj + gene/s' in the sci and soc corpora.*

In the *soc corpus,* the occurrences with a negative evaluation are *transgenic gene/s* (4JR), *Terminator genes* (8BL) and *genetically engineered gene/s* (4JR), owing to increasing co-occurrence with predominantly unpleasant collocational company. Notice the co-text of the two occurrences of *engineered gene/s* (see 8.7.) by means of *ecologists, warn, danger* and *cross-pollinization,* on the one hand, and *fears* and *deliberate release experiments* on the other. In addition to this, *suicide seeds, big trouble* and *protest* collocate with *Terminator genes* (8BL), and *hasta* (*even*) and *sometido a la ingeniería genética* (*subdued* [back translation]) collocate with *genetically engineered gene/s* (4JR). The reason why the latter collocates are written in Spanish is because the semantic prosody is attributed to the Spanish translation due to the typical co-occurrence of negative aspects of genetic engineering postulated in the paraphrasis *sometido.* It is, however, not motivated in the English ST:

> Even in field tests, the *genetically engineered gene* had killed only 80 percent of the bollworms (JR3E.s251) (emphasis added).

This phenomenon is indicated by two letters *CU* that stand for *Concern* in the English *soc corpus* and *Unfavorable* in the Spanish *soc corpus*. Other cases in which the English ST constitutes a different prosody from the TT are indicated by the letters that make up the semantic load of the whole ST-TT segment; that is, the first letter corresponds to English and the second one to Spanish. For example, 1NC in *resistant* GROUP from 4JR and 1CC- in 7IB. The first example contains a paraphrasis made up of *sometidos,* which is a non-existent sense in the ST. The second one includes *contaminará* (will contaminate [back translation], which represents negative concern, whereas *will spread* being the original of the ST-TT pair segment, just expresses a type of neutral statement imbued by a sense of concern. Up to here, the few examples of dual semantic prosody, that is, a ST-TT pair segment whose semantic prosodies are different in the SL and the TL, were found in the *soc corpus* never in the *sci corpus.*

Even in field tests, the **genetically engineered gene** had killed only 80 percent of the bollworms. (JR3E.s251)	Hasta en las pruebas de campo, el **gen sometido a la ingeniería genética** había matado sólo el 80 por 100 de los gusanos del algodón. (JR3S.s251)	Concern (English)/ Unfavorable (Spanish)
Transnational chemical and agribusiness companies project that within less than ten to fifteen years, all of the major crops will be genetically engineered to include herbicide-, pest-, virus-, bacteria-, fungus-, and **stress-resistant genes**. (JR3E.s318)	Las multinacionales químicas y agropecuarias proyectan que antes de diez a quince años no exista un cultivo importante que no haya sido sometido a la ingeniería genética a fin de que incluya **genes de resistencia a** los herbicidas, plagas, virus, bacterias, hongos y el **estrés** climático. (JR3S.s316)	Neutral (English) / Concern (Spanish)

Even a single field not off-set by a refuge can produce a small population of bugs with **resistant genes** that will then spread throughout the population. (IB6E.s215)	Incluso una única plantación no protegida por un refugio puede producir una pequeña población de bichos con **genes resistentes**, que luego contaminará a otras poblaciones. (IB6S.s216)	Concern (English) / Concern (-) (Spanish)

Table 5.210: *Bilingual concordances for 'Adj + gene/s' as examples of dual semantic prosody in the soc corpus.*

Another marking that suggests negative semantic prosody is *C-*. This initial conforms a semantic set expressing a serious concern about GMOs. The three examples found in the *sci corpus* are *engineered genes* (3EG), *herbicide-tolerance genes* (5MH) and *biopesticide gene* (5MH). This semantic set that conveys a serious concern is supported by the co-text: *environmental front* and *concern* (3EG), *there is evidence* and *escape and spread* (5MH), along with *destroying* and *ecosystem* (5MH). The rest of the occurrences in the *sci* and *soc* corpora maintain the same semantic prosody in English and Spanish. The *sci corpus* reveals mainly neutral occurrences (18N, 10C and 2F). The semantic set of 'being modified in the laboratory' is the main semantic set that assigns neutral semantic prosody to the ST-TT segments in the *sci corpus* (e.g. *inserted, gene gun, introduction of genes, lab strain, tracking TILs, method of modifying*). The *soc corpus* includes a wider variety of semantic sets (1F, 11N, 16C, 4C-, 3U, and 3 dual 1NC, 1CU, 1CC-, as previously seen). Semantic sets of concern and negative concern co-exist under the same denomination within the same author. The most representative example is *transgenic genes* (4JR), which ponders the four semantic sets (neutral, concern, negative concern and unfavorable data); so there seems not to be a consistent rule that binds a specific term with a type of discourse. It seems, however, that the co-text assigns a type of prosody no matter the denominative variation that is used.

A further thorny issue in fig 5.210 is when semantic sets comprise both the perception of risks and benefits. Then the consideration for a semantic set dealing with concern grows stronger:

> The general public's acceptance of *genetically modified foods* may rest on a perception of risks and benefits. (SN15E.s60) (emphasis added).

The majority of the occurrences for *Adj + food/s* classified as *concern* in the *sci corpus* deals with the issue of mandatory and voluntary labeling:

> In late 1996, the Iceland and Co-op retail groups were supporting consumer calls for full labeling of *genetically modified foods*. (SN13E.s124) (emphasis added).

It is also the semantic set of *concern* the one that shows dual semantic prosody in the *sci corpora* in 1ER and 9SN in table 5.211.The first example contains *sometidos* in the Spanish translation and the second is a case of modulation or change in the point of view in the TT (Vinay and Darbelnet 1958: 36, 346). Both examples of dual semantic prosody are illustrated below:

One of the more outspoken critics in the USA, Jeremy Rifkin of the Washington-based Foundation on Economic Trends, asked to have labeling of the food and pre-market testing of any **genetically engineered food**. (ER8E.s141)	Uno de los críticos más activos, el estadounidense Jeremy Rifkin, de la Fundación sobre Tendencias Económicas, de Washington, ha propuesto que los alimentos transgénicos lleven una etiqueta identificativa y que sean sometidos a ensayos rigurosos antes de ponerlos en el mercado. (ER8S.s143)	Concern (English) / Concern (-) (Spanish)
However, there have been recent proposals to reinforce the field-testing requirements for transgenic crops, and the testing assessments for **GM food**. (SN1E.s278)	Con todo, se han presentado propuestas recientes para endurecer los requisitos relativos a pruebas de campo con cultivos transgénicos y evaluación de las pruebas en el caso de los **alimentos MG**. (SN1S.s267)	Concern (English) / Concern (-) (Spanish)

Table 5.211: *Bilingual concordances for 'Adj + food' as examples of dual semantic prosody in the sci corpus.*

The second example seems to be a case of domesticating the foreign text by modulating the point of view of *reinforce* in the ST into *endurecer* (make stricter [back translation]) in the TT. These translation choices *endurecer* and *sometido* add a slightly different nuance of meaning so that TT appears to be more negative (*concern -*) than the ST (*concern*). Similarly*,* a copious number of examples in the *soc corpus* expresses negative concern when the presence of *skepticism* and *debate* is in their collocational profile:

> I knew, too, that he had served a spell as chairman of the Environmental Defense Fund, a New York-based advocacy group that had registered skepticism in the debate over *genetically modified food*. (BL21E.s302) (emphasis added).

The majority of occurrences that convey *concern* alludes to safety issues:

> "Post-market surveillance"of new *GM foods* for allergic reactions, in much the same way newly introduced drugs are monitored for side effects. (JS6E.s98); a set of recommended guidelines to evaluate the allergenicity of *GM foods*. (JS6E.s100) (emphasis added).

Apart from concern, semantic negativity is loading lexical items, such as, *promise:*

> Suspicions about *genetically modified food* would be reinforced and, rightly or wrongly, the halting advance of a new technology might cease, its promise never to be tested. (BL21E.s430) (emphasis added).

Semantic negativity is also present in the text when terms lose specifity and acquire GL meaning. For instance, when the collocational profile of *GM foods* includes *resistance* with a GL significance, the polarity of opinions is obvious:

> Topic of public *resistance to GM foods*, they all said the same sentence: "It's not a food safety issue." (JS9E.s51); she referred to the *resistance to GM foods* expressed in Europe and elsewhere. (JS9E.s57); *resistance to genetically modified food*, the world saw in Seattle, was a unifier in this new world politics. (BL20E.s114) (emphasis added).

A matter of concern is present in the text and differs from GL to LSP collocations, such as *resistance to herbicides,* which contain a specialized meaning and that usually –not always– trigger a *neutral* semantic prosody. The same is true for *manipulated.* In the present study, when *manipulated* maintains a GL meaning, an unfavorable semantic prosody emerges:

> The following stories provide examples of how public opinion about *GM foods* has been manipulated. (JS7E.s5) (emphasis added).

As suggested earlier, it is easy to spot a negative semantic prosody when wording, such as, *avoid* is present:

> For example, I asked the owner of a local restaurant to take *GM foods* off his menu, explaining that there were several people in town that avoided them. (JS9E.s165) (emphasis added).

And in general, there are less *neutral* occurrences in both corpora. In contrast, it was noticed that substantially equivalent is a common argument used by those promoting genetic engineering:

> *Many people believe that the FDA policy defines *GM foods* as "substantially equivalent" to their natural counterparts. (JS5E.s459) (emphasis added).

And hence, this collocation is usually accompanied by the name of a supporter, either a member/area of the government (e.g. FDA in this case) or the name of a biotechnology company. When FDA is in the surrounding linguistic whereabouts of trust and scientific proof, a positive semantic prosody may be constituted:

> He said that the FDA found no scientific proof that *GM foods* were harmful. (JS5E.s447); He said the reason that Americans were not against GM food is because they trust the FDA. (JS5E.s448) (emphasis added).

No.	DVs (*Food/s*)	1ER	2SA	3EG	5MH	9SN	4JR	6LA	7IB	8BL	10JS
1)	*Gentically modified (91/98)*				2C 2U	1F;7F 1N 18N 25C 17C- 18U			1F 1C 3U	8F 6N 23C 26C- 16U	3F; 1F/N 1N 3C 1C- 5U
2)	*GM (30/193)*					2F 6N 1CC- 9C 6C- 6U				1F 2N 2C 2U	1F; 26F 1FN; 1FC 4N; 13N 44C; 62C- 1CC- 33U
3)	*Genetically engineered (25/76)*	1C 1CC-	1N 1C 2C- 1U		1F 2N 1C 1C- 7U	3C 3U	2C-	4F 3C 3C- 3U	2F 3N 9C 10C- 7U	2F 6C 3C- 2U	6F 1C 3C- 7U
4)	*New/novel (16/13)*		1N			7N 6C 1C- 1U	1C-		4F 3C 1C-	1C	2C 1C-
5)	*Transgenic (10/6)*			1F 1C	1N 3C- 3U	1C-		1C	1F 1C- 2U		1U
6)	*Modified (6/43)*					1F 2N 2C- 1U			1C 1U	5F; 3N 15C 5C- 13U	
7)	*Genetically altered (1/6)*			1C						1N 3C 1C- 1U	
8)	*Test-tube (soc 25)*								2F 3N 4C 5C- 11U		
9)	*Functional (soc 14)*								6F 4N 2C 1U	1C-	
10)	*GE (soc 13)*							1F 1N 4C 1C- 2U			4U
11)	*Gene-altered/ spliced (soc 11)*						1C-		1C 1CC- 3C- 1U	2C- 2U	1C-
12)	*Biotech (soc 9)*								1N 2C	1U	2F 2C; 1C-
13)	*Frankenstein (soc 8)*									3C; 1CC- 1C- 3U	1C-
14)	**-enhanced (soc 2)*									1F 1N	
15)	*Others (soc 5)*								2C 1U	1C 1U	
T O T A L		2	6	3	23	145	3	23	99	164	232

Table 5.212: *SPs of DVs for 'Adj + food/s' in the sci and soc corpora.*

Other collocates that foster favorable semantic prosodies are brought about when positive company is supplied, as is the case of:

- ***gene splicers, improve:***

  > Gene splicers talked of creating new foods, improving the taste and nutrition of staples and fighting world hunger. (IB3E.s13).

- ***no different, conventional food:***

  > Likewise, a March 2003 statement by Speaker of the House Hastert declared, "There is general consensus among the scientific community that genetically modified food is no different from conventional food." (JS5E.s137).

- ***supporting:***

  > Newspaper editorials were united in supporting GM foods and crops and only diverged on the issue of labeling. (JS7E.s260).

- ***in favor, biotechnology industry*** and ***advertising campaigns:***

  > The arguments pitched in favor of GM foods were "by and large, the same arguments used by the biotechnology industry in their advertising campaigns." (JS7E.s261).

- ***aware, evidence, differed, natural***, that as a result, they represent counter-examples of the author's hypothesis**:**

  > The FDA policy had claimed that the agency was not aware of any evidence that GM foods differed from normal, natural foods in any meaningful way. (JS7E.s522).

Taking into account the collocates that foster positive and negative semantic prosodies, it could be the case that opposing views are encountered in the same ST-TT segment. To illustrate this point, several bilingual segments were selected among the most and less frequent denominative variants in the *soc corpus:*

He would love to see scientists hasten their quest to produce **genetically modified food** that is more nutritious - or more appealing in any way - so that people won't be suspicious when they learn GMOs have occupied their supermarket shelves. (BL1E.s125)	Le encantaría ver cómo los científicos aceleran su investigación, para producir **alimentos alterados genéticamente** que sean más nutritivos (o atractivos en cualquier otro sentido), de modo que el público no se alarme cuando se entere de que los OMG han invadido los estantes de sus supermercados. (BL1S.s122)	Concern (English) / Concern (-) (Spanish)
Decked beneath were the words " Fury as Blair says: ' I eat **Frankenstein food** and it 's safe. " " (BL14E.s326)	Más abajo se leían las palabras: " Blair despierta la ira popular al declarar: " Yo consumo **Frankencomida**, y es inocua ". (BL14S.s323)	Concern (English) / Concern (-) (Spanish)
In much the same way, we may not know definitively if the **gene-spliced foods** on the supermarket shelves are safe. (IB5E.s97)	Y exactamente del mismo modo no podemos tener la certeza absoluta de que los **alimentos transgénicos** que nos ofrecen en los supermercados no sean perjudiciales para la salud. (IB5S.s98)	Concern (English) / Concern (-) (Spanish)
Arpad and Susan, on the other hand, had already been working for more than two years on designing the methods for approving **GM foods**. (JS1E.s130)	Arpad y Susan, por el contrario, llevaban ya más de dos años dedicados al diseño de metodologías que sirvieran para la evaluación de **alimentos GM**. (JS1S.s128)	Favorable (English) / Neutral (Spanish)

The biotech industry was quick to disperse the news, claiming as always that **GM food** was safe to eat. (JS6E.s174)	La industria biotecnológica se apresuró en difundir la noticia y en afirmar: como siempre, que los **alimentos GM** no comportaban ningún riesgo para la salud. (JS6S.s173)	Favorable (English) / Concern (Spanish)

Table 5.213: *Bilingual concordances for 'Adj + food' as examples of dual semantic prosody in the soc corpus.*

According to Toury, within the operational norms that occur during the translator's decision-making process, the text-linguistic norms concern the linguistic transferring of sentences into another language. The terms translated into Spanish may differ in their degree of equivalence from the ST, but also the translation equivalence of co-texts differs from one segment to another.

The first ST-TT segment in fig. 5.213 poses information conveying concern. The denominative variant *genetically modified* is rendered by *alterados genéticamente.* The reason why the translator has accomplished this optional shift may be due to the wish of creating a more varied discourse without following the same denomination *modificado genéticamente.* Each denominative variant may have a distinctive nuance if that is splitting hairs. Both, *alterados genéticamente* and *modificados genéticamente,* focus on the laboratory product after having undergone genetic modification. As for *modify* one could think that when something needs a change, *modify* usually implies a change for the better or to make something acceptable (e.g. *we need to change this part of the dissertation,* we would not normally utter *we need to alter this part of the dissertation*). Therefore, *alterados* may be more open to second interpretations. The most popular meaning of *alterado* in the GL in Spanish refers to nervousness with a glimpse of negativity. What is more, *alterados* in the TT is reinforced by *no se alarme* (*don't be alarmed* [back translation], instead of *suspicious* from the ST) and *han invadido* (*have invaded* [back translation], instead of *occupied* in the ST). Nevertheless, the question of *alterados genéticamente* having a negative semantic prosody is far from being debatable. We should not forget that these are GL signified and we are dealing with a specialized corpus in which both *modified* and *alterados* imply the insertion of genes. In other words, *alterados* is qualified by *genéticamente* and, in such a case, the collocation could only refer to laboratory practices.

In the second pair segment, the specificity of the denominative variant *gene-spliced* is sacrified at the expense of understanding in the Spanish TT by means of the option *transgénicos.* Apart from this shift, there is another optional one that is *safe* into *inocuo*. A common situation in which this adjective in Spanish (*innocuous*) is used is when someone has had some food and is not sure of its safety after having eating it (e.g. *a toadstool*). And it is after eating when some other people may argue that it was innocuous. The context that *inocuo* suggests is a situation in which a concern arises. Therefore, *safe* and *inocuo* may be considered synonyms but they are not interchangeable since *inocuo* contains a different nuance. *Safe* is also part of the ST in the third bilingual concordance, in which *no sean perjudiciales* (*harmful* [back translation]) is the translation in the TT. We are also dealing with an instance of modulation in which the point of view is less positive than the ST.

The fourth example emphasizes *approving* in the ST giving an encouraging attitude towards authorization. The TT contains a more restrictive meaning through *evaluación* and, this way, the segment reveals a *neutral attitude* about the final stage of the authorization process of GMOs.

The fifth bilingual concordance is another example of modulation. The change in the point of view is again offered by the adjective *safe,* which is a more positive one in the English ST than *ningún risgo* (*no risks*) in the TT. *No risks* is a less encouraging message, which raises concern, for the reason that the industry ensures security in the ST, whereas the Spanish translation hints that risks were related to GM food at some point as a potential hazard.

All these translated word choices have implied a different semantic prosody that the one suggested for the ST, as is shown in the right column of fig. 5.213. Similar examples are found in the table 5.215, which corresponds to semantic prosodies of DVs for *Adj + crop/s* in both corpora. Within this last set of DVs for *crop/s,* an instance of dual semantic prosody showing explicitation (1NC-) in *Bt crops –por la que se teme–* was selected from the *sci corpus:*

One reason **Bt-engineered crops** are expected to promote pest resistance is that they produce the toxin continuously, unlike Bt sprays, which expose insects only periodically. (EG4E.s246)	Una razón por la que se teme que los **cultivos manipulados genéticamente** con Bt puedan desarrollar parásitos resistentes se basa en que estos cultivos producen la toxina de modo constante, mientras que las pulverizaciones con Bt exponen a los insectos a la toxina tan sólo de manera esporádica. (EG4S.s247)	Neutral (English)/ Concern (-) (Spanish)

Table 5.214: *Bilingual concordance for 'Bt-engineered crops' as an example of dual semantic prosody in the sci corpus.*

On the grounds that TTs tend to incorporate a number of clarifications that are non-existent in the ST (voluntary explicitation), the relative clause *por la que se teme* (*which is feared* [back translation]) is adding extra negative load to the TT, a load that is absent from the ST. Therefore, a neutral semantic prosody, which is assigned to the ST due to the existence of an explanation about the production of pest resistance, confronts with the Spanish translation that reveals the same information as the ST, but from the point of view of a serious concern. Hence, the neutral semantic prosody is turned into negative.

Another case of dual semantic prosody is seen in the *soc corpus* (fig. 5.216).

No.	DVs (Crop/s)	1ER	2SA	3EG	5MH	9SN	4JR	6LA	7IB	8BL	10JS
1)	*Transgenic (207/33)*			2N	1F; 1F 4N 4C 3C- 26U	18F 20F 17N 18N 26C 43C- 24U	4F 4N 2C- 9U	1F 1N 1N 3C 2C- 1U		3F 1N 1C	
2)	*Genetically modified (24/29)*				2U	7F 2N 5N 6C 1C- 1U		1U	1N 1C 1U	6F 1N 6C 1C- 7U	1F 1N 1C- 1U
3)	*Modified (4/29)*			1C		3C			1F	3F 1N 3N 6C 7C- 7U	1N
4)	*Genetically engineered (8/11)*				1C 3U	1C 1C- 2U			1F 1C	3F 2C 3C- 1U	
5)	*Engineered (4/10)*			1F 1U		1F 1N	1F			3F 1N 3C 1C- 1U	
6)	*GM/GMO (2/9)*					1N 1C-				2F 3C-	1F 2C 1U
7)	*Gene-altered/spliced (5)*								1C-	1C 3U	
8)	*Resistant GROUP (40/2)*			2F 2C		15F 3N 4N 9C 3C- 2U		1N		1F	
9)	*Herbicide-tolerant (3/1)*			1F 1C	1U				1C		
10)	*Bt (13/2)*			1NC- 2C 2C- 1U	1C-	1N 1N 3C 1C-				1C 1C-	
11)	*Genetically * (5/1)*			1F	1U	1F 2U			1C		
12)	*New (sci 3)*			2N		1C					
13)	*Nitrogen-fixing (sci 2)*	1F			1U						
14)	*Roundup Ready (sci 2)*					1N 1N					
15)	*GE (soc 1)*							1U			
16)	*Others (2/2)*					1N 1C-				2U	
	T O T A L	1	-	20	49	249	20	12	9	85	9

Table 5.215: *SPs of DVs for Adj + crop/s in the sci and soc corpora.*

A bilingual concordance including the term *transgenic cotton crop* as the search word starts the content of the sentence with the word *concern* that has been rendered by *miedo* (*fear* [back translation]) turning the prosody of the ST from negative (*concern* -) to *unfavorable.* The Spanish TT shows a hyperbole at stating that *el miedo subió de tono* (*fear was heightened* [back translation]). The vast majority of ST-TT pair segments in the *soc corpus* maintains the prosody assigned to the ST for *Adj + crop/s,* inasmuch as the ST-TT pair segments for *Adj + DNA* in both corpora. The second example of fig. 5.216 again involves the adjective *safe,* which was translated into *no representaba riesgo alguno* (*it represented no risks* [back translation]).

The bilingual concordance above-mentioned is expanded below:

Concern that the use of the Bt transgenic toxin might create a new generation of resistant super bugs was heightened in 1996 when an unusually hot and dry growing season in the southern region of the United States triggered an unanticipated series of events in the **transgenic cotton crop**. (JR3E.s241)	El miedo a que el uso de la toxina Bt transgénica cree una nueva generación de " superbichos " resistentes subió de tono en 1966 cuando una estación inusualmente cálida y seca en el sur de Estados Unidos provocó una inesperada serie de sucesos en la cosecha de **algodón transgénico**. (JR3S.s240)	Concern (-) (English/ Unfavorable (Spanish)
However, the United States Food and Drug Administration (FDA) had made it clear that in their view, **genetically modified crops** were assumed to be safe and to offer similar nutritional value as their natural counterparts. (JS1E.s182)	No obstante, el US Food and Drug Administration (FDA ; Administración de alimentos y medicamentos de Estados Unidos) había dejado claro que asumían que los **cultivos modificados genéticamente** no representaban riesgo alguno y que suponían similares valores nutricionales que sus correspondientes naturales. (JS1S.s180)	Favorable (English) / Concern (Spanish)

Table 5.216: *Bilingual concordance for 'Adj + crops' as an example of dual semantic prosody in the soc corpus.*

The second bilingual concordance shows *similar* as a favorable opinion of GMOs. *Similares valores nutricionales* is also part of the TT; however, *no representaban riesgo alguno* makes the favorable semantic prosody assigned to the ST refrained from being so in the TT, owing to the modulation as an optional shift. Assuming that the evaluation belongs to the writer, translators have also their part assessing the ST; since the Spanish TT tends to be cautious at the time of stating safety issues. Although prosodies may differ from one genre to another and from one author to another, it seems clear that they differ even within the very same domain.

5.4.3. General strategies about the translation of book titles

Examples of interlinguistic ideology have been examined through the study of dual semantic prosodies in the previous section. The study of book titles is also relevant to look into interlinguistic ideology. By examining the titles, we would like to know whether ST-TT segments are impinged by ideology. As it is visually appealing, there are two books with almost the same title:

- *Genetic Engineering. Dreams and Nightmares* (by Russo & Cove).
- *Genetic Engineering. Dream or Nightmare?* (by Ho)

Both are written by scientists and were first published in the same year, 1998. The publication date of the STs range from 1995 to 2003, and the period of the TTs goes from 1999 to 2006.

Author	Year	ST	TT	Year
1 ER	1995	*Genetic Engineering. Dreams and Nightmares*	*Ingeniería genética: Sueños y pesadillas*	1999
2 SA	1996	*The Thread of Life: The Story of Genes and Genetic Engineering*	*El hilo de la vida: De los genes a la ingeniería genética*	1999
3 EG	1997	*Biotechnology Unzipped: Promises and Realities*	*La biotecnología al desnudo: Promesas y realidades*	1999
4 JR	1998	*The Biotech Century: How Genetic Commerce will change the World*	*El siglo de la biotecnología: El comercio genético y el mantenimiento de un mundo feliz*	1999
5 MH	1998	*Genetic Engineering. Dream or Nightmare?*	*Ingeniería genética: ¿Sueño o pesadilla?*	2001
6 LA	1999	*Genetic engineering, food, and our environment*	*Transgénicos: Ingeniería genética, alimentos y nuestro medio ambiente*	2001
7 IB	1999	*Unnatural Harvest: How Genetic Engineering is altering our Food*	*Cosecha mortífera: De los transgénicos a las vacas locas*	2001
8 BL	2001	*Dinner at the New Gene Café: How Genetic Engineering Is Changing What We Eat, How We Live, and the Global Politics of Food*	*La guerra de los alimentos transgénicos. ¿Quién decidirá lo que comamos a partir de ahora y qué consecuencias tendrá par a mí y para mis hijos?*	2003
9 SN	2003	*Eat Your Genes: How Genetically Modified Food Is Entering Our Diet*	*Come tus genes: Cómo los alimentos transgénicos están en nuestra dieta*	2004
10 JS	2003	*Seeds of Deception: Exposing Industry and Government Lies about the Safety of the Genetically Engineered Foods You're Eating.*	*Semillas peligrosas: las mentiras de la industria y los gobiernos sobre lo que comemos*	2006

Table 5.217: *List of popular science books in the GE_P-ACTRES corpus.*

Following Toury's approach to establishing norms, the translational behavior of ST-TT segments from table 5.217 can be summarized as three main tendencies:

- The tendency to translate *Genetically Engineering* by → *transgénicos*.
  - *Genetic engineering, food, and our environment (1999)*
    - ***Transgénicos**: Ingeniería genética, alimentos y nuestro medio ambiente (2001).*
  - *Dinner at the New Gene Café: How Genetic Engineering Is Changing What We Eat, How We Live, and the Global Politics of Food* (2001)
    - *La guerra de los* **alimentos transgénicos** (2003).
  - *Eat Your Genes: How Genetically Modified Food Is Entering Our Diet (2003).*
    - *Come tus genes: Cómo los* **alimentos transgénicos** *están en nuestra dieta (2004).*
- The tendency to translate *Genetically Engineering* by → Ø.
  - *Seeds of Deception: Exposing Industry and Government Lies about the Safety of the Genetically Engineered* **Foods** *You're Eating.*
    - *Semillas peligrosas: las mentiras de la industria y los gobiernos sobre* **lo que comemos** Ø

Due to the lack of direct equivalents for *engineered/engineering,* the field is open for the translator to easily insert stances whether conscious or unconsciously. The most common translation of *genetically engineered* is *modificado genéticamente,* as follows:

A **genetically engineered vaccine** preserved the rest of the herd. (BL1E.s29)	Una **vacuna modificada genéticamente** libró de correr la misma suerte al resto de la piara. (BL1S.s28)

Table 5.218: *ST-TT pair segment containing 'genetically engineered' translated as 'modificado genéticamente'.*

From the 123 occurrences of *genetically engineered* found in the four studied collocations of *Adj + N,* paraphrasis is the prominent method (41 occurrences), along with *transgénico/s* (40), followed by *modificado genéticamente* (16) and *genéticamente modificado/s* (16).

By then, also with little fanfare, the government had given companies the go-ahead to sell nearly thirty **genetically modified foods**, beginning with Calgene 's Flavr Savr tomato in 1994. (BL1E.s54)	En aquella época, y también con poco bombo y platillo, el gobierno había concedido a las empresas luz verde para vender cerca de una treintena de **alimentos transgénicos**, empezando en 1994 con el tomate Flavr Savr de Calgene. (BL1S.s53)

Table 5.219: *ST-TT pair segment containing 'genetically modified' translated as 'transgénicos'.*

Minor word choices are *genéticamente manipulado/s* (2), *alterados genéticamente* (2), *GM* (2), *biomanipulados* (1), others (1) and as such we cannot conclude that ideology has reached the translation of denominative variants. As for *engineered + DNA/gene/food/crop* (13)*,* the target terms are *gen/es manipulado/s* (4), *gen/es modificado/s* (3), *gen/es alterado/s* (1), *cultivos/s genéticamente manipulado/s* (1), *cultivos/s transgénico/s* (1) and paraphrasis (1). The translation of *manipulado/s* and *alterado/s* is illustrated in fig 5.201. Two occurrences of *manipulado* are assigned *neutral* semantic prosodies:

> Keeping track of *engineered genes*. (EG3E.s500); Since 1986 there have been over 2,000 field trials of trials of transgenic crops around the world, exposing natural ecosystems to the introduction of *engineered genes*. (EG4E.s140) (emphasis added).

Only one of them expresses *concern:*

> The steps leading to the first legally approved operation in which a human patient was given *engineered genes* from another species are worth summarizing, as an example of how things can move from the theories of research scientists to the end of a hollow needle in an operating room. (EG3E.s106) (emphasis added).

The only one that conveys a degree of serious concern is the bilingual concordance that deals with environmental issues (*environmental front*), shown in fig. 5.201. In that example, the use of *manipulado* without *genéticamente* supports the ideas of ecologists. Even when *engineered* is not qualified by *genetically,* the Spanish term adds *genéticamente* to the TT to keep the scientific rigor of scientific registers:

In the 1980s I wrote about the "deliberate release experiments," as they then were called, when microbes and, later, **engineered crops** were first transplanted from labs to the soil. (BL1E.s42)	En los años ochenta escribí sobre "los experimentos de liberación", como se llamaban entonces, cuando unos microbios primero y, más tarde, cosechas enteras **alteradas genéticamente** se transplantaron de los laboratorios a la tierra de los campos de cultivo. (BL1S.s41)

Table 5.220: *ST-TT pair segment containing 'engineered' translated as 'alteradas genéticamente'.*

- The tendency to translate from a target language (TT) perspective rather than from an original text approach (TO), leading sometimes to creativity in the Spanish translation, as exemplified by "dinner".
  - *Unzipped* (3EG) → *Al desnudo* (bare, naked [back translation meaning truth]) [Communicative translation]
  - *Dinner* (8BL) → *Guerra* (War [back translation]) [Free translation]

- *Unnatural* (7IB) → *Mortífera* (deadly, lethal [back translation]) [Communicative translation]
- *Deception* (10JS) → *Peligrosas* (dangerous [back translation]) [Communicative translation]

The analyzed ST-TT segments (book titles) show that the translator decided to render *dinner* as *guerra* [*war*] (dynamic equivalent) instead of *cena* (formal equivalent). What did motivate the translator for selecting that word choice? The author's background of book 8BL is journalism and the fact that the title contains *guerra* will likely capture the reader's attention successfully. This heading may be surprising by the insertion of a novel lexical element *guerra*, which does not occupy any syntactic position in the original title of the book, *Dinner at the New Gene Café: How Genetic Engineering Is Changing What We Eat, How We Live, and the Global Politics of Food*, and does not make a reference to the semantic field of war or any related dangers. Therefore, to what extent the functional equivalent *guerra* is altering, modifying, or preserving the same or similar meaning as the original? What was the motivation in the case of substituting *genetic engineering* for *alimentos transgénicos [transgenic food*] instead of *ingeniería genética*? In 8BL, the scientific part of the first chapter deals with controversy when it brings about the case of ill-formed pigs as one of the results of GE technology. And also there is a constant reference to the figurative meaning of *field* and *seed* ([…] *to see for myself the seedlings of change*) and the vocabulary of war (e.g. *battle*) to raise debate. This may explain the need of the translator to render *dinner* into *war,* following a free rather than communicative method of translation.

The vocabulary of war was used in the translation into Spanish when the ST had nothing to do with the topic. There are 9 occurrences of *weapon* that were translated by *arma* BL (4), ER (1), JR (1), JS (2), SA (1). It is a literal and an appropriate translation. We decided to look into the reverse case. We looked up *arma* and the ST revealed the translation of *weapon* as the primary choice:

What **weapon** will organic farmers and gardeners have if pests develop resistance to Bt as a result of its overuse by the genetic engineers? (BL1E.s352)	¿Qué **arma** podrán usar los agricultores orgánicos y los jardineros si las plagas desarrollan una resistencia a la toxina Bt como resultado de una excesiva aplicación por parte de los ingenieros genéticos? (BL1S.s347)

Table 5.221: *ST-TT pair segment containing 'weapon' translated as 'arma'.*

The TT segment maintains the question-answer pattern characteristic of scientific popularization. Other ST alternatives for *arma* were *arsenals, sword* and *edge.* However, the most striking example is:

By exploring ways to inactivate these little-studied microbes, either by manipulating their genes or by engineering an antimicrobial agent into the plants the insects feed on, scientists would have a powerful way of indirectly controlling the pests. (EG4E.s223)	Al desarrollar métodos para la desactivación de estos microbios aún poco estudiados, ya sea manipulando sus genes o incorporando algún agente antimicrobiano a las plantas de las que se alimentan estos insectos, los científicos podrían obtener una poderosa **arma** para el control indirecto de las plagas. (EG4S.s223)

Table 5.222: *ST-TT pair segment containing 'powerful way' translated as 'arma'.*

Also in plural:

" They hit us with everything they had, and they couldn't put us down, " he says, describing the efforts of opponents to genetically modified food. (BL1E.s253)	- Nos han atacado con todas las **armas** disponibles, y no pudieron reducirnos - me dice, describiendo los esfuerzos de los adversarios de los alimentos genéticamente modificados-. (BL1S.s249)

Table 5.223: *ST-TT pair segment containing 'everything' translated as 'armas'.*

In these two sentence pairs, it was found that *way* was translated into *arma* (*weapon*), which is a less neutral word than the original one. When there is a literal and neutral meaning is when *arma* is used as a 'gun':

2. The genes are coated onto large numbers of tiny pellets made of gold or tungsten, which are fired with a special **gun** into a layer of cells taken from the recipient plant. (LA1E.s63)	2. La biobalística consiste en unir segmentos de ADN modificados que se quieren introducir en las células vegetales a un soporte de diminutas partículas de oro o tungsteno que se disparan con un **arma** especial en una capa de células tomada de la planta destinataria. (LA1S.s68)

Table 5.224: *ST-TT pair segment containing 'gun' translated as 'arma'.*

In order to shed some light on the issue of *weapon,* we have looked into CLUVI corpus so as to find whether similar translation strategies are preserved or avoided. We have found 446 occurrences of *arma,* but only 2 are connected to the topic of GE. Here are two examples:

418-C27 (210)	NIIT is exploring ways to roll out the idea commercially, [[hi-fr type="supr"]]harnessing the **power** of the private sector to reach the poorest through modern technology.[[/hi-fr]]	Agora, o NITT procura explotar comercialmente esta experiencia, e sérvese das armas do sector privado para que os máis pobres tamén se beneficien das tecnoloxías modernas.	El NITT procura ahora explotar comercialmente esta experiencia y se sirve de las **arma**s del sector privado para que los más pobres también se beneficien de las tecnologías modernas.	Le NITT tente aujourd'hui de donner un prolongement commercial à l'expérience.	
446-C30 (517)	His secret: his placid herbivores have always grazed on grass instead of eating granules containing animal meal, which causes bovine	O seu segredo é alimenta-los seus tranquilos ruminantes cunha arma poderosa: a herba. Nin máis nin	Su secreto es alimentar a sus apacibles rumiantes con un **arma** poderosa: la hierba. Ni más ni menos.	Son secret, il nourrit ses paisibles herbivores avec une arme secrète: l'herbe, tout simplement, et	

	spongiform encephalopathy (BSE).	menos. Hillion condena os granulados feitos a base de fariñas animais que causan a encefalopatía esponxiforme bovina (EEB).	Hillion condena los granulados hechos a base de harinas animales que causan la encefalopatía espongiforme bovina (EEB).	bannit les granulés, contenant les farines animales à l'origine de l'encéphalopathie spongiforme bovine (ESB).	

Table 5.225: *ST-TT pair segment containing 'arma' translated as the TT* (http://sli.uvigo.es/CLUVI/cluvi_en.php?ocuL1=&ocuL2=&ocuL3=arma&ocuL4=&direcci onconsulta=ocu).

Therefore, we have seen that these examples appear to load the language. Some translators give full rein to the creative potential of language, sometimes motivated by the co-text and the SPs contained in it, whereas the translation of terms draw on a reduced linguistic potential by means of steering clear of being affected by the insertion of ideology.

5.5. Final remarks

The analysis undertaken in this chapter has aimed at finding out the results with the highest pedagogic value. The impression from the pilot study was reinforced and confirmed in the previous quantitative and qualitative stages. In the qualitative analysis, the contextual stage was of great value. The quantitative analysis was most decidedly relevant to our linguistic purposes. In that part, word frequencies led to word patterns *adj + DNA, adj + gene/s, adj + food/s* and *adj + crop/s.*

Whereas collocation (*adj + N*) belongs to the level of syntax, semantic prosody works at the level of meaning fulfilling levels of emotion. Scientific terminology escapes the affectiveness proper of the GL although co-text does not.

On the basis of the terminological, phraseological and translational levels, an account of the translation phenomena that have been examined in the previous pages will be summarized in the conclusion chapter.

5. Data Analysis

6. Conclusion

6.1. Theoretical framework conclusions
- 6.1.1. LSP and popular science
- 6.1.2. Object of analysis: DV, SP and translation strategies (TS)
- 6.1.3. Analytical tool: Corpus Linguistics (CL)

6.2. Data analysis conclusions
- 6.2.1. Denominative variation
- 6.2.2. Semantic prosody
- 6.2.3. Translation strategies (norm-searching)

6.3. Final remarks
- 6.3.1. Limitations of the study
- 6.3.2. Further research
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6. Conclusion

The better the question, the harder the answer

Flann O'Brien (1939/2000: 201)

This dissertation has proposed a corpus-based analysis to retrieve terminological units (polylexical denominative variants), interpret semantic prosodies and extract translation norms encountered in a specialized corpus of popular science books about genetic engineering. Concluding remarks are divided into three main sections: Theoretical framework conclusions, data analysis conclusions and ideas for further research.

6.1. Theoretical framework conclusions

Every theoretical or conceptual framework is designed to guide a study. It is the meeting point where all the interrelated concepts and the theories correlated with the issue to be explored conflate into the idea or hypothesis the researcher pursues to be tested.

Along the epistemological avenue of this study, some theoretical hints have loomed large in the preceding chapters in order to progressively delve into this dissertation: (a) denominative variation, (b) semantic prosodies and (c) ideological aspects of interlinguistic translation. Each one of these topics, along with the chapter on LSP, forms the theoretical foundation that moves from the big picture to specific information. The conceptual framework facilitates a secure "work path" (Rabadán and Fernández Nistal 2002: 16) or "research protocol" (Rabadán and Merino 2004: 29) for both the translator and the academic.

In this dissertation, the following conclusions summarize the key points displayed in the theoretical chapters:

<table>
<tr><td colspan="2">Chapters of theoretical framework</td><td>Brief conclusions</td></tr>
<tr><td colspan="2">Language for Specific Purposes (LSP)</td><td>Popular science is understood as genre re-writing and specialized register/discourse.</td></tr>
<tr><td rowspan="3">Object of study:</td><td>Denominative variation</td><td>One signified (concept) can be expressed by different signifiers (denominative variation).</td></tr>
<tr><td>Semantic Prosody</td><td>The collocational profile of linguistically relevant signifiers (denominative variations) may reveal ideological signified (semantic prosody).</td></tr>
<tr><td>Ideological aspects of translation</td><td>Denominative variations and semantic prosodies from the STs may be preserved in the Spanish TTs depending on the notion of equivalence/translation norms under the DTS model.</td></tr>
</table>

Table 6.1: *Summary of the conclusions of the theoretical framework.*

6.1.1. LSP and popular science

The conclusions extracted from the LSP chapter can be summarized as follows:

i.) For a text to be considered a specialized one, it needs to communicate or tells us content about a specialized topic. A reader of a specialized text has some knowledge of the specialized content of the text, even though if this is the case of a layman who is a non-professional but educated reader.

ii.) The notion of specialized languages is one that resists clear-cut delimitation. The treatment of specialized content is what characterizes a text as specialized (Cabré and Gómez de Enterría 2006: 55). Therefore, it can be argued that there are no specialized languages, but specialized uses of the language.

iii.) Popular science constitutes a blurring area where general and specialized languages converge (García Palacios 2001: 158). Regardless of the degree of specialization, every specialized language always contains GL lexical units. LSP differs from GL in the semantic content and the expression of concepts. For example, *sequence* appears both in general-purpose (*sequence of events*) language and in every branch of the entire discipline of biology (*sequence of DNA*).

6.1.2. Object of analysis: DV, SP and translation strategies (TS)

Denominative variation

iv.) Terminology is the main feature of a specialized field. There is not a single scientific terminology, but every terminology belongs to a particular specialized language.

v.) Popular science discourse is formulated by means of different popular science strategies. One of them is denominative variation. This phenomenon and the level of specialization are intrinsically related. In this PhD dissertation, a large number of denominative variants were found to be a faithful indicator of scientific popularization.

Semantic prosody

vi.) The concept of semantic prosody was distinguished from connotation: a lexical entity signifies another meaning in addition to its primary meaning (e.g. dog is a four-legged canine carnivore, if you say *you are a dog*, it would imply that you were ugly or aggressive rather than stating that you were canine). Contrastively, semantic prosody is made up of the notions of transferred meaning (Hunston 2002: 141) and evaluative meaning (Partington 2004: 131). For example, *transgenic crops* may acquire a negative meaning if the surrounding keywords belong to a negative semantic set (e.g. *deliberate release of*).

vii.) Semantic prosody is based on semantically consistent sets; that is, lexical items that typically co-occur and belong to a specific semantic set (e.g. favorable, unfavorable, concern, boredom). Features of semantic prosody comprise an attitudinal and hidden meaning, along with the fact that it is contingent upon co-text (Steward 2010: 159). SPs can reveal unsuspected facts about languages including the insertion of ideology.

viii.) On the premise that semantic prosody operates in the GL, terms should not be affected by this linguistic phenomenon. However, since popular science is the less specialized level of and the closest linguistic level to GL, even terms may receive the influence of GL.

Translation strategies (TS)

ix.) A specific genre determines a particular translation theory and method. The present study was based on the descriptive branch of TS called Descriptive Translation Studies (DTS). This PhD dissertation has followed Toury's three-stage approach (1995: 38) to study a TT; that is, a DTS framework seeks: (1) the placement of the TT and assessment of its acceptability within its culture system, (2) the identification of translation shifts for recognized ST-TT segments and establishment of the norm of translation equivalence and (3) the formulation of implications for decision-making in future translating. This approach was taken as the research methodology in the corpus exploitation of this dissertation.

x.) The concept of equivalence is the connection between the ST and the TT. Equivalence is subdivided into 'formal' (SL oriented) vs 'dynamic' equivalence (TL oriented) (Nida 1964). The formal equivalence tries to reproduce the form of the original, whereas the dynamic equivalence focuses on the TL resources to create the same pragmatic effect as the original. Through the study of equivalence, translator's strategies are uncovered. The purpose (skopos theory) and addresser determine translation choices. When analyzing a TT, it is inevitable not to deal with translation shifts with respect to its original. The TT tends to preserve, modify or distort the meaning of the STs in a particular direction and, as a result, the TT is adequately represented, under or overrepresented.

xi.) DTS matches with the discipline of CL, since CL is empirically descriptive. What corpora could not do before now is the search of multiple bilingual concordances that can be currently extracted in a matter of seconds.

6.2. Data analysis conclusions

This dissertation remains on the solid ground of linguistic description and thorough analysis with reference to terminology (denominative variation), phraseology/semantics (semantic prosody) and translation studies (ideology) as the areas most likely to provide us with relevant answers.

Before examining terms and their denominative variants, a two-fold opening research consisting of a pilot study and a qualitative analysis was carried out to extract the first revealing findings.

The pilot study was useful to spot the intralinguistic differences of popular science discourse on the part of scientists and on the part of journalists and activists. A remarkable difference was the frequency and type of denominative variants of the noun *GMO.* Variants varied greatly from one book to another. 9SN was the book of the pilot study that showed a clearer objective scientific approach compared to 8BL and 10JS, which were written by a journalist and the director of the *Institute for Responsible Technology*, respectively. The writers of 8BL and 10JS give the readership a broader focus of the topic, and in this way, their discourse confirms that popular science can be considered a hybrid type of discourse.

At the same time, the pilot study was extremely helpful to refine the three research questions regarding **denominative variation** (different denominations of GMOs), **semantic prosody** (*genetic* + noun, and, *genetically* + adjective) and **translational ideological aspects** (general strategies of the translation of DVs and SPs).

Right after the pilot study, the qualitative analysis that was carried out in this dissertation aimed at placing the ST and TT in their culture systems. This placement of texts in their culture systems is the first stage in Toury's methodology. This qualitative part first included a description of the popular science books and a comparison of ST-TT book covers, and then, the documentation stage and field diagram.

The description of the book contents informed us about the unifying characteristics of the corpora, the *sci* and the *soc*, in the manner that a clear explanatory purpose was undertaken with the sole objective of transmitting the discipline of GE to an audience that is not learned on the matter. Ethical issues have shown as an aspect that is part of both corpora, although these issues are not present with the same intensity in the books of both the *sci* and the *soc* corpora.

The semiotic comparison of the book covers revealed that Spanish book covers tended to have the author's name on top (except for books 6LA and 8BL), whereas the book title receives more importance in the STs (books 4JR, 7IB, and 9SN are the exception). Based on this observation and other relevant semiotic appreciations stated in the data analysis, findings showed that Spanish book covers –especially in the *sci corpus*– (1) maintain a scientific treatment of genetic engineering as in the original books and even, (2) create a new scientific approach, as in the case of English 1ER and 2SA, which are the books that show a greater trivial treatment of genetic engineering in the English version compared to the Spanish one.

The documentation stage was divided into biotechnology as (1) a scientific endeavor and as (2) a hot debate. The former discussed the strengths and lines of research of genetic engineering on the part of the proponents. The latter highlighted the release and public awareness of GMOs, along with potential risks. This section was documented with the material mentioned in the methodology chapter. Furthermore, this part of studying the arguments of both sides was essential to trace attitudes that can be tested through linguistic correlates.

The field diagram was articulated following the two-fold division in the documentation stage that corresponded to the areas of molecular biology (scientific endeavor) and ethical concerns (debate), so as to facilitate the detection of terms and collocations within the specific area of study.

The qualitative part was necessary to deepen into the sociocultural and sociocognitive perspective of GE within the culture systems of the texts and, from this point, to become familiar with accurate terminology and thus, prepare the grounds for quantitative data extraction.

In the quantitative part, there were two unavoidable subjects when dealing with CL: representativeness and balance. In the issue of representativeness, it is a *fait accompli* that a specialized corpus is not usually very large. Apart from the fact that the number of tokens comprising the corpus is considered representative enough (1.7 million words) to provide a reliable analysis, the books eligible for the corpus were the only 10 books in the market that fulfilled the design criteria for this PhD study. The issue of balance was accounted by including 5 books in each corpus (the *sci* and the *soc*) and the level of specialization was tested through the study of TTRs (type-token ratio). There is a steady balance in the number of types (less than 20%), regardless of the number of different tokens in every book; therefore, the level of specialization is low as expected.

Once these two key issues concerning CL were discussed, a semi-automatic process of generating wordlists was carried out until a final keyword list was delimited. The refined keyword lists were four: one for the English *sci corpus* and one for the *soc corpus,* plus their Spanish counterparts. Most keywords were prospective terms and classified into four groups: technical terms (science), technical terms (specialized field of GE), subtechnical terms, and general language words.

The lexical distribution of the 50-top keywords in the English *sci* and *soc* corpora from the aforementioned four terminological categories revealed that technical terms (science) are more prolific in the *sci corpus* (around 50-55%) than in the *soc corpus* (around 10%), whereas technical terms of the specialized field are slightly more abundant in the *soc corpus* (around 25%) as compared to the *sci corpus* (around 15%). This fact is an indicator that the *sci corpus* may devote a greater deal of discourse to explain the mechanisms of molecular biology in comparison to the *soc corpus.* Technical terms –both science and the specialized field– comprise approximately 70% of the 50-top keywords from both the English and Spanish *sci* corpora and around 35% in the case of the English and Spanish *soc* corpora, almost half of those in the *sci corpus.*

With regard to subtechnical terms, both in the English and Spanish corpora, we found a slightly larger group (32/35%) in the *soc corpus* than the one in the *sci corpus* (24/26%). The technical and subtechnical terms represent 94/98% of the 50-top keywords in the *sci corpus* and 69/76% in the *soc corpus*. These figures account for the lexical distribution of the 50-top keywords in both English and Spanish corpora and, therefore, shed light on the level of specialization in two different corpora –the *sci* and the *soc corpora*– classified by authorship within the genre of popular science on the topic of genetic engineering.

The lexical preference for technical terms (science) is more prominent in the *sci corpus* than in the *soc corpus,* whereas technical terms (specialized field) are slightly more salient in frequency in the *soc corpus* for both English and Spanish corpora, which may imply that in a large number of cases the illocutionary force of emphatic language prevails over professional communication, especially in the *soc* corpora.

We can conclude this part by stating that two terms *–gene/s* and *DNA–* belonging to the category of technical terms (science) and two subtechnical terms *–food/s* and *crop/s–* were selected to study denominative variants. In addition, two technical terms (specialized subject field) *–genetic* and *genetically–* were analyzed to examine semantic prosody. The six terms were studied according to frequency and category of term (technical or subtechnical).

6.2.1. Denominative variation

The first term studied *–DNA–* showed collocability with the adjective *recombinant* as the most frequent L1 collocate, in the *sci* (27 occurrences) and *soc corpus* (8). The keyword, *recombinant DNA,* was the accurate term preferred by the community of scientists based on the techniques of genetic recombination. In the case of *gene/s,* the most frequent L1 collocate was *resistance* (12 occurrences in the *sci corpus* and 9 in the *soc corpus*).

Regarding subtechnical terms, *food/s* and *crop/s* have experienced denominative variation in a greater number. *Food/s* and *crop/s* used in GL have acquired a specialized value when they are encountered in texts related to biology. *Food/s* is accompanied by *genetically modified* as its primary denominative variation (91) in the *sci corpus,* whereas *GM* (193) was the preferred option in the *soc corpus. Crop/s* typically co-occurs with *transgenic* as the most prominent denominative variation in the *sci corpus* (207) and the *soc corpus* (33).

The second most frequent collocate for *Adj + DNA* in the *sci corpus* was *transgenic* (7), which stands out for the reason that only one writer made use of this term (5MH). In the *soc corpus, altered DNA* was the second most used option, although not very frequent (4). As for *gene/s, engineered gene/s* (7) and *transgenic gene/s* (7) were the second most recurrent collocations for the *sci* and *soc corpus*, respectively. The simplified form *GM* (91) occupied the second position in the *sci corpus* and the extended one, *genetically modified* (98), did so in the *soc corpus*. Regarding *crop/s*, the second most frequent collocation was *resistant crop/s* (40), whereas the second position in the *soc corpus* was shared by 2 denominations with the same frequency, both *genetically modified* and *modified* counted with 29 occurrences.

DVs (*Adj* + *N*)			
First most frequent collocate		Second most frequent collocate	
Sci corpus	*Soc corpus*	*Sci corpus*	*Soc corpus*
ENGLISH			
Recombinant DNA (27)	*Recombinant* DNA (8)	*Transgenic* DNA (7)	*Altered* DNA (4)
Resistance gene/s (12)	*Resistance* gene/s (9)	*Engineered* gene/s (7)	*Transgenic* gene/s (7)
Genetically modified food/s (91)	*GM* food/s (193)	*GM* food/s (91)	*Genetically modified* food/s (98)
Transgenic crop/s (207)	*Transgenic* crop/s (33)	*Resistance* crop/s (40)	*Genetically modified* crop/s (29) *Modified* crop/s (29)
SPANISH			
ADN *recombinante* (26)	ADN *recombinante* (8)	ADN *transgénico* (7)	ADN *alterado* (4)
Gene/s de *resistencia* (12)	Gene/s de *resistencia* (9)	Gene/s *alterado/s* (5)	Gene/s *transgénico/s* (7)
Alimento/s *transgénico/s* (102)	Alimento/s *GM* (190)	Alimento/s *MG* (29)	Alimento/s *transgénico/s* (91)
Cultivo/s *transgénicos* (226)	Cultivo/s *transgénicos* (65)	Cultivo/s *resistente/s* (41)	Cultivo/s *genéticamente modificado/s* (18)

Table 6.2: *First and second most frequent collocates for 'Adj + DNA/gene/food/crop' (DVs) in the English and Spanish corpora (raw frequencies).*

As with the English corpora, the most recurrent collocate in the Spanish corpora for *Adj + DNA* was *recombinante* in both corpora (26 in the *sci* and 8 in the *soc* corpora). The immediate right collocates of *gene/s* in the Spanish texts also constituted a very small set of terms, with the top one *gen/es de resistencia* in both corpora (12 and 9, in the *sci* and *soc* corpora, respectively). The most salient collocate in the Spanish *sci corpus* for *alimento/s* (food/s) was *transgénico/s* (102). The *soc corpus* had a different top frequent collocate, *GM* (190). In the case of the Spanish, the collocate that ranked first for *cultivo/s* (crop/s) was *transgénicos/s* in both corpora (226 and 65 in the *sci* and the *soc* corpora, respectively).

Regarding the second most frequent collocate, the results were faithful translations of the source denominative variants in the case of *DNA*: *ADN* *transgénico* (7 *sci corpus*) and *ADN alterado* (4 *soc corpus*). The second most salient collocate in the Spanish for *gen/es* was *gen/es alterado/s* (5) in the *sci corpus* and *gene/s transgénico/s* (7) in the *soc corpus*. As for *food/s, alimento/s MG* (29) in the *sci corpus* differed from *alimento/s transgénico/s* (91) in the *soc corpus*. As for *crop/s,* the second most frequent collocate for *cultivo/s* (*crop/s*) in Spanish was *resistente/s* (41) in the *sci corpus* and *modificados* in the *soc corpus* (18).

Based on these findings, we can argue that:

- Denominative variation was in direct relation with the level of specialization.
    - Except for *Adj + crop*, the *soc corpus* showed a higher number of variants for the pattern *Adj + DNA/gene/food* than those in the *sci corpus.* Technical terms (*DNA*, *gene*) were less affected by denominative variation than subtechnical terms (*food*, *crop*).
    - The most frequent denominative variants were more specific in technical (*recombinant DNA* and *resistance gene/s*) than subtechnical terms. More general denominations (*genetically modified food/s* and *transgenic crop/s*) were found more recurrent as denominative variants for subtechnical lexical units, partly because the depth of concepts expressed by technical terms is more fixed than in semitechnical ones.
    - The books differed in the number of variants depending on the TU. Every book in the *soc corpus* presented two or three lexical denominative variants of *DNA* expressing *genetic modification* in the *Adj + N* pattern, except for 4JR that offered only one –the predominant– denomination (*recombinant DNA*). Some writers held a larger number of DVs than others. 8BL was the book that registered most DVs (13) under the pattern *Adj + food/s.* And 9SN encountered 12 different DVs for *Adj + crop/s.* Some terms are almost exclusively found in a single book (e.g. *GM food* as variation of *genetically modified food* is exclusively found in 9SN, *GM food* mainly in 10JS and *genetically modified* primarily in 8BL).
- Denominative variation contributed to generate a more varied discourse. It can be orthographic, simplified, lexical and semantic. The four types were found for the sought combinatorial pattern *Adj + DNA/gene/food/crop.* Whereas orthographic denominative variation usually occurred in *Adj + DNA* (*recombinant DNA, rDNA),* semantic (*insecticide, biopesticide, herbicide-tolerance*) was present for *Adj + gene/s,* and lexical (*engineered, modified, transgenic*) was common to the four studied collocations and even more prominent in subtechnical terms (*food/s* and *crop/s*). Simplified denominative variations (*modified*

and *genetically modified*) were also a common procedure in subtechnical terms.

- Denominative variation was terminologically more stable regarding technical terms:
    - The most frequent L1 collocate for the *Adj + N* coincided in both corpora (the *sci* and the *soc*) when dealing with technical terms (*recombinant DNA* and *resistance gene/*s). In the case of subtechnical, *food/s* registered dissimilar collocates (*genetically modified food/s* and *GM food/s*) whereas *crops/s* showed a preference for one denominative variation (*transgenic crop/s)* in the *sci corpus,* the terminological pre-eminence in the *soc corpus* was shared among *transgenic crop/s* (33), *genetically modified crop/s* (29) and *modified crop/s* (29).
    - Both *recombinant DNA* and *resistance gene/s* were used in every book or the majority of books within the *sci corpus*. The most frequent denominative variation for subtechnical terms was primarily used in a single book or a few of them.
    - The fact that one denomination was used more than half of the total amount of occurrences (sometimes it reached two thirds) for a combinatorial pattern showed a tendency to be terminologically consistent. As expected, the *soc corpus* was less terminologically consistent than the *sci corpus* as writers used a wider range of DVs that sought variety of discourse proper of popular science.
    - Terminological stability was encountered when one denominative variation was used (*recombinant DNA* and *resistance gene/s*) in both *sci* and *soc* corpora. When such terminological stability was not that clear, the pre-eminence of terms was shared between two or three denominations (e.g. *genetically modified* and *GM* for *food/s*).
- Denominative variants experienced a terminological evolution. Whereas the term *transgenic* did not appear in the first book of the Spanish *soc corpus* (4JR), the last book (10JS) exhibited the grammatical category change from adjective (*alimentos transgénicos*) to noun (*los transgénicos*) by using the definitive article *los* (*the*).
- The type and frequency of denominative variants were an indication of the level of specialization within a text type. The *sci corpus* has shown more terminologically consistent due to the aforementioned reasons. All in all, denominative variation has proven to be a very frequent linguistic device in popular science discourse.

6.2.2. Semantic prosody

The concept of ‘genetic modification’ was examined through the patterns *genetic + N* and *genetically + Adj.* Within the first pattern, the study of *genetic manipulation, genetic modification* and *genetic recombination,* along with their Spanish translations, was analyzed to distinguish different semantic sets in the adjacency. When immediate surroundings concerned, for example, gene therapy, biosafety from a legal point of view and laboratory processes, these collocates were grouped together as the *neutral* semantic set. From the study of concordance lines for *genetic recombination,* results showed that its immediate collocates belonged to the neutral semantic set and therefore, since collocates were statistically significant, a neutral semantic prosody was assigned to *genetic recombination.* A different semantic set expressing concern/worry regarding ethical issues was detected in the lexical profile of *genetic modification* and *genetic manipulation.* Although *genetic recombination* did not show up in the *soc corpus,* the string of attitudinal meaning goes as follows:

genetic recombination >> genetic modification >> genetic manipulation

The evidence supplied in concordance lines suggests that no attitude is ascribed to *genetic recombination*. As for *genetic modification,* this polylexical term was more prone to be affected by attitudinal meaning in the *soc corpus* (e.g. *avoiding, increasingly hostile, unforeseen impact, we don’t like, health concerns, problems it may cause, unpredicted harmful).* The case of *genetic manipulation* showed a higher degree to be affected by evaluative meanings in the *soc corpus* as well (e.g. *we reject, can yield scary results*). Concordance lines for Spanish *recombinación genética, modificación genética* and *manipulación genética* threw similar results.

The second pattern selected to study semantic prosodies for the concept of ‘genetic modification’ was *genetically + adjective + noun.* This section was valuable to establish semantic sets into categories: *favorable, neutral, concern, negative concern* (e.g. *serious*) and *unfavorable.* The studied pattern revealed *genetically engineered* and *genetically modified* as the most recurrent collocates for *Adj + N. Genetically engineered* was used more uniformly along the *sci corpus* and it seems to be a less emotive term than *genetically modified,* which receives a higher number of negative evaluations, due to the occurrences ascribed to the *unfavorable* semantic set (*unacceptable, unsustainable, hazardous* and *banning*) especially in the *soc corpus.*

A specific collocate *–release/s–* had a typical usage with no extra shade of meaning intended. When the pattern *release(s) of + genetically + modified + noun* was found in the singular in the *soc corpus, release of* suggested a negative semantic prosody, since the node was impregnated by aspects that raised somewhat disquiet, such as *public fear, raise concern, banning, risk* *assessment,* and *damage.* In contrast, the plural form *releases of* showed a neutral/favorable semantic prosody and mainly referred to regulation or lab processes though *massive investment, ice minus bacteria, application, Secretary of State, monitoring, guidelines, control* and *major contributions*. Within the *sci corpus,* we also examined the pattern *genetically engineered + noun* in the company of *release(s) of,* and results indicated an unfavorable state of affairs about GMOs.

In the *soc corpus,* a larger number of co-occurrences confirmed consistency of semantic collocates conveying more unfavorable/concern(-) than neutral/favorable aspects of GMOs. The preferred option in the *soc corpus* –*genetically engineered*– contained elements in its profile that are shared by that of *genetically modified* in each one of the semantic sets. For instance, they share a ‘concatenated’ collocate –*release (of)* – that suggests an unfavorable semantic prosody, especially when it is qualified by *deliberate.* When *into the environment* was in the collocational profile and addressed to assessing potential risks, it also suggested unfavorable semantic prosody. As in the *sci corpus,* there were a few examples of *release of + genetically + adjective + noun* that triggered a favorable semantic prosody.

Apart from *release,* another ‘concatenated’ collocate was *increase* and near-synonyms. The same item –*increase*– can be applied negative or positive meaning depending on the internal argument it referred to and the type of book it was inserted in.

As for the Spanish corpora, the lexical elements *vectores, células, proteína, kanamicina, liberación(es)* (*release/s of*), amongst others, co-occured frequently with *N + Adj + genéticamente* / N + *genéticamente + Adj* to indicate an absence of prosody or neutral prosody. The very same collocates can appear next to other items such as *riesgos* (*risks*), *indeseable* (*undesirable*), *preocupación* (*concern*), *problemas inesperados* (*unexpected problems*), *daño* (*damage*), *impacto, amenaza* (*threat*) that ensure an unfavorable reading.

A collocational relationship between *liberación(es)* and *genéticamente* was observed through proximity. Negative prosodic status to the sequence *liberación(es)* was recorded on account of its frequently right- and left-handed occurrences (*the presence of detractors, the number of GMO liberations into nature, a statement of protest, risks, debates, plague control, the destruction of the environment and consequences of killing species*), and showed the most controversial and darker side of genetic modification. Thus, negative semantic prosody comprises two new semantic sets: the *negative concern* (*concern(-)*) and the *unfavorable*.

This prosody turned positive in just one book of the *sci corpus,* 9SN, when *liberación(es)* co-occured with *organismo modificado genéticamente* in the company of regulatory laws, even *liberación* was qualified by *intencional* in the context of European regulations, which means that certain keywords were ideologically charged depending on the co-text in which they are embedded.

Based on these findings, the following implications are pointed out:

- Semantic prosody can be intrinsic and extrinsic due to linguistic promiscuity.
  - *Genetic recombination* was the only term analyzed from the corpus holding intrinsic semantic prosody. It was assigned neutral semantic prosody (inherent feature) based on the fact that the meaning and lexical prolife of *recombinar* and *recombinación genética* showed they are more collocationally fixed in specialized languages and this fixation does not allow surrounding lexical items to allocate any type of evaluation.
  - Nevertheless, semantic prosody is primarily extrinsic in popular science discourse. The rest of the analyzed terms, along with *genetic modification* and *genetic manipulation,* are exposed to external factors (extrinsic ones), such as authorship that put the terms to linguistic interests. Therefore, semantic prosody seemed to be similar for denominative variants of the concept 'genetic engineering techniques' *–genetic manipulation, genetic modification* and *genetic recombination–* but in fact it was not.
  - Some terms can also hold both intrinsic and extrinsic semantic prosodies. In the case of *release of*, considered a semantically neutral item, its semantic prosody was both positive and negative in the company of *release(s) of + genetically + Adj + N*, depending on the corpus (*sci* or *soc*). To mention another example, *genetically engineered* was also in the lexical environment of *neutral, favorable* and *concern* semantic sets. Therefore, there seems to be no rule to distinguish why *genetically engineered* sometimes implies a favorable statement and some other times indicates an unfavorable state of affairs, unless we assume that terms are posed to the standpoints of writers in different contextual situations. The *soc corpus* was more prone to be affected by negative semantic prosody than the *sci corpus.*
- The tenets of semantic prosody are based on semantic sets and lexical proximity.
  - Semantic prosodies are suggested when the collocates from a particular semantic set are found in the collocational profile of the keyword object of analysis. The node may be impregnated by the meaning conveyed from the immediate co-occurrences and, as a result, may adopt part of the semantic features from its adjacency.

  - A prosody –whether positive or negative– is inferred when the core item –*genetically + N*– and its surroundings establish a collocational relationship through proximity. A span of more than two lexical items to both sides of the node and in most cases the whole sentence was taken into account as a sufficient criterion to suggest a prosody. For instance, lexical items in the profile of the collocation *genetically + Adj + Noun,* such as *warning, labeling, poses threat, profits, GE-free, opposing, unexpected, moratorium, segregation, banned, problems,* were semantically consistent and, therefore, belong to the same semantic set, in this case –*unfavorable*–.

- Semantic prosody is semantically concatenated.
  - It is not only one word the one that gives rise to the constitution of a particular semantic prosody but a concatenation of elements (e.g. *release of, increase, resistance*). For example, every time *moratorium* (considered negative) was encountered did not imply that it would belong to an *unfavorable* semantic set; that is, not every *moratorium* activated negative semantic prosodies. In fact, there is usually a 'concatenation' of key collocates that conforms a particular meaning, such as *unfavorable,* whose force makes them belong to a semantic set. It is also worth commenting that a large number of unfavorable semantic prosodies were refrained from acting as such because of degree adjectives, such as *potential,* and therefore, they remained as serious concern within the *negative concern* semantic set.
  - Not only do words conveying disquiet constitute unfavorable semantic prosodies but also apparently neutral words that in principle do not contain an extra shade of meaning such as *release of*. It seems that *release of* spreads its unfavorable attribute evenly along the *soc corpus,* whereas the *sci corpus* exhibited some books more prone to show this negativity concerning *release of* (especially 5MH) than others.

- Not all the prosodies have evaluative function, as is the case of the semantic data sets of *neutral* and *concern.* However, most of the serious concerns expressed (*negative concern* semantic set) refer to wary attitudes against GMOs especially conveyed by 5MH.

- Unpredicted by the researcher, all terms seem to have prosodic potential. The claim is that the dichotomy *favorable* and *unfavorable* implies supporters and protesters in favor and against the technology. To set up this dichotomy, we depend upon lexical profiles that help the researcher to identify semantic prosodies.

- Semantic prosody is a subjective procedure of every speaker. By examining the semantic prosody of a particular writer we could obtain an objective picture of a subjective mental process. As a homemade experiment, the present researcher deleted the book number of some STs and by examining the wording of the untagged STs, the source was still easily identifiable.

6.2.3. Translation strategies (norm-searching)

ST-TT pair segments containing denominative variants and semantic prosodies will be compared in this section in order to further analyze general strategies of translators (*translation norms*).

The norm found in the interlinguistic comparison of the translation of DVs preserves the type of variation in the majority of cases. Denominative variants for *DNA* and *gene/s* are rendered into Spanish following a faithful translation approach including the orthographic variants comprised by the most prominent DVs *–recombinant DNA–* and *resistance gene/s*. This faithful translation approach has followed a formal equivalence.

Regarding the pattern *Adj + gene/s,* the denominative variant that displays more lexical variation is *engineered gene/s* (10), due to the fact that there is not a direct translation of *engineered* into Spanish. A number of intrasystem shifts (Catford 1965) are supplied in the TT, being *gen/es manipulado/s* (4) the most frequent, followed by *modificado/s* (2) and *manipulado/s* (1). Only one case of *negative concern* was found and, that was motivated owing to negative load in prosodic terms. The case of *(genetically) engineered gene/s* in the *soc corpus* presents a neutral translation of *gen/es modificado/s* and a less neutral *gen/es sometidos a la ingeniería genética.* The adjective *sometido* (*subdue* [back translation]) frequently carries in Spanish a negative semantic load that is boosted by *matado* (killed) and *verdaderamente* (merely) (fig. 5.203).

DVs increase in number in the translation of subtechnical terms. Both in the *sci* and *soc* corpora, the polilexical term *cultivo/s transgénicos* is a very frequent preferred translation option, followed by *modificados genéticamente* and *genéticamente modificados,* although the ST is not originally *transgenic.*

Regarding semantic prosodies, the *sci corpus* has the majority of occurrences for *recombinant DNA* assigned a neutral semantic prosody, except for 5MH. In the *soc corpus, recombinant DNA* is both positive and negative for the same author (4JR, 7IB). In the *gene/s* data, no unfavorable occurrences are listed for any of the denominative variants in the *sci corpus.* In the *soc corpus,* the occurrences that are drawn a negative evaluation are *transgenic gene/s* (4JR), *Terminator genes* (8BL) and *genetically engineered gene/s* (4JR) owing to increasing co-occurrence with predominantly unpleasant collocational company. There are three cases of dual semantic prosody, that is, one semantic prosody is assigned to the TT that differs from that of the ST (e.g. *sometidos, contaminaría*).

As for subtechnical terms, fewer cases of *neutral* semantic prosody were encountered. The majority of occurrences regarding the pattern *Adj + food/s* that conveys *concern* alludes to safety issues. Several semantic prosodies co-exist under the same denominative variant both the *sci* and the *soc* corpora. Cases of dual semantic prosodies for subtechnical terms also occur in both corpora (e.g. *sometidos, endurecer; no se alarme, invadido, inocua, no sean perjudiciales, evaluación, ningún riesgo; por la que se teme, el miedo subió de tono, no representaban ningún riesgo*). In general, the vast majority of ST-TT pair segments in the *soc corpus* maintain the prosody assigned to the ST for *Adj + crop/s.* When it was not preserved, pair segments of dual semantic prosody were identified and, as a result, the insertion of ideology was observed in the TT.

The last part analyzed regarding translation strategies was the analysis of book titles which shed light on the general strategy of translating *genetically engineered* as *transgénicos* or as the avoidance of the term into Spanish. From the DVs studied *genetically engineered + N* (123 occurrences), paraphrasis was the prominent method (41 occurrences), along with *transgénico/s* (40), followed by *modificado genéticamente* (16) and *genéticamente modificado/s* (16). The rest of the book titles exhibited a tendency to translate from a target language perspective rather than an original text approach, leading sometimes to creativity in the Spanish translation (e.g. *dinner at the gene café* into *la guerra de los transgénicos* (*war* [back translation]).

The previous findings bring about the subsequent repercussions:

- The norm for translating denominative variations was primarily the pursuit of formal equivalence that was achieved through the imitation of the original forms (*recombinant DNA = ADN recombinante, transgenic DNA = ADN transgénico*, etc). Less common was dynamic equivalence that was seen whenever a new sense was conveyed (e.g. *ADN extraño* from *manipulated DNA*).
    - Formal equivalence in the translation of DVs appeared as a norm over dynamic equivalence, except in optional shifts (*genetically modified food* into *alimento/s transgénico/s*), and those cases where there was not a direct translation of the term in the TT.
    - Target translations that have followed formal equivalence –in particular *recombinant DNA* and *resistance gene/s*– implies that the level of fixation of the translated terms is high and assures lack of polysemy, proper of scientific registers.
    - Congruency (formal equivalence) and one-to-one equivalent denominative variants are dominant features in the translation of technical terms (*DNA* and gene/s), whereas the number of

translational variants corresponding to a single English signifier is multiple with regard to subtechnical terms (*food/s* and *crop/s*).

- If a term generates social debate (*food/s* and *gene/*s), a larger number of DVs proliferated in the translation of the whole terminological unit. It should also be taken into account that the search for different denominative variants to maintain the reader's attention is a case in point in Spanish.

▪ Formal equivalence is evaded when the ST has not direct equivalents into the TT (e.g. *genetically engineered*) (terminology).

  - Therefore, a dynamic equivalence arises in the form of a complete equivalence (e.g. *modificado*) or partial equivalence (*sometido a la ingeniería genética*) whenever a negative semantic prosody (phraseology) refrains a complete functional equivalence from developing in the TT (translation studies).

▪ Translation contributes to terminological evolution. The vast majority of denominative variants are class-maintaining, so that terms do not change their nominal grammatical category. The more a term is used the more it changes as is the case of the nominalized adjective *los transgénicos.*

▪ The norm to translate semantic prosodies is that the translator has preserved semantic prosodies in technical terms with the exception of *gene/s* in the *soc corpus* that reveals 3 cases of dual semantic prosody. Subtechnical terms also register cases –although not abundant– of dual semantic prosody that uncovers ideological insertions. Subtechnical terms exhibit pairs of dual semantic prosodies both in the *sci* and *soc* corpora.

  - Examples of dual semantic prosody tend to reflect instances of modulation or change in the point of view in the TT, which in turn, implies a domestication of the foreign text by adding a slightly different nuance of meaning (e.g *endurecer*).

▪ Semantic sets of all types co-exist under the same denomination within the same author.

  - Some representative examples are *transgenic genes* (4JR), *genetically modified food/s* (9SN, 10JS), *GM food/s* (8BL, 9SN, 10JS), *transgenic crop/s* (4JR, 6LA, 5MH, 9SN), which ponders the four semantic sets (*neutral*, *concern*, *negative concern* and *unfavorable*), so there seems not to be a consistent rule that binds a specific term with a type of discourse. It seems, however, that the co-text assigns a type of prosody no matter the denominative variation that is used (at least in the *soc corpus*).

- Ideological aspects are more noticeable in examples of semantic prosodies than in the translation of denominative variations.
    - Equivalence is partially achieved when a specific semantic prosody is assigned to the TT that is different from the ST (e.g. *sometidos*). Examples of dual semantic prosodies are brought about because of optional intrasystem shifts (*safe* vs *inocuo/no sean perjudiciales/ningún riesgo*).
    - The *skopos* theory may explain the insertion of ideology in the TT. This theory of translation assumes that translator's strategies are determined by the purpose of the translation. *GE_P-ACTRES corpus* is informative and descriptive, but at the same time, book 5MH in the *sci corpus* and especially the *soc corpus* exhibited an emotive function (cf. Bühler 1934/2011) when value judgments were brought up in narrative passages.
- Assuming that the evaluation belongs to the writer, translators have also their part on assessing the ST, since the Spanish TT tends to be more cautious at the time of stating safety issues (e.g. *inocuo, no sean perjudiciales*). Although prosodies may differ from one genre to another and from one author to another, it seems clear that they differ within the same domain.

6.3. Final remarks

This section is devoted to the limitations of the study, further research and concluding remarks.

6.3.1. Limitations of the study

Several limitations have been identified throughout the whole research process:

- Errors in the alignment process, such as accents in Spanish, although some misspelled words that did not affect the final results. For instance, in 6LA_EN (chapter 4), **yproducen** should be two words instead one and some searches could not be accomplished until a second round of revision:

Another important aspect of photosynthesis is that plants use CO2 and produce oxygen (O2) which animals need for respiration. (ER2E.s74)	Otro aspecto importante de la fotosíntesis es que las plantas consumen CO2 **yproducen** oxígeno (O), que los animales necesitan para la respiración. (ER2S.s76)

- Another limitation was that four out of the five books by scientists were published earlier (1995-1998) than the books by the social writers (1998-2003). The publication dates of the scientist books do not correspond to the peak of biotechnological events (1997-2001) we talked about in the qualitative analysis (first step in Toury's DTS model). The publication date of the books from the *sci corpus* does coincide with the most spread news about GE in the media and when public awareness of GM controversy was less oblivious. The scientist book 9SN is the exception, since its publication year falls within the mentioned peak.

Notwithstanding these limitations, the results obtained could be extrapolated or generalized to a similar population of politically sensitive texts within the specialized genre of popular science.

6.3.2. Further research

LSPs are a research mine. Several lines of research are outlined below:

- Other DVs and verbal collocations:

In the *GE_P-ACTRES corpus*, denominative variants of other relevant terms can also be studied; for example, *genetic engineering* appears as *transgenic technology*, and their collocational behavior could be significantly different. In addition, verbal collocations would be interesting to look into, since they trigger the existence of LSP and GL collocations, as the following chart illustrates:

Sci_corpus	***Soc_corpus***
Alter DNA	Alter
Confer resistance	Confer + N
Develop resistance	Develop GM + controversy
Express a trait	Express worry
Feed GM potatoes	Feed controversy
Generate pesticide	Generate controversy
Manipulate organisms	Manipulate people
Resistance to herbicides	Resistance to people and opinions
Silence genes	Silence people

Table 6.3: *LSP and GL collocations extracted from the sci and soc corpora.*

Another example of terms that can be classified into LSP and GL collocations is the hapax legomena *blast*. In the *sci corpus*, there is only one occurrence of *blast* that appears in the company of *genes* and *into* (*blast a gene into a cell*). Therefore, it is a technical PU. In the *soc corpus*, the same verb does acquire specialized meaning (three occurrences in 10JS, *blast a gene into a cell/DNA*), but also maintains the GL meanings, as in *blasted away at the paper's credibility* and *blasted for 'propagating hysteria'* (2 occurrences in 10JS). We could summarize that there is a tendency for a verb to be used as a GL word that usually acquires a negative semantic prosody (opposite to, for example, to *have a blast*), whereas the same verb takes on a neutral and specialized meaning when it is used by experts of the *sci corpus*. The examination of specialized collocations is of primary importance, since they are a means of expressing specialized knowledge in the texts.

- Degree adjectives such as *considerable*, *potential, enhanced*

The adjective *potential* may signal negative effects of GMOs. For example, the in-depth examination of the colligations *potential for/to* show occurrences that express the same meaning as *potential risks.* We can point out to *potential to cause allergies.*

- *Neologisms*

Neologisms is another area that could form the basis of a useful further study. Terminology can also be studied through the neologisms coined in the translation practice, for example: "genetise":

The International League of Societies of Mentally Handicapped Persons gave evidence to the International Bioethics Committee of UNESCO pointing to the invisible social, legal and financial pressures already forcing women to abort disabled fetuses, and to the fact that genome research could "**geneticise**" social policies and reduce financial support for disabled people. (MH2E.s242)	La Liga Internacional de Sociedades de Personas Mentalmente Discapacitadas presentó pruebas al Comité Internacional de Bioética de la UNESCO que señalan las invisibles presiones sociales, legales y financieras que obligan a las mujeres a abortar fetos con discapacidad, y el hecho de que la investigación del genoma podía "**genetizar**" las políticas sociales y reducir el apoyo financiero a las personas discapacitadas. (MH2S.s243)

This term appears in italics to indicate its distinctiveness as an exclusive lexical item different from GL and also to indicate novelty. As 90% of the Spanish verbs end in *–ar* it is likely to add this suffix to new created verbs and, such is the case of *genetizar*. *Mapear* and *farma* are also neologisms (translator's footnote in 5MH):

> Farma es un neologismo que intenta traducir el neologismo inglés *pharm*. *Pharming* alude a la utilización de ganado alterado genéticamente para que produzca drogas de uso farmacéutico. Emplearemos para traducir este término la expresión «explotación farmacológica». Por extensión la autora

utiliza *pharm* como el sitio (granja, farm) donde ello se realiza. Lo traduciremos, entonces, como «farma». [T.]

- *Colloquialism*

Colloquialism can be studied through the use of the diminutive in Spanish that is not only employed to express the size of objects but the speaker's feelings and opinion about an issue.

<s id="BL1E.s90" >Apostles of biotechnology promise that their brave new seeds will bring a second Green Revolution, enabling more efficient use of our finite land so as to feed a global population that will increase by one-third in twenty years.</s>	<s id="BL1S.s88" >Los apóstoles de la biotecnología prometen que sus nuevas y valientes semillitas provocarán una segunda Revolución Verde, permitiendo un uso más eficiente de nuestra tierra, cuyos recursos son finitos, de modo que podamos alimentar a una población mundial que en veinte años aumentará un tercio de su volumen.</s>

The most common suffixes to form Spanish diminutives are *–ito/a* and *–illo/a* (masculine and feminine forms). They can be added to the majority of nouns and adjectives. The variety of meaning can range from indicating that an object is small (e.g. *pequeñito*) and charming (e.g. endearing) to giving evaluative meanings (e.g. negative). Another example comes with the translation of *scrambling* (more colloquial) into *mezcladores de código* (more formal) (code mixers [back translation]):

<s id="JS2E.s139" >This should mean that genetically modified Bt crops are immune to **scrambling.**</s>	<s id="JS2S.s132" >Esto debería implicar que los cultivos Bt modificados genéticamente son inmunes **a los mezcladores del código.**</s>

- Lexical priming.

The verb *pop up* has been translated as *to sprout* in Spanish (*brotar*):

With a protein content of 40 percent, along with vitamin E, calcium, potassium, and a half dozen anticarcinogen agents, surely they are as versatile a plant as ever **popped from the soil**. (BL17E.s347)	Con su contenido de un 40 % de proteínas, junto con vitamina E, calcio, potasio y media docena de agentes anticancerígenos, no cabe duda de que es la planta más versátil de las que **han <u>brotado</u> de la tierra**. (BL17S.s332)

But some other times the English is more primed than the Spanish:

<s id="BL1E.s71" >My timing was good.</s> <s id="BL1E.s72" >For as the insurgent crops <u>took root</u>, so did global resistance.</s>	<s id="BL1S.s70" >Era el mejor momento para hablar del tema, porque, a medida que iban <u>aumentando</u> las plantaciones rebeldes, también lo hacía la resistencia a ellas.</s>

Or we could also have the situation in which both the ST and TT are primed in the same way:

<s id="BL1E.s78" >Americans are accustomed to progress and uninterrupted scientific marvels, and for several years they paid little heed to the clamor in Europe, where antibiotech sentiments were <u>growing roots</u> like a religion.</s>	<s id="BL1S.s76" >Los norteamericanos están acostumbrados al progreso y a las maravillas científicas ininterrumpidas, y durante algunos años prestaron poca atención al clamor en Europa, donde los sentimientos contra la biotecnología <u>echaban unas raíces</u> propias de una religión.</s>

- Corpus bi-directionality.

It would be interesting to study if the conclusions extracted from this dissertation could be extrapolated to a monolingual corpus of popular science books about genetic engineering written by Spanish native professionals. A list of Spanish books for a monolingual corpus has been provided in appendix 9 (see 8.9). Moreover, up to now, none of the books of the monolingual corpus has been translated into English so as to study the bi-directionality of translated corpora in the genre of popular science books on GMOs. The market for translations from Spanish to English is much more fragmented than in the opposite direction.

- *Translation's universals.*

The examination of a parallel (this dissertation) and a comparable corpus (see above corpus bi-directionality) can be particularly fruitful to study the SL influence on translated language patterns. If we compile a monolingual corpus on GM food, we could study translation's universals in the Spanish TTs and the new corpus conformed of Spanish originals.

- Machine Translation (MT).

This PhD Dissertation provides suggestive starting points for beginning an MT project. Much has changed since the ALPAC report (1966) as there is a remarkable synergy between the cooperative action of CL and machine-aided translation. A very basic starting application within the field of computational linguistics is *Prolog* software <http://www.swi-prolog.org/>. The corpus-based results regarding collocation can be applied to MT with the mentioned free software. Phraseology can be mapped through the analysis of collocations. The following example is revelling, in which there is a tendency to find a word-by-word translation for the collocation "to add genes" (=añadir genes"), which is a translation option that foreignizes the TT:

The prizewinning goal in this field is to be able to **add genes** from these bacteria into non-leguminous crops such as corn and wheat, dramatically reducing the need for nitrate fertilizers. (EG4E.s308)	El objetivo final en este campo sería poder llegar a **añadir genes** de estas bacterias a plantas no leguminosas, como el maíz y el trigo, lo que reduciría espectacularmente las necesidades de fertilizantes nítricos. (EG4S.s308)

According to biotechnology experts, the most frequent translation is "insertar/introducir genes" for the English *to insert genes* or *to engineer gene/s into + N (animals)*, instead of *añadir gen/es.*

6.3.3. Concluding remarks

The conclusions outlined above may have the following implications:

- The linguistic phenomena dealt with in a project such as a doctoral dissertation comprise a variety of questions that cannot be treated in isolation.
- Features such as denominative variation, semantic prosody and ideologies are genre and context specific.
- The previous analysis was not only descriptive but interpretative and helped to discover norms of usage.
- The results supported some of the predictions and gave us further confirmation of the ideological weight rendered in the Spanish corpus.
- This research may be of help to L2 advanced speakers or writers in order to extend their productive skills of different genres and acquire translation competence for those in related professional settings. Exploiting LSP corpora can help promoting learners' communicative competence in a particular LSP.
- The examination of genuine examples of language in use was aimed at making a contribution to language study, so that particular aims of language education can be met.

In the GTT, Wüster studied Terminology on a *rem tene, verba sequuntur,* basis, which means *to be in command of knowledge and words will follow.* According to the communicative views of Terminology, this dissertation has accessed this discipline from a different door: Corpus Linguistics. By means of CL methods, the researcher can also be, first, in command of words in order to, later, obtain the knowledge of a particular field.

7. References

Among the first, perhaps the very first, instrument for the improvement of the condition of men is knowledge

John Quincy Adams (1767-1848), 6th US President

Quoted in Pine (2001: 15)

7.1. Offline

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7.2. Online

ANTAMA
<http://fundacion-antama.org/>

AntConc
<http://www.antlab.sci.waseda.ac.jp/software.html>

AAAS (The American Association for the Advancement of Science)
<http://www.aaas.org/>

BIOTEC List (biotec@listserv.rediris.es)
<http://listserv.rediris.es/archives/biotec.html>

BROWN CORPUS (The Brown University Standard Corpus of Present-Day American English)
<http://icame.uib.no/brown/bcm.html>

CANNADIAN HANSARDS [Roukos, Salim; Graff, David & Melamed, Dan] (Linguistic Data Consortium, LDC):
<http://www.ldc.upenn.edu/Catalog/CatalogEntry.jsp?catalogId=LDC95T20>

CLEC Chinese learner English corpus
<http://langbank.engl.polyu.edu.hk/corpus/clec.html>.

COCA (Corpus of Contemporary American English)
<http://corpus.byu.edu>

Collins - WordBanks Online
< http://www.collinslanguage.com/content-solutions/wordbanks>

CORDE (Corpus diacrónico del español, Real Academia de la Lengua Española)
<http://www.rae.es>

CORPORA LIST (corpora@uib.no)
<http://gandalf.aksis.uib.no/corpora/>

CORPUS DEL ESPAÑOL [Davies, Mark] (Brigham Young University, 100 m words, 13th-20th century).
<http://www.corpusdelespanol.org>.

CREA (Corpus de referencia del español actual, Real Academia de la Lengua Española)
<http://www.rae.es>

EFSA (European Food Safety Authority)
<http://www.efsa.europa.eu/>

ENPC (English-Norwegian parallel corpus on fiction and non-fiction)
<http://khnt.hit.uib.no/enpc/>

EUREKALERT
<http://www.eurekalert.org/>

FECYT (Fundación Española para la Ciencia y la Tecnología)
<http://www.fecyt.es>

Holmes' classification of TS (Toury 1995: 10). Also Available online:
<http://isg.urv.es/ library/papers/holmes_map.doc>

IBT (Institute of Biotechnology), Jülich (Germany)
<http://www.fz-juelich.de/ibt/research/>

ICE (International Corpus of English)
<http://ice-corpora.net/ice/index.htm>

Institute for Responsible Technology (Fairfield, Iowa)
<http://www.responsibletechnology.org/>

ITBYTE/CITTAC (Research Institute for Bilingual Terminology and Specialized Translation)
<http://www3.uva.es/itbyte/>

Lee, David
<http://personal.cityu.edu.hk/~davidlee/devotedtocorpora/CBLLinks.htm>

LOGON (English-Norwegian parallel corpus on tourism)
<http://www.hf.uio.no/tekstlab/prosjekter/tourist/index.htm>

López Guerrero, J.A.
<http://www2.cbm.uam.es/jalopez/personal/jal.htm>

MonoConc
<http://www.athel.com/mono.html>

Monsanto:
<http://www.monsanto.com/>

NATURE
<http://www.nature.com/>

NEW SCIENTIST
<http://www.newscientist.com/>

POPULAR SCIENCE MAGAZINE
<http://www.revistapopularscience.es/Popular_Science_Apertura.htm>

Pym, Anthony
<http://isg.urv.es/cetra/interviews.html/>

Sketch Engine
<http://www.sketchengine.co.uk/>

Smith, Jeffrey (Director of the Institute for Responsible Technology)
<http://www.responsibletechnology.org/GMFree/Home/index.cfm/>

QUARK (Magazine of science, medicine, communication and culture)
<http://www.prbb.org/quark/>

THE ROYAL SOCIETY
<http://royalsociety.org/>

UCL (17-18 April, 2008) postgraduate conference entitled ‘With/out Theory: The Role of Theory in Translation Studies Research’
<http://www.ucl.ac.uk/cics/conference/>

UDC system (Universal Decimal Classification)
<http://www.udcc.org/about.htm>

Wordsmith Tools 5
Type/token ratio explanation: <http://www.lexically.net/downloads/version5/HTML/ index.html?type_token_ratio_proc.htm>

8. Appendix

*8.1. Appendix 1: **Sixty-one English popular science books on GE***

Table 8.1. *The highlighted comprise 16 books that are translated from English to Spanish.*

*8.2. Appendix 2: **Raw list of 16 English-to-Spanish translated books***

Table 8.2. *The 6 books highlighted in red were excluded for a variety of reasons (see appendix 3) and the green highlighted are the ten books that form the final version of the GE_P-ACTRES corpus.*

*8.3. Appendix 3: **Excluded books***

Table 8.3. *TT excluded for being the Latin-American Spanish variant*.
Table 8.4. *ST excluded as they partially discussed GE and GMOs.*
Table 8.5. *Excluded books for being considered within GL*.

*8.4. Appendix 4: **Books comprising the GE_P-ACTRES corpus***

Table 8.6. *The books of the GE_P-ACTRES corpus*.

*8.5. Appendix 5: **Authors' background of GE_P-ACTRES corpus***

Table 8.7. *Authors' background (American English Publishing Houses).*
Table 8.8. *Authors' background (British English Publishing Houses).*

*8.6. Appendix 6: **Anchor wordlist for the TCA2 software***

Table 8.9. *Excerpt of the anchor wordlist used for this thesis in the TCA2 software.*

*8.7. Appendix 7: **ST-TT segments for the study of denominative variation***

Table 8.10: ST-TT pairs of denominative variants for 'Adj + *N (DNA)' (sci corpus).*
Table 8.11: Excluded ST-TT pairs of denominative variants for 'Adj + N (*DNA*)' (*sci corpus).*
Table 8.12: ST-TT pairs of denominative variants for 'Adj + N (*DNA*)' (*soc corpus*).
Table 8.13: Excluded ST-TT pairs of denominative variants for 'Adj + N (*DNA*)' (*soc corpus*).
Table 8.14: ST-TT pairs of denominative variants for 'Adj + N (*gene/s*)' (*sci corpus*).
Table 8.15: Excluded ST-TT pairs of denominative variants for 'Adj + N (gene/s)' (sci corpus)
Table 8.16: ST-TT pairs of denominative variants for 'Adj + N (*gene/s*)' (*soc corpus*).
Table 8.17: ST-TT pairs of denominative variants for 'Adj + N (*food/s*)' (*sci corpus*).
Table 8.18: ST-TT pairs of denominative variants for 'Adj + N (*food/s*)' (*soc corpus*).

8.8. Appendix 8: ***Semantic prosodies***

8.9 Appendix 9: ***Peninsular Spanish monolingual corpus of popular science books***

8.10. Appendix 10: ***Authors' background of Spanish monolingual corpus***

8.1. Appendix 1: Sixty-one English popular science books on GE

EN	Title	Author(s)	Publ. yr.
1	*The Golden Helix: Inside Biotech Ventures*	Kornberg, A.	1995
2	*Genetic Engineering. Dreams and Nightmares*	Russo, E & Cove, D.	1995
3	*The Ecological Risks of Engineered Crops*	Rissler, J. & Mellon, M.	1996
4	*The Thread of Life: The Story of Genes and Genetic Engineering*	Aldridge, S.	1996
5	*Gene Wars: The Politics of Biotechnology*	Dawkins, K.	1997
6	*Biotechnology Unzipped: Promises and Realities*	Grace, E. S.	1997
7	*Genetically Engineered Foods: Are They Safe? You Decide*	Ticciati, L & Ticciati, R.	1998
8	*Against the Grain: Biotechnology and the Corporate Takeover of Your Food*	Lappé, M & Bailey, B	1998
9	*The Biotech Century*	Rifkin, J.	1998
10	*Genetic Engineering, Dream or Nightmare?*	Ho, M-W.	1998
11	*Exploding the Gene Myth: How Genetic Information Is Produced and Manipulated by Scientists, Physicians, Employers, Insurance Companies, Educators, and Law Enforcers*	Hubbard, R. & Wald, E.	1999
12	*Beyond Evolution: the Genetically Altered Future of Plants, Animals, the Earth and Humans*	Fox, M. W.	1999
13	*Genetic Engineering, Food, and Our Environment*	Anderson, L.	1999
14	*Farmageddon: Food and The Culture of Biotechnology*	Kneen, B.	1999
15	*Stolen Harvest: The Hijacking of the Global Food Supply.*	Shiva, V.	2000
16	*Unnatural Harvest: How Genetic Engineering is altering our Food*	Boyens, I.	2000
17	*Pandora's Picnic Basket: The Potential and Hazards of Genetically Modified Foods*	McHughen, A.	2000
18	*First Fruit: The Creation of the Flavr Savr Tomato and the Birth of Genetically Engineered Foods*	Martineau, B.	2001
19	*From Biotechnology to Genomes: The Meaning of the Double Helix*	Goujon, P.	2001
20	*Genetically Engineered Food: Changing the Nature of Nature.*	Teitel, M. & Wilson, K. A.	2001
21	*Improving Nature? The science and ethics of genetic engineering*	Reiss, M. J. & Straughan, R.	2001
22	*Dinner at the New Gene Cafe: How Genetic Engineering Is Changing What We Eat, How We Live, and the Global Politics of Food*	Lambrecht, B.	2001
23	*Genetically Modified Foods: Debating Biotechnology*	Ruse, M. & Castle, D. (eds)	2002
24	*Travels in the Genetically Modified Zone*	Winston, M. L.	2002
25	*Our Posthuman Future: Consequences of Biotechnology Revolution.*	Fukuyama, F.	2002
26	*Lords Of The Harvest: Biotech, Big Money, And The Future Of Food*	Dan, C.	2002
27	*Genetically Modified Crops*	Halford, N.	2003
28	*Understanding Biotechnology*	Borem, A., Santos, F. & Bowen, D.	2003
29	*Everything You Need to Know About Genetically Modified Foods*	Freedman, J.	2003
30	*Eating in the Dark: America's Experiment With Genetically Engineered Food*	Hart, K.	2003
31	*Don't Worry, It's Safe to Eat: The True Story of GM Food, BSE, & Foot and Mouth*	Rowell, A.	2003
32	*Science, Seeds and Cyborgs: Biotechnology and the Appropriation of Life*	Bowring, F.	2003

33	*Eat Your Genes: How Genetically Modified Food Is Entering Our Diet*	Nottingham, S.	2003
34	*Seeds of Deception: Exposing Industry and Government Lies about the Safety of the Genetically Engineered Foods You're Eating*	Smith, J. M.	2003
35	*Genetically Engineered Food: A Self Defense Guide for Consumers*	Cummins, R., Lilliston, B. & Lappé, F.	2004
36	*Genetically Altered Foods and Your Health*	Roseboro, K. & Hirsch, T.	2004
37	*Challenges And Risks Of Genetically Engineered Organisms (Biological Resource Mangement in Agriculture)*	Organization for Economic Cooperation	2004
38	*Genes for Africa: Genetically Modified Crops in the Developing World*	Thomson, J. A.	2004
39	*Genetically Modified Crops: Their Development, Uses and Risks*	Liang, G. H. & Skinner, D. Z. (eds)	2004
40	*The Future of Genetically Modified Crops: Lessons from the Green Revolution*	Wu, F.	2004
41	*Genetically Modified Planet: Environmental Impacts of Genetically Engineered Plants*	Stewart, N.	2004
42	*Killer Foods: When Scientists Manipulate Genes, Better is Not Always Best*	Fox, M. W.	2004
43	*GMO Free: Exposing the Hazards of Biotechnology to Ensure the Integrity of Our Food Supply*	Ho, M-W. & Ching, L. L.	2004
44	*Human Nature. A Blueprint for Managing the Earth-by People, for People*	Trefil, J.	2004
45	*Food, Inc.: Mendel to Monsanto. The Promises and Perils of the Biotech Harvest*	Pringle, P.	2005
46	*Genetically Modified Food: Your environment*	Green, J.	2005
47	*Science on the Edge: Genetically Engineered Foods*	Bledsoe, K.	2005
48	*Beware of the Coming Food Apocalypse! GMOs*	Ciola, G.	2005
49	*Glowing Genes: A Revolution In Biotechnology*	Zimmer, M.	2005
50	*Transgenics And the Poor*	Herring, R:	2006
51	*Biotechnology Demystified*	Walker, S.	2006
52	*The Global Genome: Biotechnology, Politics, And Culture*	Thacker, E.	2006
53	*Critical Perspectives on Genetically Modified Crops And Food*	Gordon, S.	2006
54	*Plant Biotechnology: Current And Future Applications of Genetically Modified Crops*	Halford, N.	2006
55	*Genetically Modified Food: A Short Guide for the Confused*	Rees, A.	2006
56	*Mendel in the Kitchen: A Scientist's View of Genetically Modified Foods*	Fedoroff, N. & Brown, N.	2006
57	*Culturing Life: How Cells Became Technologies*	Landecker, H.	2007
58	*Seeds for the Future: The Impact of Genetically Modified Crops on the Environment*	Thomson, J. A.	2007
59	*Genetic Roulette: The Documented Health Risks of Genetically Engineered Foods*	Smith, J. M.	2007
60	*High Tech Harvest: Understanding Genetically Modified Food Plants*	Lurquin, P.	2008
61	*Biotechnology and Genetic Engineering*	Yount, L.	2008

Table 8.1: *The highlighted comprise 16 books that are translated from English to Spanish***.**

8.2. Appendix 2: Raw list of 16 English-to-Spanish translated books

1	*The Golden Helix: Inside Biotech Ventures*	Kornberg, A.	1995
2	*Genetic Engineering. Dreams and Nightmares*	Russo, E & Cove, D.	1995
4	*The Thread of Life: The Story of Genes and Genetic Engineering*	Aldridge, S.	1996
6	*Biotechnology Unzipped: Promises and Realities*	Grace, E. S.	1997
9	*The Biotech Century*	Rifkin, J.	1998
10	*Genetic Engineering, Dream or Nightmare?*	Ho, M-W.	1998
11	*Exploding the Gene Myth: How Genetic Information Is Produced and Manipulated by Scientists, Physicians, Employers, Insurance Companies, Educators, and Law Enforcers*	Hubbard, R. & Wald, E.	1999
13	*Genetic Engineering, Food, and Our Environment*	Anderson, L.	1999
15	*Stolen Harvest: The Hijacking of the Global Food Supply.*	Shiva, V.	2000
16	*Unnatural Harvest: How Genetic Engineering is altering our Food*	Boyens, I.	2000
20	*Genetically Engineered Food: Changing the Nature of Nature.*	Teitel, M. & Wilson, K. A.	2001
22	*Dinner at the New Gene Cafe: How Genetic Engineering Is Changing What We Eat, How We Live, and the Global Politics of Food*	Lambrecht, B.	2001
25	*Our Posthuman Future: Consequences of Biotechnology Revolution.*	Fukuyama, F.	2002
33	*Eat Your Genes: How Genetically Modified Food Is Entering Our Diet*	Nottingham, S.	2003
34	*Seeds of Deception: Exposing Industry and Government Lies about the Safety of the Genetically Engineered Foods You're Eating*	Smith, J. M.	2003
44	*Human Nature. A Blueprint for Managing the Earth-by People, for People*	Trefil, J.	2004

Table 8.2: *The 6 books highlighted in red were excluded for a variety of reasons (see appendix 3) and those highlighted in green are the ten books that form the final version of the GE_P-ACTRES corpus.*

8.3. Appendix 3: Excluded books

TT Excluded	Author(s)	Publ. yr.	*Title*	Publ. place	Publisher
1	Teitel, Martin, & Wilson, Kimberly A., & Nader, Ralph.	1999	*Genetically Engineered Food: Changing the Nature of Nature.*	Rochester, Vermont	Park Street Press
		2003	*Alimentos genéticamente modificados: Cambiando la naturaleza de la naturaleza.*	Mexico D.F.	Lasser Press Mexicana.
2	Kornberg, Arthur	1995/ 2002	*The Golden Helix: Inside Biotech Ventures.*	Sausalito, California	University Science Books
		2002	*La hélice de oro.*	Quilmes, Argentina	Universidad Nacional de Quilmes

Table 8.3: *TT excluded for being the Latin-American Spanish variant.*

ST Excluded	Author(s)	Publ. yr.	*Title*	Publ. place	Publisher
3	Hubbard, Ruth & Wald, E.	1999	*Exploding the Gene Myth: How Genetic Information Is Produced anD0020xManipulated by Scientists, Physicians, Employers, Insurance Companies, Educators, and Law Enforcers.*	Massachusetts	Beacon Press
		1999	*El Mito Del Gen: Como Se Manipula La Información Genética.*	Madrid	Alianza
4	Trefil, James	2004	*Human Nature. A Blueprint for Managing the Earth-by People, for People.*	New York	Times Books
		2005	*Gestionemos la naturaleza: Cambio climático, alimentos transgénicos, especies en extinción.*	Barcelona	Antoni Bosch

Table 8.4: *ST excluded as they partially discussed GE and GMOs.*

ST Excluded	Author(s)	Publ. yr.	*Title*	Publ. place	Publisher
5	Shiva, Vandana.	2000	*Stolen Harvest: The Hijacking of the Global Food Supply.*	Cambridge, MA	South End Press
		2003	*Cosecha robada: El secuestro del suministro mundial de alimentos.*	Barcelona.	Paidós Ibérica.
6	Fukuyama, Francis	2002	*Our Posthuman Future: Consecuences of Biotechnology Revolution.*	New York	Farrar, Straus & Giroux
		2002	*El fin del hombre: Consecuencias de la revolución biotecnológica.*	Barcelona	Ediciones B

Table 8.5: *Excluded books for being considered within GL.*

8.4. Appendix 4: Books comprising the GE_P-ACTRES corpus

No	Author/translator	P. yr	Title + [number of chapters]	Publ. place	Publ. place	Tokens
1	Russo, Enzo & Cove, David	1995	*Genetic Engineering. Dreams and Nightmares [17]*	Heidelberg, Germany	Spektrum Akademisch	78.057
	Casadesús Pursals, Josep	1999	*Ingeniería genética: Sueños y pesadillas*	Madrid	Alianza	79.861
2	Aldridge, Susan.	1996	*The Thread of Life: The Story of Genes and Genetic Engineering [12]*	Cambridge	Cambridge University Press.	83.912
	Clará Cárdenas, Mª Teresa	1999	*El hilo de la vida: De los genes a la ingeniería genética.*	Madrid	Cambridge	95.439
3	Grace, Eric S.	1997	*Biotechnology Unzipped: Promises and Realities [7]*	Washington DC	Joseph Henry Press	57.234
	Sempau, David	1998	*La biotecnología al desnudo: Promesas y realidades.*	Barcelona	Anagrama	63.059
4	Rifkin, Jeremy	1998	*The Biotech Century: How Genetic Commerce will change the World [8]*	New York	Jeremy P. Tarcher	93.128
	Campos, Juan Pedro	1999	*El siglo de la biotecnología: El comercio frenético y el mantenimiento de un mundo feliz*	Barcelona	Crítica	102.288
5	Ho, Mae-Wan	1998	*Genetic Engineering. Dream or Nightmare? [13]*	Bath, UK	Gateway Books	97.392
	Álvarez, José Ángel	2001	*Ingeniería genética: ¿Sueño o pesadilla?*	Barcelona	Gedisa.	107.881
6	Anderson, Luke	1999	*Genetic engineering, food, and our environment [7]*	Devon, UK	Green Books	30.272
	Santa Marta, José	2001	*Transgénicos: Ingeniería genética, alimentos y nuestro medio ambiente*	Madrid	Gaia 2050	35.288
7	Boyens, Ingeborg	2000	*Unnatural Harvest: How Genetic Engineering is altering our Food [14]*	Toronto	Doubleday	81.051
	Galve, Pedro	2001	*Cosecha mortífera: De los transgénicos a las vacas locas.*	Barcelona	Flor del Viento	97.210
8	Lambrecht, Bill	2001	*Dinner at the New Gene Café: How Genetic Engineering Is Changing What We Eat, How We Live, and the Global Politics of Food [21]*	New York	St. Martins Press	127.086
	Menezo, Daniel	2003	*La guerra de los alimentos transgénicos*	Barcelona	RBA Integral	146.672
9	Nottingham, Stephen	2003	*Eat Your Genes: How Genetically Modified Food Is Entering Our Diet [15]*	London & New York	Zed Books Ltd.	78.434
	Andújar, Gemma	2004	*Come tus genes: Cómo los alimentos transgénicos están en nuestra dieta.*	Barcelona	Paidós Ibérica	93.687
10	Smith, Jeffrey, M.	2003	*Seeds of Deception: Exposing Industry and Government Lies about the Safety of the Genetically Engineered Foods You're Eating [9]*	Fairfield, Iowa	Yes! Books	84.862
	Pons, Silvia & Casal, Alexandre	2006	*Semillas peligrosas: las mentiras de la industria y los gobiernos sobre lo que comemos*	Barcelona	Terapias Verdes	95.965

Table 8.6. *The books of the GE_P-ACTRES corpus* <http://actres.uva.es/list.htm>.

8.5. Appendix 5: Authors' background of GE_P-ACTRES corpus

Authors	Names	Education & Profession
1.	Grace, Eric S.	PhD in Zoology from Aberdeen University, Scotland. He is a popular science book writer living in Vancouver, Canada.
2.	Rifkin, Jeremy.	He is the president of the Foundation on Economic Trends (FOET) in Washington, DC. His books have been translated into more than thirty languages.
3.	Boyens, Ingeborg.	She was born in Germany and currently lives in Winnipeg, Canada. She received a Bachelor of Arts degree in English from the University of Winnipeg. She is currently a journalist and produces documentaries on food and agricultural issues for CBC Television.
4.	Lambrecht, Bill.	He has been a Washington correspondent for the St. Louis Post-Dispatch since 1984. One of his journalism prizes include a Raymond Clapper Award in 1999 for his articles in Genetic Engineering.
5.	Smith, Jeffrey, M.	International bestselling author that lives in Iowa. He directs the Campaign for *Healthier Eating in America* from the *Institute for Responsible Technology*, where he is the founder and executive director. He is also the producer of the docu-video series, *The GMO Trilogy* and writes an internationally syndicated monthly column, *Spilling the Beans*. http://www.responsibletechnology.org/GMFree/Home/index.cfm

Table 8.7: *Authors' background (American English Publishing Houses).*

Authors	Names	Education & Profession
1.	Russo, Enzo	He is Senior Scientist at the Max Planck Institute of Molecular Biology in Berlin and he is the author of more than 70 scientific publications.
	Cove, David.	He holds a PhD from the University of Cambridge, UK. He was a researcher on plant development at University of Leeds, UK. d.j.cove@leeds.ac.uk
2.	Aldridge, Susan.	PhD in organic chemistry and a Master's degree in biotechnology. She is a freelance medical and science writer and she works as the European News Reporter for the US-based trade journal Genetic Engineering News. <http://www.susana.co.uk/>
3.	Ho, Mae-Wan.	Ph. D. in Biochemistry in 1967 from Hong Kong University. Director of the UK-based Institute of Science in Society. She is former head of the Bio-Electrodynamics laboratory at the Open University in Milton Keynes, England.
4.	Anderson, Luke.	He is an activist that lives in South Devon. He writes, campaigns and speaks around the country on issues related to genetic engineering. <http://santacruz.indymedia.org/newswire/display/9408/index.php) >
5.	Nottingham, Stephen.	PhD in Biology in 1986 from the University of Cambridge. He has contributed numerous articles to scientific journals.

Table 8.8: *Authors' background (British English Publishing Houses).*

8.6. Appendix 6: Anchor wordlist for the TCA2 software

tRNA / ARNt	Africa / Africa
mRNA / ARNm	America* / América* american*
HIV / VIH	April / abril
DNA / ADN	August / agosto
molecul* / molécul*	Canadian* / Canad*
bacteria* / bacteria*	Chin* /Chin*, chin*
chemi* / quími*	Christmas / Navidad
nucleo* / nucleó*	Danish / danés, danes*
nitro* / nitró*	December / diciembre
protein* / proteín*	Dutch / holandés, holandes*
contain*, content* / contien*, conten*	Easter / Pascua, Semana Santa
atom* / átom*	English* / inglés, ingles*
genetic* / genétic*	February / febrero
helix* / hélic*	Finn* / Finlandia, finlandés, finlandes*
part* / parte*	France / Francia
phage* / fago*	French* / francés, frances*
enzym* / enzim*	Friday* / viernes
x-rays / rayos x	German* / alemán, aleman*
ray* / rayo*	Germany / Alemania
biolog* / biolog*	Greece / Grecia
microbio* / microbió*	Greek / grieg*, grec*
water* / agua*	Henry / Enrique
phosphat* / fosfat*	I mean / quiero decir, vamos, al menos
chromosom* / cromosom*	I'd like / quisiera
generation* / generación*	Ireland / Irlanda
engineer* / ingenier*	Irish* / irlandés, irlandes*
&mdash / &mdash	Ital* / italia*
0*, zero / 0*, cero	Italian* / italian*
1*, one / 1*, una, uno	Italy / Italia
1900* / noventa*	January / enero
2*, two / 2*, dos, segunda	Japanese / Japonés, Japones*
3*, three / 3*, tres	July / julio
4*, four / 4*, cuatro	June / junio
40* / cuarent*	Korea* / Corea*
50 / 50, cincuent*	March / marzo
5*, five / 5*, cinco	May / mayo
6*, six / 6*, seis	Monday* / lunes
6*, six / 6*, seis, sesenta	Mr / señor
7*, seven / 7*, siete	Mrs / señora
8*, eight / 8*, ocho	Munich / Munich
9*, nine / 9*, nueve	Netherland* / Holanda

Table 8.9: *Excerpt of the anchor wordlist used for this thesis in the TCA2 software.*

8.7. Appendix 7: ST-TT segments for the study of denominative variation

Denominative variants of *Adj + N (DNA)* in the *sci corpus* (42)			
#	*English*	*Spanish*	**SP**
		1) *Recombinant* DNA (27)	
1.	It 's one of the common tools of biotechnology I 'll be describing in this chapter, along with DNA " fingerprinting, " gene probes, **recombinant DNA**, cloning, and a number of others that will come up later in this book. (EG2E.s21)	Se trata de una de las herramientas corrientes en biotecnología que describiré en el presente capítulo, junto con la torre de " huellas dactilares " de ADN, las sondas genéticas, el **ADN recombinante**, la clonación y algunas otras que aparecerán más adelante en el libro. (EG2S.s21)	Neutral
2.	Researchers have exploited the strategies used in battles between viruses and bacteria to develop a method for making **recombinant DNA** (that is, novel DNA made by combining DNA fragments from different sources). (EG2E.s55)	Los investigadores han aprovechado las estrategias utilizadas en las batallas entre virus y bacterias para desarrollar un método para producir **ADN recombinante** - es decir, ADN nuevo, hecho con la combinación de fragmentos de ADN de diversas fuentes. (EG2S.s56)	Neutral
3.	Scientists co-opted these skills in some of the first experiments with **recombinant DNA**, using phages as Trojan horses to smuggle the recombinant DNA into bacterial cells. (EG2E.s68)	Los científicos aprovecharon estas habilidades en algunos de los primeros experimentos con **ADN recombinante**, utilizando a los fagos como caballos de Troya para introducir dicho ADN en células bacterianas. (EG2S.s69)	Neutral
4.	The first requirement for making **recombinant DNA** is to create small DNA fragments. (EG2E.s69)	El primer paso para obtener **ADN recombinante** es obtener pequeños fragmentos de ADN. (EG2S.s70)	Neutral
5.	Before scientists can begin to make **recombinant DNA**, they need some fairly pure strands of the molecule to work with. (EG2E.s82)	Para empezar a producir **ADN recombinante**, los científicos necesitan disponer de algunos filamentos puros de la molécula con los que trabajar. (EG2S.s83)	Neutral
6.	Making **recombinant DNA**. (EG2E.s104)	Fabricando **ADN recombinante**. (EG2S.s105)	Neutral
7.	The usual reason for making **recombinant DNA** is to introduce a near sequence into a species where it does n't normally occur. (EG2E.s116)	La razón habitual para producir **ADN recombinante** es la introducción de una nueva secuencia en una especie en la que normalmente no se da. (EG2S.s117)	Neutral
8.	The challenge is to get the **recombinant DNA** into the host cells without seriously disrupting their normal functioning. (EG2E.s119)	El reto consiste en colocar el **ADN recombinante** en el interior de las células receptoras sin perturbar demasiado su funcionamiento normal. (EG2S.s120)	Neutral
9.	All a researcher has to do is splice the DNA of interest into the DNA of one of these naturally occurring vectors (transmitting agents), then release the vectors with their **recombinant DNA** in a culture of bacteria and let them do the rest. (EG2E.s121)	Todo lo que hay que hacer es empalmar el ADN deseado con el ADN de uno de estos vectores naturales (agentes transmisores), soltarlos luego con su **ADN recombinante** en un cultivo de bacterias y dejar que éstas hagan el resto. (EG2S.s122)	Neutral
10.	Putting **recombinant DNA** into bacteria is also, in effect, a simple method of cloning genes. (EG2E.s130)	Colocar **ADN recombinante** en el interior de bacterias es también, de hecho, un método simple para clonar genes. (EG2S.s131)	Neutral
11.	One or two bits of **recombinant DNA** are n't much use if your aim is to turn out large amounts of the gene product. (EG2E.s131)	Uno o dos bits de **ADN recombinante** no son mucho si lo que se desea es conseguir grandes cantidades de producto genético. (EG2S.s132)	Neutral

12.	DNA probes are used for such things as mapping the distribution of genes on chromosomes, locating the presence of **recombinant DNA** in bacterial cultures, or finding oncogenes on a person 's chromosomes, giving advance warning of cancer risk. (EG2E.s208)	Las sondas de ADN se utilizan para tareas como la cartografía de la distribución de los genes en los cromosomas, la detección de la presencia de **ADN recombinante** en cultivos de bacterias o el descubrimiento de oncogenes en los cromosomas de una persona, que permite el diagnóstico precoz de su riesgo de contraer cáncer. (EG2S.s208)	Neutral
13.	Some are extracted from natural sources, some are manufactured synthetic compounds, but more and more are produced by engineering cells with **recombinant DNA**. (EG3E.s239)	Algunos son extraídos de fuentes naturales, y otros son compuestos sintéticos fabricados, pero cada vez son más numerosos los producidos mediante la manipulación genética de células con **ADN recombinante**. (EG3S.s235)	Neutral
14.	The human protein produced by bacteria with **recombinant DNA**, however, has no such effect. (EG3E.s286)	La proteína humana producida por bacterias con **ADN recombinante** no provoca, en cambio, reacción alguna. (EG3S.s284)	Neutral
15.	A common technique is to attach a genetic marker to the **recombinant DNA**. (EG3E.s502)	Una técnica corriente para ello consiste en acoplar un marcador genético al **ADN recombinante**. (EG3S.s496)	Neutral
16.	The TILs are soaked in the antibiotic, which kills all but those carrying the **recombinant DNA**. (EG3E.s514)	Se empapan los LIT con el antibiótico, que destruye todas las células, menos las que incorporaron el **ADN recombinante**. (EG3S.s508)	Neutral
17.	1973 S. Cohen (US) and H. Boyer (US) made the first **recombinant DNA**. (ER p. 86)	1973 S. COHEN (EE UU) y H. BOYER (EE UU) fabrican las primeras **moléculas recombinantes de ADN**. (ER)	Neutral
18.	The second technique is making **recombinant DNA (rDNA)** in the test-tube, using enzymes isolated from microorganisms to cut and join pieces of DNA together. (MH3E.s22)	La segunda técnica consiste en elaborar **ADN recombinante** en el tubo de ensayo utilizando enzimas extraídas de microorganismos que permiten cortar y unir trozos de ADN. (MH3S.s23)	Neutral
19.	Some of us have argued that they were untenable even before the **recombinant DNA (rDNA)** era ; but none of us was prepared for the surprise that rDNA research has turned up within the past twenty years. (MH3E.s125)	Algunos de nosotros hemos argumentado que eran insostenibles aun antes de la era del **ADN recombinante (rADN).** (MH3S.s127) Pero ninguno estaba preparado para las sorpresas que la investigación del rADN ha desvelado en los últimos 20 años. (MH3S.s128)	Unfavorable
20.	The first crack appeared before **rDNA** research really got under way. (MH7E.s20)	La primera fisura surgió aun antes de que se iniciase la investigación sobre el **rADN.** (MH7S.s20)	Concern (-)
21.	Even if inactivation is effective, we now know that the large amount of **recombinant DNA** released can still be readily transferred to other bacteria by direct uptake. (MH9E.s427)	Aun si esta fuera eficaz, sabemos ahora que la gran cantidad de **ADN recombinante** liberado puede todavía ser transferido directamente a otras bacterias por incorporación directa. (MH9S.s427)	Neutral
22.	This forms **recombinant DNA**: the plasmid now contains the calf chymosin gene, and this combination does not occur in nature (although there is nothing very new or even unusual about recombinant DNA ; it forms all the time during meiosis, and in communities of microbes, as we saw in Chapter 4). (SA5E.s64)	Esto forma **ADN recombinante**: el plásmido contiene ahora el gen de la quimosina de ternera, y esta combinación no ocurre en la naturaleza (aunque no haya nada nuevo o inusual en el ADN recombinante ; se forma continuamente durante la meiosis, y en comunidades de microbios, como ya vimos en el capítulo 4). (SA5S.s64)	Neutral
23.	This forms recombinant DNA: the plasmid	Esto forma ADN recombinante: el plásmido	Neutral

	now contains the calf chymosin gene, and this combination does not occur in nature (although there is nothing very new or even unusual about **recombinant DNA** ; it forms all the time during meiosis, and in communities of microbes, as we saw in Chapter 4). (SA5E.s64)	contiene ahora el gen de la quimosina de ternera, y esta combinación no ocurre en la naturaleza (aunque no haya nada nuevo o inusual en el **ADN recombinante** ; se forma continuamente durante la meiosis, y en comunidades de microbios, como ya vimos en el capítulo 4). (SA5S.s64)	
24.	DNA produced by joining together fragments from different organisms is called **recombinant DNA**. (SN2E.s113)	El ADN que se obtiene al unir fragmentos de diferentes organismos se denomina **ADN recombinante**. (SN2S.s113)	Neutral
25.	The Organization for Economic Cooperation and Development (OECD), an inter-governmental forum for the harmonization of legislation, published recommendations in 1986 concerning the safety of **recombinant DNA**. (SN11E.s9)	En 1986, la Organización para la Cooperación y el Desarrollo Económico (OCDE), un foro intergubernamental para armonizar las legislaciones, publicó recomendaciones sobre la seguridad del **ADN recombinante**. (SN11S.s9)	Concern
26.	Furthermore, **recombinant viral DNA** is generally more unstable than the original virus and more prone to recombine with other viruses and to pick up new genes from their hosts to turn them into pathogens. (MH12E.s270)	Más aún, el **ADN viral recombinante** es por lo general más inestable que el virus original y más propenso a recombinarse con otros virus, y recoger nuevos genes de sus anfitriones para transformarlos en patógenos. (MH12S.s270)	Neutral
27.	Third World governments should be on their guard against the new vaccines, especially those involving **recombinant naked DNA**. (MH12E.s356)	Los gobiernos del Tercer Mundo debieran estar en guardia en contra de las nuevas vacunas, especialmente de aquellas que involucran al **ADN desnudo recombinante**. (MH12S.s356)	Unfavorable
	2) *Transgenic* DNA (7)		
1.	**Transgenic DNA** was found to have persisted two years after field release. (MH8E.s327)	Se descubrió que el **ADN transgénico** persistía aun dos años después de su liberación en el campo. (MH8S.s329)	Unfavorable
2.	(6) The potential for **transgenic DNA** to infect cells after the ingestion of transgenic foods, to regenerate disease viruses, and to insert itself into the cells genome, causing harmful or lethal effects, including cancer. (MH8E.s417)	6. El potencial del **ADN transgénico** para infectar las células luego de la ingestión de alimentos transgénicos, para regenerar virus patogénicos, y para insertarse en el genoma de la célula, provocando efectos dañinos o letales, incluyendo el cáncer. (MH8S.s419)	Concern (-)
3.	(10) The fact that **transgenic DNA**, unlike chemical pollution, can be perpetuated and amplified, given the right environmental conditions, and as a result the potential to unleash cross-species epidemics of infectious plant and animal diseases that will be impossible to control or recall. (MH8E.s428)	10. El hecho de que el **ADN transgénico**, a diferencia de la contaminación química, puede perpetuarse y amplificarse en condiciones ambientales correctas, y como resultado la posibilidad de que se desaten epidemias interespecíficas de enfermedades infecciosas en plantas y animales que serán imposibles de controlar o hacer retroceder. (MH8S.s430)	Unfavorable
4.	These include **transgenic DNA** from transgenic crops and genetically engineered micro-organisms ; the artificial vectors for gene transfer, including human gene ; therapy vectors and other naked DNA constructs for somatic gene therapy ; naked DNA vaccines (see chapter 12) ; DNA sequences amplified by laboratory procedures ; and synthetic anti-sense RNA and ribozymes (RNAs that act as enzymes). (MH9E.s405)	Esta clase incluye el **ADN transgénico** de cultivos transgénicos y microorganismos genéticamente modificados ; los vectores artificiales de la transferencia genética, incluyendo los vectores de la terapia genética humana y otras construcciones de ADN desnudo de la terapia genética somática ; las vacunas de ADN desnudo (véase el capítulo 12) ; las secuencias de ADN amplificadas por procedimientos de laboratorio ; y el ARN antisentido sintético y las ribozimas (ARN que	Neutral

		actúa como enzima). (MH9S.s405)	
5.	There is an urgent need to reassess the regulation of contained use, as inadequately, inactivated pathogenic and other **dangerous** GMMs and **transgenic DNA** may already be routinely discharged into the environment. (MH9E.s428)	Existe la necesidad urgente de reevaluar la regulación del uso contenido, ya que organismos patogénicos inadecuadamente inactivados y otros peligrosos GMM y **ADN transgénico** podrían ya estar siendo descargados en el medio ambiente en forma rutinaria. (MH9S.s428)	Unfavorable
6.	As this edition goes to press, the Health and Safety Executive is still allowing the release of dangerous **transgenic DNA** into the environment without any requirement to degrade it beforehand. (MH9E.s433)	En el momento en que esta edición entra en prensa, el Ministerio de Salud y Seguridad todavía permite la liberación del peligroso **ADN transgénico** en el ambiente sin ningún requerimiento de que se lo degrade previamente. (MH9S.s433)	Unfavorable
7.	I have already mentioned the **transgenic DNA** present in transgenic crops, all of which contain the cauliflower mosaic viral promoter. (MH12E.s243)	Ya mencioné el **ADN transgénico** presente en los cultivos transgénicos, todo el cual contiene el promotor viral del mosaico de la coliflor. (MH12S.s243)	Neutral
		3) *Manipulated* DNA (4)	
1.	Indeed in 1973 the first **manipulated DNA** was constructed. (ER p. 82)	El primer **ADN manipulado** fue construido en 1973.	Neutral
2.	In the light of all this evidence one would be foolish to eat transgenic foods, as the **manipulated DNA** may resist digestion. (MH8E.s394)	A la luz de toda esta evidencia, sería insensato ingerir alimentos transgénicos, ya que el **ADN extraño** puede resistir la digestión. (MH8S.s396)	Unfavorable
3.	The uptake of the **manipulated DNA** into cells can lead to the regeneration of viruses. (MH8E.s396)	La incorporación del **ADN manipulado** a las células puede llevar a la regeneración de virus. (MH8S.s398)	Neutral
4.	Though the host cell DNA has its own origins of replication, methylation patterns (chemical markers) and promoter sequences that are specific to its species, artificial gene transfer vectors and other **manipulated DNA** have recombined origins of replication and promoter sequences from different species, which can be recognised by a variety of host species. (MH9E.s193)	Aunque el ADN de la célula huésped tiene sus propios orígenes de replicación, patrones de metilación (marcadores químicos) y secuencias promotores que son específicas de su especie, los vectores artificiales de transferencia genética y otras clases de **ADN manipulado** poseen orígenes de replicación y secuencias promotoras recombinadas de diferentes especies, las que pueden ser reconocidas por una variedad de especies anfitrionas. (MH9S.s193)	Neutral
		4) *Modified* DNA (2)	
1.	Similar hazards also arise in the proposed use of **modified viral DNA** as vaccines and in the xenotransplantation of organs. (MH12E.s8)	Surgen también peligros similares de la utilización propuesta del **ADN viral modificado** para vacunas y el xenotrasplante de órganos. (MH12S.s8)	Unfavorable
2.	Recombination between external and resident viruses is strongly implicated in many cancers in animals ; similar hazards may also arise in the proposed use of **modified viral DNA** as vaccines and in the xenotransplantation of organs. (MH12E.s35)	La recombinación entre los virus externos y los residentes tiene un papel importante en muchos cánceres en animales ; peligros similares pueden surgir también de la utilización propuesta del **ADN viral modificado** para vacunas y el xenotrasplante de órganos. (MH12S.s35)	Concern (-)

5) *Genetically engineered* DNA (1)			
1.	Today there are positive uses of viruses in modem biology where, as we will see in the next chapters, they are used as vectors (or transporters or carriers ; all synonyms) of **genetically engineered DNA**into host cells. (ER6E.s35)	Hoy se puede hablar de usos positivos de los virus, ya que la biología moderna, como veremos en los próximos capítulos, los emplea como vectores (es decir, como transportadores) para llevar **ADN modificado genéticamente** al interior las células. (ER6S.s38)	Neutral
6) *Novel* DNA (1)			
1.	Researchers have exploited the strategies used in battles between viruses and bacteria to develop a method for making recombinant DNA (that is, **novel DNA** made by combining DNA fragments from different sources). (EG2E.s55)	Los investigadores han aprovechado las estrategias utilizadas en las batallas entre virus y bacterias para desarrollar un método para producir ADN recombinante - es decir, **ADN nuevo**, hecho con la combinación de fragmentos de ADN de diversas fuentes. (EG2S.s56)	Neutral

Table 8.10: *ST-TT pairs of denominative variants for 'Adj + N (DNA)' (sci corpus).*

EXCLUDED		
1.	Scientists co-opted these skills in some of the first experiments with recombinant DNA, using phages as Trojan horses to smuggle the **recombinant DNA** into bacterial cells. (EG2E.s68)	Los científicos aprovecharon estas habilidades en algunos de los primeros experimentos con ADN recombinante, utilizando a los fagos como caballos de Troya para introducir **dicho ADN** en células bacterianas. (EG2S.s69)
2.	" Tolerated " releases and transgenic wastes from such users may already have contributed large amounts of transgenic bacteria and viruses, as well as **manipulated DNA**, to the environment since the early eighties, when commercial genetic-engineering bio-technology began. (MH1E.s370)	Las descargas y los desechos transgénicos tolerados de tales usuarios pueden ya haber liberado en el ambiente grandes cantidades de bacterias y virus transgénicos, así como ADN, desde principios de los años ochenta, cuando comenzó la biotecnología de ingeniería genética en escala comercial. (MH1S.s376)
3.	Restriction enzymes cut both strands of DNA at a specific sequence, leaving " sticky ends " for rejoining to **new DNA**. (EG2E.s253)	Las enzimas de restricción cortan ambos filamentos de ADN en una secuencia específica y dejan " bordes pegajosos " que pueden unirse a **otro ADN**. (EG2S.s252)
4.	So this **new DNA** had the heavy form of nitrogen incorporated into its bases. (SA1E.s370)	Por tanto este **nuevo ADN** tenía la forma pesada de nitrógeno incorporada en sus bases. (SA1S.s368)

Table 8.11: *Excluded ST-TT pairs of denominative variants for 'Adj + N (DNA)' (sci corpus).*

Denominative variants of *Adj + N (DNA)* in the *soc corpus* (22)			
#	*English*	*Spanish*	**SP**
		1) *Recombinant* DNA (8)	
1.	The process was called **recombinant DNA** or genetic engineering. (IB1E.s205)	A ese proceso se le dio el nombre de **ADN recombinante** o ingeniería genética. (IB1S.s205)	Neutral
2.	The tone for the regulatory processes in North America was set in 1992 when the FDA determined **recombinant DNA** was not a food additive. (IB11E.s53)	El carácter que habría de tener el proceso normativo en la autorización de alimentos fue establecido en el año 1992 cuando la Agencia de Alimentos y Drogas de Estados Unidos decidió que el **ADN recombinante** no era un aditivo alimenticio. (IB11S.s52)	Neutral
3.	And in Japan, all foods and crops produced with **recombinant DNA** are carefully reviewed. (IB11E.s63)	Y en el Japón todos los alimentos y todos los cultivos producidos con el **ADN recombinante** son analizados exhaustivamente. (IB11S.s62)	Concern
4.	The most formidable of the new tools is **recombinant DNA**. (JR1E.s288)	La más formidable de las nuevas herramientas es el **ADN recombinante**. (JR1S.s278)	Favorable
5.	A product of nearly thirty years of investigation, climaxed by a series of rapid discoveries in the late 1960s and 1970s, **recombinant DNA** is a kind of biological sewing machine that can be used to stitch together the genetic fabric of unrelated organisms. (JR1E.s291)	El **ADN recombinante**, el fruto de casi treinta años de investigaciones culminadas por una serie de rápidos descubrimientos a finales de los años sesenta y en los setenta, es una especie de máquina de coser biológica que sirve para hacer una sola urdimbre genética a partir de organismos que no tienen relación entre sí. (JR1S.s281)	Neutral
6.	In a May 1986 report to the Committee on Appropriations of the U.S. House of Representatives, the U.S. Department of Defense (DOD) pointed out that **recombinant DNA** and other genetic engineering technologies are finally making biological warfare an effective military option. (JR3E.s341)	Un informe del departamento de defensa de Estados Unidos remitido en mayo de 1986 al comité de asignaciones presupuestarias de la Cámara de Re presentantes de Estados Unidos indicaba que el **ADN recombinante** y demás técnicas de la ingeniería genética hacían que por fin la guerra biológica fuese una opción militar viable. (JR3S.s339)	Concern (-)
7.	Speaking at a National Academy of Science forum on **recombinant DNA** in 1977, Ethan Signer, a biologist at the Massachusetts Institute of Technology, warned his colleagues, This research is going to bring us one more step closer to genetic engineering of people. (JR4E.s172)	En un foro sobre el **ADN recombinante** convocado por la Academia Nacional de Ciencias en 1977, Ethan Singer, biólogo del Instituto de Tecnología de Massachusetts, hizo esta advertencia a sus colegas: Estas investigaciones nos acercarán un paso más a la aplicación de la ingeniería genética a las personas. (JR4S.s168)	Concern
8.	Whenever **recombinant DNA**, cell fusion, and other related techniques are used to " improve " the genetic blueprints of a microbe, plant, animal, or human being, a eugenics consideration is built into the process itself. (JR4E.s181)	En cuanto se emplean el **ADN recombinante**, la fusión celular y otras técnicas por el estilo para " mejorar " los planos genéticos de un microbio, planta, animal o ser humano, se incorpora una consideración eugenésica al proceso mismo. (JR4S.s177)	Concern (-)
		2) *Altered* DNA (4)	
1.	Tests by the consumer groups also showed **altered DNA** in breakfast cereals ; corn and tortilla chips ; granola bars ; cake and muffin mix ; corn meal ; diet drinks ; dog food ; soy burgers ; powdered chocolate	Las pruebas realizadas por asociaciones de consumidores también demostraron la existencia de **ADN alterado** en los cereales para el desayuno, patatas fritas y tortitas de harina de maíz, barritas energéticas, polvos para hacer	Concern (-)

	drink ; and taco shells. (BL1E.s146)	pasteles y magdalenas, harina de maíz, refrescos light, comida para perros, hamburguesas de soja, bebidas solubles de cacao, y tacos mexicanos. (BL1S.s143)	
2.	But if people don't know they 're eating genetically modified food - and the FDA says that labeling isn't necessary - I wondered how people would have the information to report that they became nauseated or went into anaphylactic shock from food with **altered DNA**. (BL3E.s179)	Pero si las personas no saben que están consumiendo alimentos modificados genéticamente (y la FDA decía que la especificación de esta cualidad en el etiquetado no era necesaria), yo me preguntaba cómo esos mismos consumidores dispondrían de la información necesaria para informar de que sentían náuseas o habían padecido un shock anafiláctico debido a la ingesta de alimentos con un **ADN alterado**. (BL3S.s178)	Concern
3.	Does **altered DNA** break down? (BL13E.s23)	¿Se descompone el **ADN alterado**? (BL13S.s23)	Neutral
4.	For the ballot initiative was broad: It aimed not only to ban genetically modified crops but also prohibit the breeding of livestock with **altered DNA** and deny companies rights to patents on newly engineered varieties of plants and animals. (BL13E.s189)	Porque la iniciativa de la votación era amplia: no sólo iba dirigida a prohibir los cultivos modificados, sino que también aspiraba a prohibir la cría de ganado con **ADN alterado** y a negar a las compañías los derechos de patente sobre las variedades recién alteradas de plantas y animales. (BL13S.s186)	Unfavorable
	3) *GM/GMO* DNA (3)		
1.	They found **GM DNA** in up to 95 percent of corn plots tested. (JS7E.s778)	Encontraron **ADN GM** en el 95 por ciento de los campos de maíz inspeccionados. (JS7S.s722)	Concern
2.	He said " the only human GM trial, commissioned ironically by the [UK 's] Food Standards Agency, " confirmed that **GM DNA** did, in fact, transfer to bacteria in the human gut. (JS9E.s253)	Dijo: " el único ensayo GM en humanos encargado, irónicamente, por la Food Standards Agency del Reino Unido " confirmó que el **ADN GM** sí transfería bacteria al intestino de los humanos. (JS9S.s225)	Concern (-)
3.	The **GMO DNA** will always be in the soil. (BL10E.s100)	El **ADN de los OMG** permanecerá siempre en el suelo. (BL10S.s103)	Neutral
	4) *Genetically modified* DNA (2)		
1.	In their digestive material, " a relatively large proportion of **genetically modified DNA** survived the passage through " the small intestine. (JS2E.s242)	El estudio demostró que " una proporción relativamente cuantiosa del **ADN modificado genéticamente** sobrevivía al viaje a través " del intestino delgado humano. (JS2S.s231)	Concern
2.	Risks from Breathing **Genetically Modified DNA**. (JS2E.s364)	Los riesgos de respirar **ADN genéticamente modificado**. (JS2S.s342)	Unfavorable
	5) *Genetically engineered* DNA (1)		
1.	Yet these derivatives were excluded from the new labelling scheme, because the industry argued that most of the **genetically engineered DNA** would be destroyed when food is processed. (LA5E.s151)	Sin embargo estos derivados fueron excluidos del nuevo esquema de etiquetado, porque la industria defendió que la mayor parte del **ADN modificado genéticamente** se destruiría al procesar los alimentos. (LA5s.s157)	Favorable
	6) *Manipulated* DNA (1)		
1.	By 1996, six generations of cattle had been born with the genetically engineered immunity to shipping fever, showing no outward sign of their **manipulated DNA**.	Para 1996 ya habían nacido seis generaciones de terneros con la inmunidad a la fiebre del navegante, inoculada mediante ingeniería genética, y no mostraban ningún signo externo	Neutral

	(IB2E.s12)	de poseer un **ADN manipulado**. (IB2S.s12)	
	7) *Modified* DNA (1)		
1.	Thus, there are foolproof safeguards that modified microorganisms can engender diseases in man or the environment ; there is no risk that gene transfer would involve the transfer of unidentified DNA that could induce unplanned changes under any circumstances ; there is no possibility that **modified DNA** could gain access to the body of the consumer. " (LA2E.s120)	Por tanto, hay suficientes pruebas de que los microorganismos modificados no pueden engendrar enfermedades en el hombre o en el medio ambiente ; no hay ningún riesgo de que la transferencia de genes involucre el traslado de ADN no identificado que podría inducir cambios imprevistos bajo cualquier circunstancia ; no hay ninguna posibilidad de que el **ADN modificado** llegue al cuerpo del consumidor. " (LA2S.s120)	Favorable
	8) *Transgenic* DNA (1)		
1.	87,000 packs of organic tortilla chips worth over £ 100,000 were recalled and destroyed in the UK after a routine analysis revealed that **transgenic DNA** was present in the product. (LA3E.s81)	§ 87.000 paquetes de tortillas biológicas con un valor superior a 100.000 libras esterlinas fueron retenidas y destruidas en el Reino Unido después de que un análisis rutinario revelara que había **ADN transgénico** en el producto. (LA3S.s85)	Unfavorable
	9) *New* DNA (1)		
1.	Because so few of the foetuses produced by genetic engineering experiments actually turn out to have been successfully engineered, it is thought that this fluorescing green protein could be used as a marker to enable scientists to tell which of the foetuses have incorporated the **new DNA**. (LA4E.s72)	Dado que son muy pocos los fetos producidos por ingeniería genética que tienen éxito, se piensa que esta proteína verde fluorescente podría usarse como marcador para permitir a los científicos saber cual de los fetos ha incorporado el **nuevo ADN**. (LA4S.s71)	Neutral

Table 8.12: *ST-TT pairs of denominative variants for 'Adj + N (DNA)' (soc corpus).*

	EXCLUDED	
1.	First, was it possible to transfer **new DNA** into a living plant cell? (BL2E.s154)	Primero: ¿era posible transferir **nuevo ADN** a una célula vegetal viva? (BL2S.s153)
2.	Unfortunately for scientists, **new DNA** is taken up infrequently by cells. (IB2E.s129)	Por desgracia para los científicos, las células no suelen aceptar un **ADN nuevo**. (IB2S.s129)
3.	The researchers blended both natural DNA and **synthetic DNA** " made by a machine " in the laboratory. (JR1E.s568)	Los investigadores mezclaron **ADN natural** y sintético " hecho a máquina en el laboratorio. (JR1S.s552)
4.	The **synthetic DNA** was made to mimic part of a human chromosome called a centromere, which is the primary structure responsible for chromosome replication. (JR1E.s569)	El **ADN sintético** se creó de manera que imitase una parte del cromosoma humano, el centrómero, la estructura primaria responsable de la replicación del cromosoma. (JR1S.s553)
5.	The **new DNA** " self-assembled " into chromosomes. (JR1E.s571)	El **nuevo ADN** se " autoensambló " creando cromosomas. (JR1S.s555)

Table 8.13: *Excluded ST-TT pairs of denominative variants for 'Adj + N (DNA)' (soc corpus).*

Denominative variants of *Adj + N (Gene/s)* in the *sci corpus* (33)			
#	*English*	*Spanish*	**SP**
	1) *Resistance* GROUP (12)		
	Herbicide resistance gene/s (5)		
1.	**Herbicide resistance genes** can also be useful in transgenic plants as selectable markers, in combination or instead of antibiotic resistance marker genes. (SN4E.s164)	Los **genes de resistencia a los herbicidas** también puede resultar útiles en las plantas transgénicas como marcadores seleccionables, combinados con genes marcadores de resistencia a los antibióticos o en lugar de éstos. (SN4S.s165)	Neutral
2.	The two types of plasmid, containing the B.t. toxin and the **herbicide resistance genes**, were then fired simultaneously at maize plant cells using a particle gun. (SN5E.s63)	Los dos tipos de plásmidos, que contenían la toxina B. t. y los **genes de resistencia a los herbicidas**, se bombardearon posteriormente a las células vegetales del maíz mediante una pistola de partículas. (SN5S.s64)	Neutral
3.	Furthermore, ecological risks posed by transgenic crops include the possibility of **herbicide resistance genes** jumping to weed species. (SN15E.s140)	Además, entre los riesgos ecológicos que plantean los cultivos transgénicos se incluye la posibilidad de que los **genes de resistencia a los herbicidas** salten a especies de malas hierbas. (SN15S.s139)	Concern
4.	A **herbicide resistance gene**, for example, was used in the production of Ciba-Geigy 's B.t. maize. (SN4E.s166)	Por ejemplo, se utilizó un **gen de resistencia a los herbicidas** en la elaboración del maíz B. t. de Ciba-Geigy. (SN4S.s167)	Neutral
5.	The surviving and reproducing cells were those that had incorporated the **herbicide resistance gene**. (SN5E.s65)	Las células que sobrevivieron y se reprodujeron fueron las que incorporaban el **gen de la resistencia al herbicida**. (SN5S.s66)	Neutral
	Other types of resistance (4)		
6.	Margaret Mellon claimed that the maize had been initially cleared in the US by the Food and Drug Administration (FDA) and other advisory committees without them knowing about the selectable marker gene: that is, the decision was made on the knowledge of herbicide and **insect resistance genes** alone. (SN12E.s141)	Margaret Mellon aseguró que el maíz había recibido la autorización inicial de la Food and Drug Administration (FDA) y otros comités consultivos desconociendo la existencia del gen marcador seleccionable, es decir, que la decisión se tomó teniendo conocimiento únicamente de la existencia de los **genes de resistencia a los herbicidas** y a los insecticidas. (SN12S.s139)	Concern
7.	Probably the main worry is that if we make crop plants fitter, by adding pest and **disease resistance genes**, they will transfer these traits to weeds, which will then take over the crop plants ' ecosystem. (SA10E.s434)	Probablemente la preocupación principal sea que si hacemos más resistentes a las plantas cultivadas, **añadiendo genes de resistencia a** las plagas y **las enfermedades**, las plantas los transferirán a las malas hierbas, quienes entonces se apoderarán de su ecosistema. (SA10S.s434)	Concern
8.	New **fungal-resisting genes** can now be inserted into corn using a gene gun - an instrument that literally shoots tiny bullets of microscopic metal particles coated with genes. (EG4E.s188) It shoots genes into clusters of cells, which are then stimulated to multiply and grow into complete plants. (EG4E.s189)	Pueden insertarse hoy en día nuevos **genes para la resistencia a los hongos** en el maíz empleando un cañón de genes, instrumento que, literalmente, dispara microscópicas partículas metálicas recubiertas de genes contra grupos de células que después son estimuladas para multiplicarse y convertirse en plantas completas. (EG4S.s189)	Neutral
9.	Susceptible insects mate with other insects in the population carrying B.t.-resistance genes, thereby diluting the effects of the	Estos insectos sensibles se aparean con otros insectos de la población portadora de la resistencia a la B. t. y, de ese modo, se incluyen	Concern

	resistance genes. (SN1E.s130)	los efectos de los **genes de resistencia**. (SN1S.s126)	
	BastaTM resistance gene (1)		
10.	Ciba Seeds, who marketed the hybrid transgenic seed in the mid-1990s, claimed that the **BastaTM resistance gene** was being used only as a development tool. (SN5E.s68)	Ciba Seeds, que comercializó semillas transgénicas híbridas a mediados de la década de 1990, aseguró que el **gen de resistencia al BastaTM** sólo se estaba utilizando como instrumento de desarrollo (véase la nota 11). (SN5S.s69)	Concern
	Glyphosate-resistance gene/s (1)		
11.	The feeding value to animals was shown to be unaffected by the incorporation of the **glyphosate-resistance gene**, while the protein expressed by the foreign gene was rapidly digested by mice. (SN4E.s113)	Se ha demostrado que el valor alimenticio en los animales no se ve afectado por la incorporación del **gen de la resistencia al glifosato**, mientras que los ratones digerían rápidamente la proteína expresada por el gen ajeno. (SN4S.s114)	Neutral
	Bt-resistance genes (1)		
12.	Susceptible insects mate with other insects in the population carrying **B.t.-resistance genes**, thereby diluting the effects of the resistance genes. (SN1E.s130)	Estos insectos sensibles se aparean con otros insectos de la población portadora de la **resistencia a la B. t.** y, de ese modo, se incluyen los efectos de los genes de resistencia. (SN1S.s126)	Neutral
	2) *Engineered* genes/s (7)		
1.	The **engineered gene** produces RNA that complements the RNA of the troublesome gene, binding onto it and blocking its action. (EG3E.s228)	EL **gen modificado** produce el ARN que complementa al ARN del gen problemático, se une a él y bloquea su acción. (EG3S.s223)	Neutral
2.	The steps leading to the first legally approved operation in which a human patient was given **engineered genes** from another species are worth summarizing, as an example of how things can move from the theories of research scientists to the end of a hollow needle in an operating room. (EG3E.s106)	Resulta interesante resumir los pasos que condujeron a la primera intervención legalmente aprobada, en la que un paciente humano recibió **genes alterados** de otra especie, como ejemplo de cómo se pueden mover las cosas desde las teorías de los investigadores científicos hasta la punta de una aguja especial en un quirófano. (EG3S.s104)	Concern
3.	Keeping track of **engineered genes**. (EG3E.s500)	Siguiendo el rastro de los **genes manipulados**. (EG3S.s494)	Neutral
4.	Also on the environmental front, there is the concern that **engineered genes** for herbicide resistance may spread from crop plants to wild species through crosspollination. (EG4E.s132)	En el frente medioambiental existe también la preocupación de que los **genes manipulados** para la resistencia a los herbicidas se transmitan de los cultivos a especies silvestres por medio de la polinización cruzada. (EG4S.s133)	Concern (-)
5.	Since 1986 there have been over 2,000 field trials of trials of transgenic crops around the world, exposing natural ecosystems to the introduction of **engineered genes**. (EG4E.s140)	Desde 1986 ha habido más de dos mil pruebas sobre el terreno de cultivos transgénicos en todo el mundo, con la consiguiente exposición de los ecosistemas naturales a la introducción de **genes manipulados**. (EG4S.s141)	Neutral
6.	The animal can now pass on the **engineered gene** to its descendants. (ER16E.s513)	Entonces el animal puede pasar el **gen modificado** a su descendencia. (ER16S.s532)	Neutral
7.	<s id="EG5E.s68" >In controlled field experiments using microbes engineered with lux genes, it is possible to literally watch the spread of **engineered genes**	<s id="EG5S.s68" >En experimentos sobre terrenos controlados utilizando microbios con genes lux añadidos, es posible ver, literalmente, la expansión de los **genes manipulados** a través	Neutral

	through the population as the microbes multiply, and to monitor the degree of transfer of these genes from the lab strain to native varieties.</s>	de la población a medida que los microbios se multiplican, lo que permite seguir el grado de transferencia de dichos genes desde la cepa proveniente del laboratorio a las variedades autóctonas.</s>	
3) *Altered* genes (5)			
1.	The two men, unaware until then of the details of one another 's work, quickly devised a scheme to use **altered genes** for tracking TILs. (EG3E.s117)	Entre los dos, que hasta aquel momento desconocían los detalles de sus respectivas investigaciones, diseñaron rápidamente una estrategia para utilizar **genes alterados** en el seguimiento de los LIT. (EG3S.s115)	Neutral
2.	And it would tell genetic engineers whether **altered genes** could continue functioning and reproducing inside a human body. (EG3E.s131)	Diría también a los ingenieros genéticos si los **genes alterados** podían seguir funcionando y reproduciéndose en el interior del cuerpo humano. (EG3S.s129)	Neutral
3.	Regarding milk and other food products made using **altered genes**, the great majority of people want to be informed by labels, such as those identifying organically grown food, so they can make a choice. (EG7E.s47)	Por lo que respecta a la leche y otros alimentos **producidos mediante manipulación genética**, la inmensa mayoría de la gente desea ser informada mediante advertencias en las etiquetas, tal como se hace para distinguir los alimentos de cultivo biológico, de modo que les resulte posible elegir. (EG7S.s46)	Concern
4.	Will modified organisms transfer their **altered genes** to wild relatives or reduce biodiversity? (EG7E.s369)	¿Transferirán los organismos transgénicos sus **genes alterados** a parientes salvajes o silvestres, o reducirán la biodiversidad? (EG7S.s366)	Concern
5.	Whatever the method of DNA delivery, transformation is widely used by the genetic engineer for the introduction of new or **altered genes** into a wide range of organisms. (ER5E.s73)	Sea cual sea el método de administración de ADN, la transformación es ampliamente usada por la ingeniería genética para la introducción de **genes** nuevos o **alterados** en una amplia gama de organismos. (ER5S.s72)	Neutral
4) *Genetically engineered* gene/s (2)			
1.	The assessment of risk from the use of genetically engineered organisms has therefore to examine first the likelihood of something going wrong, for example the transmission of a **genetically engineered gene** from a crop plant to a wild relative. (ER14E.s133)	La estimación de riesgos derivados del uso de organismos modificados genéticamente debe examinar, en primer lugar, la probabilidad de que algo falle: por ejemplo, cuál es la probabilidad de que un **gen modificado por ingeniería genética** sea transferido desde una planta de cultivo a un pariente silvestre. (ER14S.s141)	Concern
2.	<s id="ER14E.s117" >Sometimes these wild relatives are able to cross with the crop plant and so **genetically engineered genes** might be transmitted from the crop plant to a wild species.</s>	<s id="ER14S.s125" >A veces, esos parientes pueden cruzarse con la planta cultivada.</s> <s id="ER14S.s126" >Por tanto, **genes introducidos por manipulación genética** podrían transmitirse desde una planta cultivada a una especie silvestre.</s>	Neutral
5) *Herbicide-tolerance* gene/s (2)			
1.	Transgenic crops with insecticidal genes or **herbicide-tolerance genes** actually favor the evolution of pesticide-resistance and herbicide-tolerance. (MH8E.s272)	Los cultivos transgénicos con genes insecticidas o **genes de tolerancia a los herbicidas** en realidad favorecen la evolución de la resistencia a los pesticidas y la tolerancia a los herbicidas. (MH8S.s274)	Favorable
2.	There is evidence that a **herbicide-tolerance gene** introduced into	Existe evidencia de que un **gen de tolerancia a herbicidas** introducido en la Arabidopsis por	Concern (-)

	Arabidopsis by means of a vector may be up to thirty times more likely to escape and spread than the same gene obtained by induced mutation. (MH8E.s312)	medio de un vector podría escaparse y difundirse con una probabilidad treinta veces mayor que el mismo gen obtenido por una mutación inducida. (MH8S.s314)	
6) *Insecticide* GROUP (2)			
1.	Transgenic crops with **insecticidal genes** or herbicide-tolerance genes actually favor the evolution of pesticide-resistance and herbicide-tolerance. (MH8E.s272)	Los cultivos transgénicos con **genes insecticidas** o genes de tolerancia a los herbicidas en realidad favorecen la evolución de la resistencia a los pesticidas y la tolerancia a los herbicidas. (MH8S.s274)	Favorable
2.	In 1995, the US PTO awarded a patent to Mycogen for rights to any method of modifying **B.t. insecticidal protein genes** to make them resemble plant genes. (SN10E.s71)	En 1995, la Oficina de Patentes estadounidense otorgó a Mycogen la patente que le concedía los derechos de cualquier método para modificar las **proteínas insecticidas B. t.** y hacer que se parezcan a los genes de plantas. (SN10S.s71)	Neutral
7) *Roundup Ready* gene/s (2)			
1.	If farmers violated the agreement, they must agree " to pay Monsanto as liquidation damages a sum equal to one hundred times the then applicable fee for the **Roundup ReadyTM gene**, times the number of units of transferred seed, plus reasonable attorney 's fees and expenses ". (SN10E.s157)	Si no respetaban el acuerdo, estaban obligados a " abonar a Monsanto, en concepto de liquidación de daños y perjuicios, una suma igual a cien veces la tarifa aplicable en su momento por el **gen Roundup ReadyTM**, multiplicado por el número de unidades de semilla con el gen transferido, además de una cantidad razonable en concepto de gastos y minuta de abogados ". (SN10S.s154)	Concern
2.	The Roundup Ready licensing agreement will also be applied to other crops engineered with **Roundup ReadyTM genes**, including canola, maize and sugar beet, although the details of the agreement will vary from crop to crop. (SN10E.s165)	El acuerdo de licencia de Roundup Ready también se aplica a otros cultivos modificados con **genes Roundup ReadyTM**, como la canola, el maíz y la remolacha azucarera, aunque los detalles del acuerdo varían en cada caso particular. (SN10S.s162)	Neutral (Regulation)
8) *Biopesticide* genes (1)			
1.	The new generations of transgenic plants with **biopesticide genes** may be destroying the last stronghold of the ecosystem 's ability to readjust and rebalance itself in the face of the assaults of intensive agriculture. (MH8E.s290)	Las nuevas generaciones de plantas transgénicas con **genes biopesticidas** podrían estar destruyendo el último baluarte de la capacidad del ecosistema para reajustarse y reequilibrarse a sí mismo ante los asaltos de la agricultura Intensiva. (MH8S.s292)	Concern (-)

Table 8.14: *ST-TT pairs of denominative variants for ‘Adj + N (gene/s)’ (sci corpus).*

EXCLUDED		
1.	The human growth hormone was, of course, made by bacteria that had been given an **engineered** human **gene**. (ER1E.s50)	Por supuesto, la hormona humana había sido fabricada por bacterias en las que se había introducido un gen humano. (ER1S.s50)

Table 8.15: *Excluded ST-TT pairs of denominative variants for ‘Adj + N (gene/s)’ (sci corpus).*

Denominative variants of *Adj + N (Gene/s)* in the *soc corpus* (38)			
#	*English*	*Spanish*	**SP**
	1) *Resistance* GROUP (9)		
1.	Bruce Tabashnik at the University of Arizona at Tucson found that when diamondback moths, a major pest of cabbages and other leafy crops, acquired a single **Bt resistance gene**, they developed resistance to four different Bt toxins. (IB6E.s159)	Bruce Tabashnik, de la Universidad de Arizona, en Tucson, descubrió que cuando la polilla de la col, una de las mayores plagas que atacan a las coles y otras hortalizas de hoja, adquiere un solo **gen resistente al Bt**, desarrolla inmunidad frente a cuatro toxinas distintas del Bacillus thuringiensis. (IB6S.s160)	Concern
2.	Some of their digestive bacteria contained the **herbicide-resistant gene** used in soybeans. (JS2E.s244)	Una pequeña porción de sus bacterias intestinales contenían un **gen resistente a herbicidas** utilizado en las semillas de soja. (JS2S.s233)	Concern
3.	In the experiment, Dr. Thomas R. Mikkelsen and his team planted a transgenic oilseed rape plant containing a **herbicide-resistant gene** in a field near a dose weedy relative, Brassica campestris. (JR3E.s297)	En el experimento, el doctor Thomas R. Mikkelsen y su equipo plantaron en un campo una planta de colza que contenía un **gen resistente a los herbicidas** cerca de una hierba mala que tiene un parentesco estrecho con ella, la Brassica campestris. (JR3S.s297)	Neutral
4.	Transnational chemical and agribusiness companies project that within less than ten to fifteen years, all of the major crops will be genetically engineered to include herbicide-, pest-, virus-, bacteria-, fungus-, and **stress-resistant genes**. (JR3E.s318)	Las multinacionales químicas y agropecuarias proyectan que antes de diez a quince años no exista un cultivo importante que no haya sido sometido a la ingeniería genética a fin de que incluya **genes de resistencia a** los herbicidas, plagas, virus, bacterias, hongos y el **estrés** climático. (JR3S.s316)	Neutral (English) / Concern (Spanish)
5.	What might be the consequences of unleashing herbicide-, pest-, virus-, bacteria-, fungus-, and **stress-resistant genes** into the biosphere? (JR3E.s323)	¿Cuáles serían las consecuencias de la emisión a la biosfera de los **genes de resistencia a** los herbicidas, las plagas, los virus, las bacterias y los hongos? (JR3S.s321)	Concern
6.	This means that enough genetic ammunition might not be available, in the future, in the form of additional **resistant genes**, to continue to provide defenses against continued waves of ever more resistant weeds, insects, viruses and the like. (JR3E.s647)	La consecuencia es que en el futuro podría no disponerse de suficiente munición genética, en forma de **genes resistentes** de reserva que sigan proporcionando defensas contra las continuas oleadas de hierbas malas, insectos, virus y similares cada vez más resistentes. (JR3S.s643)	Concern
7.	Even a single field not off-set by a refuge can produce a small population of bugs with **resistant genes** that will then spread throughout the population. (IB6E.s215)	Incluso una única plantación no protegida por un refugio puede producir una pequeña población de bichos con **genes resistentes**, que luego contaminará a otras poblaciones. (IB6S.s216)	Concern (English) / Concern (-) (Spanish)
8.	With help from Monsanto and the U.S. Agency for International Development, Wambugu and another Kenyan, Daniel Maingi, worked on methods of introducing **virus-resistance genes** into sweet potatoes and regenerating plants from African varieties. (BL18E.s20)	Con la ayuda de Monsanto y la U. S. Agency for International Development (Agencia Estadounidense para el Desarrollo Internacional), Wambugu y otro keniata, Daniel Maingi, trabajaron en un método para introducir **genes que indujesen la resistencia al virus** en las batatas, y para regenerar plantas de variedades africanas. (BL18S.s20)	Neutral
9.	Second, because the field test sites are so small - often less than one hundred acres - and the tests themselves are generally limited to only one or two growing seasons,	En segundo lugar, como los emplazamientos de las pruebas de campo son muy pequeños - a menudo menos de 40 hectáreas - y las pruebas mismas se limitan, por lo general, a sólo una o	Concern

	potentially undesirable effects are unlikely to be observed the question of weeds, insects, and microorganisms building up resistance to herbicide-, pest-, and **virus-resistant genes**, cannot be adequately addressed in such a small field plot and over such a short period of time. (JR3E.s164)	dos temporadas de crecimiento, es improbable que se observen los efectos potencialmente indeseables. (JR3S.s162) En cuanto a la posibilidad de que malezas, insectos y microorganismos desarrollen resistencia a los **genes resistentes a** los herbicidas, plagas y **virus**, no puede abordarse adecuadamente en un terreno tan pequeño y durante un período tan corto. (JR3S.s163)	
	2) *Transgenic* gene/s (7)		
1.	Transgenic plants might enjoy slightly better odds than traditional non-indigenous introductions for the reason that many of the **transgenic genes** inserted into their genomes confer distinct advantages. (JR3E.s271)	Las plantas transgénicas podrían tener unas posibilidades un poco mayores que las introducciones tradicionales de plantas no autóctonas porque muchos de los **genes transgénicos** insertados en sus genomas les confieren claras ventajas. (JR3S.s271)	Concern
2.	A growing number of ecologists warn that an even bigger danger might lie in what is called " gene flow " - the transfer of **transgenic genes** from crops to weedy relatives by way of cross-pollination. (JR3E.s286)	Un número cada vez mayor de ecólogos advierte que un peligro todavía mayor es el llamado " flujo génico ", la transferencia de **genes transgénicos** de los cultivos a las hierbas malas emparentadas con ellos mediante la polinización cruzada. (JR3S.s286)	Unfavorable
3.	Researchers are concerned that **transgenic genes** for herbicide tolerance, and pest and viral resistance, might also escape and, through cross-pollination, insert themselves into the genomes of weedy relatives thereby creating weeds that are resistant to herbicides, pests, and viruses. (JR3E.s295)	A los investigadores les preocupa que los **genes transgénicos** que confieren tolerancia a los herbicidas y resistencia a plagas y virus puedan escapar también y, mediante la polinización cruzada, se inserten en los genomas de parientes de la maleza y creen de esa forma malas hierbas resistentes a los herbicidas, las plagas y los virus. (JR3S.s295)	Concern (-)
4.	Fears over the possibility of **transgenic genes** jumping to wild weedy relatives heightened in 1996 when a Danish research team, working under the auspices of Denmark 's Environmental Science and Technology Department, observed the transfer of a transgene from a transgenic crop to the genome of a wild weedy relative - something critics of deliberate release experiments have warned of for years and biotech companies have dismissed as a remote or nonexistent possibility. (JR3E.s296)	El miedo a que los **genes transgénicos** salten a las malas hierbas silvestres emparentadas creció en 1996 cuando un equipo investigador danés, que trabajaba bajo los auspicios del Departamento de Tecnología y Ciencia del Medio Ambiente de Dinamarca, observó la transferencia de un transgén de un cultivo transgénico al genoma de una mala hierba silvestre emparentado, algo que los críticos de los experimentos de liberación deliberada advertían que podía pasar desde hacía años y que las compañías biotécnicas rechazaban como una posibilidad remota o inexistente. (JR3S.s296)	Unfavorable
5.	The Danish study showed that **transgenic genes** inserted into crops could flow easily and rapidly into the wild, creating a new and virulent form of genetic pollution. (JR3E.s301)	El estudio danés mostró que los **genes transgénicos** insertados en los cultivos podrían propasarse fácil y rápidamente a la vida silvestre, creando una forma nueva y virulenta de polución genética. (JR3S.s300)	Concern (-)
6.	Many of the **transgenic genes** being inserted into crops and readied for commercial introduction in countries around the world contain just the traits that are likely to provide a competitive advantage, if transferred to weeds in the wild. (JR3E.s305)	Muchos de los **genes transgénicos** que se están insertando en los cultivos y que están preparados para su introducción comercial en los países de todo el mundo contienen precisamente los caracteres que seguramente proporcionarían una ventaja competitiva si se transfiriesen a la maleza silvestre. (JR3S.s304)	Concern

7.	While the genetically engineered hormone is now injected into cows in biweekly treatments, researchers are experimenting on inserting a **transgenic** growth hormone **gene** directly into the genetic code of the animals in the embryo stage. (JR3E.s446)	Mientras que esa hormona modificada mediante la ingeniería genética se inyecta a las vacas cada dos semanas, los investigadores están experimentando para insertar un gen de la **hormona del crecimiento transgénico** directamente en el código genético de los anima-les en su fase embrional. (JR3S.s440)	Neutral
	3) *Insecticide* GROUP (5)		
1.	When genetic engineers put an **insecticide gene** into the DNA of corn, however, the corn cell doesn't have a clue what to do with this gene that it 's never seen before. (JS2E.s286)	Sin embargo, cuando los científicos introducen un **gen insecticida** en el ADN del maíz, las células del maíz no tienen ni idea de qué hacer con ese gen hasta entonces desconocido. (JS2S.s273)	Concern
2.	The light switch, called the " promoter, " consists of genetic material that is attached to the **insecticide gene** prior to insertion. (JS2E.s293)	El interruptor, llamado " promotor ", consiste en una cantidad de material genético que se adhiere al **gen insecticida** antes de que éste sea introducido. (JS2S.s278)	Neutral
3.	Instead of promoting an **insecticide gene** as was intended, it may now be switching on a virus. (JS2E.s343)	En lugar de promover el **gen insecticida** como se pretende puede llegar a convertirse en un virus. (JS2S.s324)	Concern (-)
4.	A patent has been taken out in Europe by the American company Mycogen, which covers the insertion of " any **insecticidal gene** in any plant ". (LA4E.s39)	La empresa estadounidense Mycogen ha obtenido una patente en Europa que cubre la inserción de " cualquier **gen con propiedades insecticidas** en cualquier planta ". (LA4S.s38)	Neutral
5.	In 1998, ten percent of corn in North America had a built-in Bt gene, thirty-five percent of cotton was insect resistant, and the University of Guelph estimated that twenty percent of potatoes grown in Canada were outfitted with a **bug-proof gene**. (IB2E.s226)	En 1998, el diez por ciento del maíz de Norteamérica tenía ya incorporado un gen del Bacillus thuringiensis, el treinta y cinco por ciento del algodón era resistente a los insectos y la universidad de Guelph estimaba que el veinte por ciento de las patatas que se cosechaban en Canadá habían sido manipuladas con un **gen insecticida**. (IB2S.s225)	Neutral
	4) *Roundup Ready* gene/s (4)		
1.	The label on my ill-gotten beans says: **Roundup Ready Gene**. (BL1E.s418)	La etiqueta de mis semillas mal adquiridas dice: **Roundup Ready Gene**. (BL1S.s413)	Concern
2.	At least two research projects were virtually service jobs for the private sector: one molecular geneticist was essentially working for Monsanto to insert the company 's **Roundup Ready gene** into several varieties of soybeans that are favored in the Ontario marketplace ; another research team, bankrolled by a private vineyard, was attempting to engineer greater cola tolerance into several grape varieties grown in the Niagara peninsula. (IB10E.s66)	Al menos dos proyectos de investigación eran prácticamente prestaciones de servicios al sector privado: un especialista en genética molecular trabajaba exclusivamente para Monsanto, insertando los **genes Roundup Ready** de la compañía en distintas variedades de soja que son muy solicitadas en los mercados de Ontario ; otro equipo de investigación, financiado por una empresa viticultora privada, trataba de hacer más resistentes al frío diversas variedades de uva que crecen en la península del Niágara. (IB10S.s65)	Neutral
3.	A year later, a team of Belgian scientists published their surprising discovery that adjacent to one of those rogue inserted gene fragments was a sequence of DNA - 534 bases- that was not part of the **Roundup gene** and was not natural	Un año después, un equipo de científicos belgas publicó un descubrimiento sorprendente: junto a uno de los fragmentos de gen aislado que habían sido injertados había una secuencia de ADN - 534 bases- que no formaba parte del **gen Roundup** y que tampoco era ADN de soja	Concern

	soybean DNA either. (JS2E.s466)	natural. (JS2S.s438)	
4.	They examined Roundup Ready seeds and natural ones, careful to use isogenic varieties - meaning the two had the same parents, so to speak, the only difference being that the genetically modified variety also had **Roundup Ready genes**. (JS7E.s358)	Examinaron semillas Roundup Ready y semillas naturales cuidándose de utilizar variedades isogénicas, es decir, procedentes de los mismos progenitores, de manera que la única diferencia estribara en que la variedad genéticamente modificada tuviese también **genes Roundup Ready**. (JS7S.s330)	Concern
	5) *Modified* gene/s (4)		
1.	Researchers cannot predict where on a chromosome the **modified gene** might land, raising the possibility of inadvertently disrupting other cellular functions. (JR4E.s226)	Los investigadores no pueden predecir dónde caerá en un cromosoma el **gen modificado** ; es posible por eso que se alteren, sin saberlo, otras funciones celulares. (JR4S.s224)	Concern
2.	Even if a **modified gene** makes it to the desired location, there is no guarantee that it will express itself once there. (JR4E.s227)	Incluso aunque un **gen modificado** se situase donde se deseaba, no estaría garantizado que se expresase una vez allí. (JR4S.s225)	Neutral
3.	As in other animals, insertion of **modified genes** into a patient 's chromosomes is random. (JR4E.s225)	Como en los demás animales, la inserción de **genes modificados** en los cromosomas de un paciente es aleatoria. (JR4S.s223)	Neutral
4.	These studies suggest that where there are weedy (and non-weedy) species of plant related to transgenic crops, there could be a rapid transfer of **modified genes** between the two. (LA2E.s144)	Estos estudios sugieren que, donde hay malas hierbas (y otras malezas) de especies de plantas relacionadas con cultivos transgénicos, puede haber una rápida transferencia de **genes modificados** entre las dos especies. (LA2S.s144)	Neutral
	6) *Engineered* gene/s (2)		
1.	François Rey, a twenty-year-old political scientist and the group 's youngest member, declares that the citizens believe that gene-altered crops pose little risk to the environment with one exception ; the " marker genes " for antibiotic resistance built in to tell if the newly **engineered genes** take hold. (BL13E.s239)	François Rey, un científico político de 20 años y el miembro más joven del grupo, declara que los ciudadanos piensan que los cultivos alterados genéticamente suponen un escaso riesgo para el medio ambiente, con una excepción: los " genes marcadores " generadores de la resistencia antibiótica incorporados para saber si los **genes** recién **modificados** son viables. (BL13S.s237)	Concern
2.	At the very heart of the issue of patentability is the question of whether **engineered genes**, cells, tissues, organs, and whole organisms are truly human inventions or merely discoveries of nature that have been skillfully modified by human beings. (JR2E.s126)	En el centro mismo del problema de qué puede ser patentado está la pregunta de si los **genes**, células, tejidos, órganos y organismos enteros **sometidos a ingeniería genética** son verdaderamente invenciones humanas, o sólo descubrimientos de la naturaleza que los seres humanos han modificado con habilidad. (JR2S.s125)	Concern
	7) *Altered* gene/s (2)		
1.	Soybeans from many fields are mingled at grain elevators for wholesaling, so the shipments reaching Europe in November stood a good chance of containing beans with the newly **altered genes**. (BL12E.s74)	Las semillas de soja procedentes de muchos campos se mezclan en los elevadores de grano para su venta al mayor, de modo que los cargamentos que llegaron a Europa en noviembre tenían bastantes posibilidades de contener semillas con los **genes** recién **alterados**. (BL12S.s74)	Concern
2.	Similarly, in medicine, we noted in	De manera similar, en la medicina, como hemos	Favorable

	Chapters One and Four that molecular biologists are fixing their attention on somatic gene surgery, pumping **altered genes** into the patient to " correct " disorders and arrest the progress of disease. (JR8E.s21)	mencionado en los capítulos 1 y 4, los biólogos moleculares fijan su atención en la cirugía genética somática, e introducen **genes alterados** en el paciente para " corregir " las anomalías y detener el progreso de la enfermedad. (JR8S.s20)	
	8) *Terminator* gene/s (2)		
1.	Soon after, Monsanto bought Delta & ; Pine Land and its **Terminator gene**. (IB3E.s235)	Poco después, Monsanto compró Delta & ; Pine Land y su **gen Terminator**. (IB3S.s232)	Neutral
2.	Time magazine spread its report over two pages with " The Suicide Seeds " in big, bold type over this teaser: " **Terminator genes** could mean big biotech bucks - but big trouble, too, as a grass-roots protest breaks out on the Net. " (BL7E.s185)	La revista Time publicó un informe de dos páginas donde se podía leer un titular en negritas, " Semillas suicidas ", justo encima de la frase: " Los **genes Terminator** podrían suponer grandes beneficios para los biotecnólogos, pero también grandes problemas, como demuestra la avalancha de protestas en Internet ". (BL7S.s183)	Unfavorable
	9) *Genetically engineered* gene (1)		
1.	Even in field tests, the **genetically engineered gene** had killed only 80 percent of the bollworms. (JR3E.s251)	Hasta en las pruebas de campo, el **gen sometido a la ingeniería genética** había matado sólo el 80 por 100 de los gusanos del algodón. (JR3S.s251)	Concern (English)/ Unfavorable (Spanish)
	10) *GM* genes (1)		
1.	Ewen is concerned that those who have impaired digestion as a result of even common stomach infections might be more at risk from intact **GM genes** and would be vulnerable to the CaMV promoter 's growth factor effect. (JS2E.s360)	A Ewen le preocupa que las personas que tienen problemas de digestión debidos a infecciones estomacales que pueden ser de carácter leve corran un mayor riesgo de ser atacadas por los **genes GM** y sean más vulnerables al efecto factor de crecimiento del promotor CaMV. (JS2S.s338)	Concern (-)
	11) *Pesticide* gene (1)		
1.	It seems the cotton plants did not express the **pesticide gene** as effectively as had been hoped. (IB6E.s191)	Era evidente que el **gen pesticida** no parecía actuar en las plantas de algodón con la eficacia esperada. (IB6S.s192)	Concern

Table 8.16: *ST-TT pairs of denominative variants for 'Adj + N (gene/s)' (soc corpus).*

Denominative variants of *Adj + N (Food/s)* in the *sci corpus*			
#	*English*	*Spanish*	**SP**
1) *Genetically modified* food/s (91)			
1.	Because trace is so important to American agriculture and the US food industry, it is imperative that polio and regulations governing international commerce of **genetically modified food** and agricultural products are based on sound science and not just emotion which often turns into pure hyperbole. (MH2E.s181)	Debido a que el comercio es tan importante para la agricultura norteamericana y para la industria de alimentos de Estados Unidos, es imperativo que la política y las regulaciones que gobiernan el comercio de **alimentos** y productos agrícolas **genéticamente modificados** estén basados en ciencia sólida y no mera emoción que a menudo se torna en pura hipérbole. (MH2S.s182)	Concern
2.	**T MH8**Eight PERILS AMID THE PROMISES OF **GENETICALLY MODIFIED FOOD**. (MH8E.s1)	8. Los peligros ocultos detrás de las promesas de los **alimentos genéticamente modificados**. (MH8S.s1)	Unfavorable
3.	Can **genetically modified food** feed the world? (MH8E.s17)	¿Pueden los **alimentos genéticamente modificados** alimentar al mundo? (MH8S.s17)	Concern
4.	EAT YOUR GENES: How **Genetically Modified Food** Is Entering Our Diet. (SN1E.s2)	COME TUS GENES. (SN1S.s2) Como los **alimentos transgénicos** están en nuestra dieta. (SN1S.s3)	Concern
5.	Eat Your Genes explains how and why **genetically modified food** suddenly became part of our diet. (SN1E.s31)	Come tus genes explica cómo y por qué los **alimentos transgénicos** se han introducido repentinamente en nuestra dieta. (SN1S.s31)	Concern
6.	Some ethical and moral concerns relating to **genetically modified food** are raised in Chapter 9. (SN1E.s248)	En el capítulo 9 se plantean algunas cuestiones éticas y morales que suscitan los **alimentos transgénicos**. (SN1S.s238)	Concern
7.	The request was rejected, and milk from rBST-treated herds may again be unlabelled after the moratorium on its use in Europe ends in 1999, despite stricter requirements for labelling being imposed in 1997 (see Chapter 13), as it may fall outside the definition of a **genetically modified food**. (SN3E.s110)	La petición fue rechazada ; de modo que tal vez vuelva a circular por Europa leche de rebaños tratados con STBr sin etiquetar cuando finalice la moratoria que impide su uso en 1999, a pesar de la normativa más estricta en materia de etiquetado que se impuso en 1997 (véase el capítulo 13), ya que puede ocurrir que no entre en la definición de **alimento modificado genéticamente**. (SN3S.s109)	Neutral (Regulation)
8.	This was the first clearance of an unprocessed **genetically modified food** anywhere in Europe. (SN6E.s40)	Fue la primera autorización que recibió un **alimento transgénico** no procesado en toda Europa. (SN6S.s42)	Neutral
9.	This " fear of Europe being left behind " is a common argument used by those promoting genetic engineering, and will also be met in the debate on marketing approvals for **genetically modified food**. (SN10E.s54)	Este " miedo a que Europa se quede atrás " es un argumento muy frecuente que emplean quienes promueven el uso de la ingeniería genética y también está presente en el debate sobre los permisos de comercialización de **alimentos transgénicos**. (SN10S.s54)	Favorable
10.	**T SN12**12. Marketing approval for **genetically modified food** in Europe. (SN12E.s1)	CAPÍTULO 12. AUTORIZACIÓN PARA COMERCIALIZAR **ALIMENTOS TRANSGÉNICOS** EN EUROPA. (SN12S.s1)	Neutral (Regulation)
11.	By the time the crop arrived in November 1996, however, public opinion was hardening against **genetically modified food** in many European countries. (SN12E.s81)	Sin embargo, cuando llegó el cultivo en noviembre de 1996, se recrudecieron las protestas de la opinión pública contra los **alimentos transgénicos** en muchos países europeos. (SN12S.s79)	Unfavorable

12.	Polls in Austria during the early part of 1997 revealed that around 85 per cent to go per cent of the population supported a referendum on the issue of **genetically modified food**. (SN12E.s174)	Las encuestas realizadas en Austria durante los primeros meses de 1997 revelaron que entre el 85 y el 90 %, de la población apoyaba la celebración de un referendo sobre la cuestión de los **alimentos transgénicos**. (SN12S.s172)	Neutral (Regulation)
13.	The government at the time, a coalition between the centre-left Social Democrats and the centre-right Austrian Popular Party, discussed the specific demands arising from the referendum. (SN12E.s179) These demands included a ban on the production of **genetically modified food** in Austria, a moratorium on field-testing of transgenic crops and a ban on imports of transgenic soya. (SN12E.s180)	El gobierno de la época, una coalición entre los socialdemócratas, de centro-izquierda, y el Partido Popular austríaco, de centroderecha, estudió las demandas específicas surgidas del referendo, entre las que cabe destacar la prohibición de producir **alimentos transgénicos** en Austria, una moratoria para las pruebas de campo de cultivos transgénicos y la prohibición de importaciones de soja transgénica. (SN12S.s177)	Unfavorable
14.	Green groups were rightly concerned when the European Commission (EC) sought to bypass five (out of six) key amendments passed by the European Parliament in legislation on the labelling of **genetically modified food**. (SN13E.s82)	Los grupos ecologistas se mostraron preocupados, y con razón, cuando la Comisión Europea (CE) trató de evitar cinco (de un total de seis) enmiendas clave aprobadas por el Parlamento Europeo en la legislación sobre el etiquetado de los **alimentos transgénicos**. (SN13S.s82)	Concern (-)
15.	Most UK supermarkets appear not to be opposed to **genetically modified food** in principle, but say they would like to offer customers a choice by providing guaranteed non-genetically modified produce. (SN13E.s125)	Muchos supermercados del Reino Unido no parecen oponerse, en principio, a los **alimentos transgénicos**, pero afirman que desean dar una alternativa a los consumidores ofreciendo productos con garantía de no estar modificados. (SN13S.s125)	Neutral
16.	Multinational companies benefit in a number of ways from the development and sale of **genetically modified food**. (SN15E.s10)	A las multinacionales les beneficia de varias maneras el desarrollo y la venta de **alimentos transgénicos**. (SN15S.s10)	Favorable
17.	The question may be whether consumers consider that these modifications provide sufficient benefits to overcome their initial resistance to **genetically modified food**. (SN15E.s58)	La cuestión será ver si los consumidores consideran que estas modificaciones reportan suficientes beneficios como para superar su resistencia inicial a los **alimentos transgénicos**. (SN15S.s58)	Concern (-)
18.	Even if risk could be estimated from scientific data, it is likely to be at odds with the public 's perception of the risks regarding **genetically modified food**. (SN15E.s67)	Aunque fuera posible evaluar el riesgo a partir de datos científicos, puede ocurrir que no concuerde con la impresión que tiene el público sobre los riesgos relacionados con los **alimentos transgénicos**. (SN15S.s67)	Concern (-)
19.	The selling of **genetically modified food** using a simple view of genetic processes therefore misleads consumers about the potential health and ecological risks of the technology. (SN15E.s132)	Por consiguiente, la venta de **alimentos transgénicos** basada en recurrir a una visión simplista de los procesos genéticos supone engañar a los consumidores con respecto a los posibles riesgos de la tecnología para la salud y el medio ambiente. (SN15S.s131)	Concern (-)
20.	However, the food industry is now fighting back to try to reassure the public of the safety of **genetically modified food**. (SN15E.s148)	Sin embargo, actualmente la industria alimentaria está contraatacando para tranquilizar a la opinión pública sobre la seguridad de los **alimentos transgénicos**. (SN15S.s147)	Concern
21.	Attitudes expressed in opinion polls might not always correspond to behaviour - for example, an expression of disapproval of **genetically modified food** may not	Puede ocurrir que las posturas expresadas en las encuestas no siempre se correspondan con el comportamiento ; por ejemplo, una expresión de desaprobación con respecto a los **alimentos**	Concern

	correspond to how foods are chosen in a supermarket. (SN15E.s183)	**transgénicos** puede no corresponderse con el modo de escoger los productos en el supermercado. (SN15S.s182)	
22.	A range of other polls around Europe have also shown a large degree of public opposition to **genetically modified food**. (SN15E.s195) Public opposition is also growing in other areas of the world. (SN15E.s196)	Varias encuestas más en toda Europa también revelaron un alto grado de oposición a los **alimentos transgénicos** por parte de la opinión pública, una oposición que también está creciendo en otras zonas del mundo. (SN15S.s194)	Unfavorable
23.	The growing opposition to **genetically modified food** can be seen as part of a wider concern about modern farming practices and food production methods. (SN15E.s202)	La creciente oposición a los **alimentos transgénicos** puede verse como parte de una preocupación más amplia por las prácticas agrícolas modernas y los métodos de producción alimentaria. (SN15S.s199)	Unfavorable
24.	**Genetically modified foods** were earlier rejected also by a lay people 's consultation in Norway, and by 95 per cent of consumers in Germany. (MH1E.s177)	Anteriormente los **alimentos genéticamente modificados** habían sido rechazados por una consulta pública no oficial en Noruega y por el 95 % de los consumidores en Alemania. (MH1S.s177)	Unfavorable
25.	The arguments for and against the mandatory labelling of **genetically modified foods** are summarized in Chapter 13. (SN1E.s309)	En el capítulo 13 se sintetizan los argumentos a favor y en contra del etiquetado obligatorio de los **alimentos transgénicos**. (SN1S.s297)	Concern
26.	**Genetically modified foods** have, therefore, quickly become part of our diet. (SN1E.s617)	Por lo tanto, los **alimentos transgénicos** no han tardado en introducirse en nuestra dieta. (SN1S.s601)	Neutral
27.	The emphasis will be on crop plants that have been used in **genetically modified foods**. (SN2E.s5)	Se hará un especial hincapié en los cultivos utilizados en la elaboración de **alimentos transgénicos**. (SN2S.s6)	Neutral
28.	**Genetically modified foods** are unlikely to present direct risks to human health. (SN8E.s2)	Es poco probable que los **alimentos transgénicos** planteen riesgos directos para la salud humana. (SN8S.s3)	Concern
29.	There have been two main areas of concern: a) the possibility of allergic reactions to **genetically modified foods**, and b) the possibility that bacteria living in the human gut may acquire resistance to antibiotics from marker genes present in transgenic plants. (SN8E.s4)	Existen dos ámbitos principales que suscitan preocupación: en primer lugar, la posibilidad de reacciones alérgicas a los **alimentos transgénicos** ; y, en segundo lugar, la posibilidad de que las bacterias del intestino humano adquieran resistencia a los antibióticos a partir de genes marcadores presentes en las plantas transgénicas. (SN8S.s5)	Concern (-)
30.	This ruling would enable further problems like the transfer of the gene from brazil nut to be identified ; but it does not apply to most **genetically modified foods**. (SN8E.s29)	Esta decisión posibilitaría la aparición de más problemas, como que se identificara la transferencia del gen de la nuez de Brasil ; pero no se aplica a la mayor parte de **alimentos transgénicos**. (SN8S.s30)	Concern (-)
31.	Different **genetically modified foods** are likely to carry different risks of spreading antibiotic resistance. (SN8E.s71)	Es probable que los distintos **alimentos transgénicos** lleven aparejados distintos riesgos de propagación de la resistencia a los antibióticos. (SN8S.s70)	Concern (-)
32.	Consumers may have particular ethical objections to **genetically modified foods**. (SN9E.s5)	Es posible que los consumidores pongan objeciones éticas particulares a los **alimentos transgénicos**. (SN9S.s6)	Concern (-)
33.	However, the committee 's guidelines aimed	Sin embargo, las directrices del comité tenían	Concern

	to identify any " moral taint " that might be attached to **genetically modified foods**. (SN9E.s13)	por objetivo identificar cualquier " tacha moral " que pudiera relacionarse con los **alimentos transgénicos**. (SN9S.s14)	
34.	The US government intends to use the WTO to declare illegal any bans on **genetically modified foods** exported from the USA that have equivalent composition to non-modified foods. (SN10E.s217)	El gobierno estadounidense trata de utilizar la OMC para declarar ilegal cualquier prohibición relativa a **alimentos transgénicos** exportados de Estados Unidos con una composición equivalente a la de los alimentos no modificados. (SN10S.s213)	Concern (-)
35.	This could be exploited by multinationals wanting to develop or market **genetically modified foods** that for some reason are restricted by regulations in industrialized countries (see Chapter 14). (SN11E.s15)	Esta circunstancia podrían aprovecharla las multinacionales que quisieran desarrollar o comercializar **alimentos transgénicos** que, por alguna razón, estuvieran prohibidos por las legislaciones de los países industrializados (véase el capítulo 14). (SN11S.s15)	Concern
36.	An additional set of safeguards applies to **genetically modified foods**. (SN11E.s98)	A los **organismos modificados genéticamente** se les aplica un conjunto adicional de medidas preventivas. (SN11S.s98)	Concern
37.	The FAC then issues labelling guidelines for **genetically modified foods**. (SN11E.s105)	El FAC elabora, entonces, directrices sobre el etiquetado de los **alimentos transgénicos**. (SN11S.s105)	Neutral (Regulation)
38.	**Genetically modified foods** and food ingredients approved in the UK include modified baker 's yeast, enzymes for cheese production produced in transgenic yeast and bacteria, paste from transgenic tomatoes, soya from herbicide-resistant soybeans, oil from transgenic oilseed rape, maize from insect-resistant varieties, and tomatoes to be eaten fresh. (SN11E.s109)	Entre los **alimentos** e ingredientes alimentarios **transgénicos** autorizados en el Reino Unido se incluyen las levaduras modificadas, las enzimas para la elaboración de queso producidas en la levadura y las bacterias transgénicas, el concentrado de tomates transgénicos, la soja de plantas resistentes a los herbicidas, el aceite de colza transgénica, el maíz de variedades resistentes a los herbicidas y el tomate para consumir fresco. (SN11S.s109)	Neutral
39.	The marketing approval for **genetically modified foods** in Europe is the subject of the next chapter. (SN11E.s112)**/T**	La autorización para comercializar **alimentos transgénicos** en Europa es el tema que se aborda en el siguiente capítulo. (SN11S.s112)	Neutral (Regulation)
40.	Marketing approvals sought for **genetically modified foods** have predominantly been for ingredients of processed foods. (SN12E.s2)	Las autorizaciones para comercializar **alimentos transgénicos** han sido, en su mayoría, para ingredientes de alimentos procesados. (SN12S.s2)	Neutral (Regulation)
41.	With a significant number of consumers refusing to buy products containing **genetically modified foods**, it makes economic sense in certain countries to supply alternatives. (SN12E.s69)	Con un considerable número de consumidores que se niega a adquirir productos que contengan **alimentos transgénicos**, parece conveniente, desde el punto de vista económico, aportar alternativas en determinados países. (SN12S.s67)	Unfavorable
42.	In a MORI poll, commissioned by Greenpeace and conducted in five European countries, 59 per cent of people were opposed to the development and introduction of **genetically modified foods**, with only 22 per cent being in favor, and 67 per cent saying they would not be happy eating such foods. (SN12E.s165)	En una encuesta MORI, encargada por Greenpeace y realizada en cinco países europeos, el 59 % de los entrevistados se mostró contrario al desarrollo y la introducción de **alimentos transgénicos**, con sólo un 22 % a favor, y el 67 % afirmó que no le gustaría consumir este tipo de alimentos. (SN12S.s163)	Unfavorable
43.	Germany and Austria, two countries not included in the MORI poll, have the highest	Alemania y Austria, dos países no incluidos en la encuesta MORI, presentan los mayores	Unfavorable

	levels of opposition to **genetically modified foods** in Europe. (SN12E.s169)	niveles de oposición a los **alimentos transgénicos** de toda Europa. (SN12S.s167)	
44.	In early 1997, Germany witnessed major public demonstrations against nuclear power and the cloning of animals, as well as against **genetically modified foods**. (SN12E.s170)	A principios de 1997, Alemania fue testigo de importantes manifestaciones públicas contrarias a la energía nuclear y la clonación de animales, como también contrarias a **los alimentos transgénicos**. (SN12S.s168)	Unfavorable
45.	A poll in Germany, conducted by the GfK Institute, showed that 80 per cent of the population did not want to eat **genetically modified foods**. " (SN12E.s172)	Una encuesta llevada a cabo en Alemania, realizada por el Instituto GfK, reveló que el 80 % de la población no quería consumir **alimentos transgénicos** (véase la nota 10). (SN12S.s170)	Unfavorable
46.	Two-thirds of supermarkets in the country pledged not to stock **genetically modified foods**, and the two most popular newspapers in Austria campaigned daily in support of bans on genetically modified foods. (SN12E.s175)	Dos tercios de los supermercados del país se comprometieron a no ofrecer existencias de **alimentos transgénicos** y, a diario, los dos periódicos más populares del país hacían campaña apoyando la prohibición de este tipo de alimentos. (SN12S.s173)	Unfavorable
47.	The food industry has resisted the labelling of most **genetically modified foods**, on the basis that these foods are equivalent to foods produced with non-modified ingredients. (SN13E.s3)	La industria alimentaria se ha opuesto al etiquetado de casi todos los **alimentos transgénicos**, esgrimiendo que son equivalentes a los alimentos producidos con ingredientes no modificados. (SN13S.s3)	Favorable
48.	In this chapter, the arguments for and against the mandatory labelling of all **genetically modified food s**are examined, and the development of labelling legislation in Europe is described. (SN13E.s4)	En este capítulo, se examinan los argumentos a favor y en contra del etiquetado obligatorio de todos los **alimentos transgénicos** y se describe el desarrollo de la legislación europea en materia de etiquetado. (SN13S.s4)	Neutral (Regulation)
49.	The first **genetically modified foods** sold in the UK were tomato purée and vegetarian cheese. (SN13E.s24)	Los primeros **alimentos transgénicos** que se vendieron en el Reino Unido fueron concentrado de tomate y queso vegetariano. (SN13S.s24)	Neutral
50.	Labels could, therefore, unjustly stigmatize **genetically modified foods**. (SN13E.s39)	Por consiguiente, las etiquetas podrían estigmatizar de forma injusta los **alimentos transgénicos**. (SN13S.s39)	Concern (-)
51.	For mandatory labelling to be effective, **genetically modified foods** would need to be segregated at an early stage. (SN13E.s45)	Para que el etiquetado obligatorio resulte eficaz, sería necesario diferenciar los **alimentos transgénicos** en una fase inicial. (SN13S.s45)	Neutral
52.	Mandatory labelling might also jeopardize the continued development of **genetically modified foods** because of initial consumer resistance. (SN13E.s53)	El etiquetado obligatorio también podría poner en peligro el desarrollo continuado de los **alimentos transgénicos** por la resistencia inicial del consumidor. (SN13S.s53)	Concern
53.	Therefore, they argue, all **genetically modified foods** should be labelled so that the public can make informed purchasing decisions. (SN13E.s60)	Por consiguiente, sostienen que todos los **alimentos transgénicos** deberían estar etiquetados para que el público pudiera tomar decisiones sobre su adquisición con conocimiento de causa. (SN13S.s60)	Concern
54.	**Genetically modified foods** may also contain the antibiotic resistance genes, used as selectable markers, which, although not affecting the nutritional composition of foods, may be of concern. (SN13E.s67)	Los **alimentos modificados** también pueden contener genes de resistencia a los antibióticos, empleados como genes marcadores, que si bien no afectan a la composición nutricional de los alimentos, pueden suscitar preocupación. (SN13S.s67)	Concern

55.	Calls for clear and meaningful labelling of **genetically modified foods** gathered support through the 1990s. (SN13E.s70)	Los llamamientos a favor de un etiquetado claro y coherente de los **productos transgénicos** fueron ganando apoyos durante la década de 1990. (SN13S.s70)	Concern
56.	In the USA, the Foundation on Economic Trends, and its director Jeremy Rifkin, have been particularly active in mobilizing opposition to **genetically modified foods**. (SN13E.s74)	En Estados Unidos, la Foundation on Economic Trends, una fundación que estudia las tendencias económicas actuales, y su director, Jeremy Rifkin, desempeñaron un papel especialmente activo en la movilización de la oposición a los **alimentos transgénicos**. (SN13S.s74)	Unfavorable
57.	As with the decision to approve **genetically modified foods** for the European market, a major factor in the EC 's reluctance to accept labelling was that it might trigger a trade war with the USA. (SN13E.s84)	Igual que sucedió con la decisión de autorizar los **alimentos transgénicos** en el mercado europeo, un importante factor en la reticencia de la CE a aceptar el etiquetado fue el temor a que se desencadenara una guerra comercial con Estados Unidos. (SN13S.s84)	Concern
58.	By the end of 1996, Germany, Austria, Denmark and Sweden sup ported full labelling of all **genetically modified foods**. (SN13E.s95)	A finales de 1996, Alemania, Austria, Dinamarca y Suecia apoyaron el etiquetado completo de todos los **alimentos transgénicos**. (SN13S.s95)	Concern
59.	Applicants would have to submit a label for consideration for **genetically modified foods** in the above categories. (SN13E.s101)	Los solicitantes estaban obligados a presentar una etiqueta para los **alimentos transgénicos** de las categorías anteriores, para que fuera sometida a consideración. (SN13S.s101)	Neutral (Regulation)
60.	In late 1996, the Iceland and Co-op retail groups were supporting consumer calls for full labelling of **genetically modified foods**. (SN13E.s124)	A finales de 1996, los grupos de minoristas Iceland y Co-op estuvieron apoyando las peticiones de los consumidores a favor de un etiquetado completo de los **alimentos transgénicos**. (SN13S.s124)	Concern
61.	In response to these initiatives, the EC stated that member states could impose national labelling laws for **genetically modified foods**. (SN13E.s136)	Como respuesta a estas iniciativas, la CE declaró que los Estados miembros podían imponer leyes nacionales sobre etiquetado para los **alimentos transgénicos**. (SN13S.s136)	Concern
62.	The EC hardened its attitude on labelling during June and July 1997, in response to mounting pressure from member states and consumer groups, when it adopted new rules requiring the mandatory labelling of all **genetically modified foods**. (SN13E.s144)	La CE endureció su postura respecto al etiquetado durante junio y julio de 1997, como respuesta a la creciente presión de los Estados miembros y los grupos de consumidores, cuando adoptó nuevas normas que exigían el etiquetado obligatorio de todos los **alimentos transgénicos**. (SN13S.s144)	Concern
63.	Even if multinationals, the WTO and free trade agreements ultimately thwart mandatory labelling of all **genetically modified foods**, recent events have shown that a clear market exists for foods that can be labelled as guaranteed free of genetically modified ingredients or that have been made without the use of genetic engineering. (SN13E.s167)	Aunque las multinacionales, la OMC y los tratados de libre comercio acaben frustrando el etiquetado obligatorio de todos los **alimentos transgénicos**, los recientes acontecimientos han demostrado que existe un mercado claro para los alimentos que garantizan en su etiqueta que están libres de ingredientes transgénicos o que se han elaborado sin recurrir a la ingeniería genética. (SN13S.s167)	Concern
64.	Meanwhile, retailers around Europe started to extend their voluntary labelling of **genetically modified foods**. (SN13E.s180)	Entretanto, minoristas de toda Europa empezaron a ampliar el etiquetado voluntario de **alimentos transgénicos**. (SN13S.s180)	Neutral (Regulation)
65.	Mandatory labelling of **genetically**	Ha sido posible acordar el etiquetado	Concern

	modified foods has been agreed, at least in Europe, thanks to sustained consumer and political pressure, while retailers are starting to obtain alternative supplies of commodity crops for customers who do not want food made with genetically engineered ingredients. (SN13E.s182)	obligatorio de los **alimentos transgénicos**, en Europa por lo menos, gracias a la continuada presión de políticos y consumidores, mientras que los minoristas están empezando a obtener remesas alternativas de cultivos de consumo para los clientes que no quieren alimentos elaborados con ingredientes modificados genéticamente. (SN13S.s182)	
66.	Consumers everywhere will be presented with the same potential health risks (see Chapter 8) and the same reluctance to label **genetically modified foods** (see Chapter 13). (SN14E.s4)	Los consumidores de todo el mundo se verán enfrentados a los mismos riesgos potenciales para la salud (véase el capítulo 8) y a las mismas reticencias ante el etiquetado de los **alimentos transgénicos** (véase el capítulo 13). (SN14S.s3)	Concern (-)
67.	Miraculin is not in itself sweet, but has potential in **genetically modified foods** because of its effect on the taste receptors in turning sour tastes to sweet - for example, lemon tastes of orange. (SN14E.s217)	La miraculina no es dulce en sí misma, pero muestra gran potencial en los **alimentos transgénicos** por su efecto en los receptores del gusto, al lograr que los sabores agrios adquieran un sabor dulce ; por ejemplo, consigue que el limón sepa a naranja. (SN14S.s212)	Neutral
68.	**T SN15**15. Prospects for **genetically modified foods**. (SN15E.s1)	CAPÍTULO 15. EL FUTURO DE LOS **ALIMENTOS TRANSGÉNICOS**. (SN15S.s1)	Neutral
69.	If opinion polls are to be believed, consumers are becoming increasingly suspicious of **genetically modified foods**. (SN15E.s2)	De creer los sondeos de opinión, los consumidores cada vez desconfían más de los **alimentos transgénicos**. (SN15S.s2)	Unfavorable
70.	To understand how **genetically modified foods** so quickly became part of our diet, it is instructive to summarize who benefits from them. (SN15E.s7)	Para entender cómo los **alimentos transgénicos** se han introducido tan rápidamente en nuestra dieta, resulta instructivo resumir quién se beneficia de ellos. (SN15S.s7)	Favorable
71.	These **genetically modified foods** will be heavily marketed and their novelty value may ensure healthy profits, in the short term at least. (SN15E.s54)	Estos **alimentos transgénicos** se comercializarán de forma intensa y su novedad puede garantizar pingües beneficios, por lo menos a corto plazo. (SN15S.s54)	Favorable
72.	The general public 's acceptance of **genetically modified foods** may rest on a perception of risks and benefits. (SN15E.s60)	La aceptación de los **alimentos transgénicos** por parte del público en general puede verse determinada por la percepción de los riesgos y beneficios que comportan. (SN15S.s60)	Concern
73.	A number of risks associated with **genetically modified foods** have been identified, including the spread of transgenes in the environment (see Chapter 7) and the potential development of antibiotic resistance in bacteria living in the human gut (see Chapter 8). (SN15E.s69)	Se han identificado varios riesgos asociados con los **alimentos transgénicos**, entre los que se incluye la propagación de transgenes en el medio ambiente (véase el capítulo 7) y el posible desarrollo de resistencia a los antibióticos en las bacterias del intestino humano (véase el capítulo 8). (SN15S.s69)	Unfavorable
74.	A number of consumer groups are worried about the lack of independent assessment of company data submitted for marketing approval of **genetically modified foods**. (SN15E.s94)	Varios grupos de consumidores se muestran preocupados por la falta de evaluación independiente que supervise los datos presentados por las compañías para obtener el permiso de comercialización de los **alimentos transgénicos**. (SN15S.s94)	Concern (-)
75.	However, these perfectly rational consumers who will, when confronted with the food	Sin embargo, tal vez no existan estos consumidores perfectamente racionales que, al	Concern

	industry 's facts and logic, be won over to the cause of **genetically modified foods**, may not exist. (SN15E.s107)	enfrentarse con los datos y la lógica de la industria alimentaria, acaban uniéndose a la causa de los **alimentos transgénicos**. (SN15S.s106)	
76.	The attempt to claim the moral high ground, by Monsanto and others, because they had science and logic on their side, has clearly done the cause of **genetically modified foods** no favors. (SN15E.s151)	Está claro que el intento por parte de Monsanto y otras compañías de reivindicar que moralmente tienen la razón de su parte ha hecho un flaco favor a la causa de los **alimentos transgénicos**. (SN15S.s150)	Concern (-)
77.	The Food and Drink Federation, which promotes **genetically modified foods**, launched its FoodFuture initiative in 1995 to inform the British public further about genetically modified foods. (SN15E.s154)	En 1995, la Food and Drink Federation, que promueve los **alimentos transgénicos**, puso en marcha la iniciativa FoodFuture, para informar más a la opinión pública británica sobre este tipo de alimentos. (SN15S.s153)	Concern
78.	The biggest industry public relations exercise to date in Europe to promote **genetically modified foods** was initiated in June 1997 with the first public event of EuropaBio, an association of the world 's leading multinationals, biotechnology companies and food companies involved with genetic engineering, including Monsanto, Novartis, AgrEvo, Rhône-Poulenc, Nestlé and Unilever. (SN15E.s156)	La mayor operación de imagen que se ha realizado en Europa hasta el momento para promocionar los **alimentos transgénicos** se inicio en junio de 1997 con el primer acto público de EuropaBio, una asociación que agrupa a las principales multinacionales, compañías biotecnológicas y empresas alimentarias, como Monsanto, Novartis, AgrEvo, Rhône-Poulenc, Nestle y Unilever. (SN15S.s155)	Favorable
79.	EuropaBio initiated a multimillion dollar campaign to change the public 's perception of **genetically modified foods**. (SN15E.s157)	EuropaBio puso en marcha una campaña de varios millones de dólares para cambiar la imagen de los **alimentos transgénicos** que tiene la opinión pública. (SN15S.s156)	Unfavorable
80.	In contrast to the 1995 Food and Drink Federation poll, which concluded that few people were strongly opposed to **genetically modified foods** in the UK, an independent report published in March 1997 by Unilever, the Green Alliance and the University of Lancaster showed a " disturbing degree of latent public unease about genetically modified foods ". (SN15E.s163)	A diferencia de la encuesta realizada por la Food and Drink Federation en 1995, que llegó a la conclusión de que pocas personas se oponían radicalmente a los **alimentos transgénicos** en el Reino Unido, un informe independiente publicado en marzo de 1997 por Unilever, la Green Alliance y la Universidad de Lancaster reveló un " inquietante grado de preocupación latente en la opinión pública por los alimentos transgénicos ". (SN15S.s162)	Concern (-)
81.	In contrast to the 1995 Food and Drink Federation poll, which concluded that few people were strongly opposed to genetically modified foods in the UK, an independent report published in March 1997 by Unilever, the Green Alliance and the University of Lancaster showed a " disturbing degree of latent public unease about **genetically modified foods** ". (SN15E.s163)	A diferencia de la encuesta realizada por la Food and Drink Federation en 1995, que llegó a la conclusión de que pocas personas se oponían radicalmente a los alimentos transgénicos en el Reino Unido, un informe independiente publicado en marzo de 1997 por Unilever, la Green Alliance y la Universidad de Lancaster reveló un " inquietante grado de preocupación latente en la opinión pública por los **alimentos transgénicos** ". (SN15S.s162)	Unfavorable
82.	This report claimed that 86 per cent of the UK population supported the labelling of **genetically modified foods**, while few saw advantages in taste (10 per cent), economics (19 per cent) or healthiness (9 per cent). (SN15E.s164)	El informe aseguraba que el 86 % de la población del Reino Unido estaba a favor del etiquetado de los **alimentos transgénicos**, mientras que pocos encuestados veían ventajas en el sabor (10 %), el aspecto económico (19 %) o su condición de saludables (9 %). (SN15S.s163)	Concern

83.	Opinion polls have been central to the arguments for, but mainly against, **genetically modified foods**. (SN15E.s167)	Los sondeos de opinión han desempeñado un papel esencial para los argumentos a favor, pero sobre todo, para los argumentos en contra de los **alimentos transgénicos**. (SN15S.s166)	Concern (-)
84.	Nevertheless, the companies producing **genetically modified foods** have been keen followers of opinion polls, which give them feedback on the effectiveness of their public relations campaigns. (SN15E.s185)	No obstante, las empresas que producen **alimentos transgénicos** han sido partidarias entusiastas de las encuestas, que les aportan información sobre la efectividad de sus campañas de imagen. (SN15S.s184)	Favorable
85.	Multinationals are therefore having to start listening more carefully to criticisms levelled against them, and are changing their public relations approach to try and restore public confidence in **genetically modified foods**. (SN15E.s187)	En consecuencia, las multinacionales se están viendo obligadas a escuchar con más atención las críticas que se han hecho en su contra y están cambiando el planteamiento en materia de imagen para tratar de devolver a la opinión pública la confianza en los **alimentos transgénicos**. (SN15S.s186)	Unfavorable
86.	For example, a poll by AGB McClair, commissioned by Greenpeace and other environmental groups, found that 60 per cent of New Zealanders were worried about **genetically modified foods**. (SN15E.s199)	Por ejemplo, una encuesta realizada por AGB McClair, a instancias de Greenpeace y otros grupos ecologistas, reveló que el 60 % de los neozelandeses estaban preocupados por los **alimentos transgénicos**. (SN15S.s196)	Concern (-)
87.	**Genetically modified foods** have been caught up in this attitude swing against industrialized agriculture. (SN15E.s204)	Los **alimentos transgénicos** se han visto afectados por este cambio de actitud contrario a la agricultura industrializada. (SN15S.s201)	Unfavorable
88.	**Genetically modified foods** appeared to arrive suddenly on the market, by stealth, and now a bewildering array of such foods are in the development stages. (SN15E.s240)	Parece que los **alimentos transgénicos** llegaron al mercado de forma repentina, sin que nadie lo notara, y ahora hay una apabullante selección de ellos en fase de desarrollo. (SN15S.s237)	Unfavorable
89.	Social policy, meanwhile, has struggled to keep up with the rapid advances made in the production of **genetically modified foods**. (SN15E.s244)	La política social, entretanto, ha luchado para no perder el tren de los rápidos avances que se han hecho en la producción **de alimentos transgénicos**. (SN15S.s241)	Favorable
90.	Society must decide if the benefits of **genetically modified foods** outweigh their risks to the environment or human health - risks that may be relatively small, but are unpredictable and ecologically irreversible. (SN15E.s246)	La sociedad debe decidir si los beneficios de los **alimentos transgénicos** pesan más que los riesgos para el medio ambiente o la salud humana, unos riesgos que pueden ser relativamente bajos, pero que son imprevisibles e irreversibles desde el punto de vista ecológico. (SN15S.s243)	Concern (-)
91.	**Genetically modified foods** are here to stay. (SN15E.s248)	Los **alimentos transgénicos** no son una simple moda pasajera. (SN15S.s245)	Neutral
	2) *GM* food/s (30)		
1.	To the surprise of the multinational corporations backing this technology, however, considerable resistance to **GM food** has developed. (SN1E.s11)	No obstante, para sorpresa de las multinacionales que respaldan el uso de esta tecnología, los **alimentos MG** han suscitado una considerable resistencia. (SN1S.s12)	Concern (-)
2.	The public in Europe, for instance, expressed concerns about health issues and the lack of labelling on **GM food**. (SN1E.s12)	Por ejemplo, la opinión pública europea expresó su preocupación por cuestiones sanitarias y la falta de etiquetado en los **alimentos MG**. (SN1S.s13)	Concern
3.	This resistance resulted in, among other things, national labelling regulations covering **GM food** and the drafting of an	Entre otras cosas, esta resistencia propició la elaboración de normativas nacionales sobre etiquetado que contemplaban los **alimentos MG**	Concern

	international agreement on the biosafety of genetically modified organisms (GMOs). (SN1E.s14)	y la redacción de un acuerdo internacional sobre bioseguridad de los organismos modificados genéticamente (OMG). (SN1S.s15)	
4.	The conflicts surrounding transgenic crops and **GM food** have intensified as we have entered the twenty-first century. (SN1E.s16)	Los conflictos que rodean a los cultivos transgénicos y los **alimentos MG** se han intensificado al entrar en el siglo XX. (SN1S.s17)	Unfavorable
5.	If antibiotic resistance is picked up by livestock from animal feed, and humans from **GM food**, antibiotic treatments could be rendered less effective. (SN1E.s224)	Si el ganado adquiere la resistencia a los antibióticos de los piensos para alimentación animal y los humanos la obtienen de los **alimentos MG**, los tratamientos con antibióticos pueden perder eficacia. (SN1S.s215)	Concern (-)
6.	However, there have been recent proposals to reinforce the field-testing requirements for transgenic crops, and the testing assessments for **GM food**. (SN1E.s278)	Con todo, se han presentado propuestas recientes para endurecer los requisitos relativos a pruebas de campo con cultivos transgénicos y evaluación de las pruebas en el caso de los **alimentos MG**. (SN1S.s267)	Concern (English) / Concern (-) (Spanish)
7.	In the UK, the Department for Environment, Food and Rural Affairs (DEFRA), which replaced the Ministry of Agriculture, Fisheries and Food (MAFF) in 2001, co-ordinates action on GMO releases into the environment, and approvals for the import and marketing of **GM food**, in line with EU Directives. (SN1E.s286)	En el Reino Unido, el Department for Environment, Food and Rural Affairs (DEFRA) [Ministerio de Medio Ambiente, Alimentación y Asuntos Rurales], que sustituyó al Ministry of Agriculture, Fisheries and Food (MAFF) [Ministerio de Agricultura, Pesca y Alimentación] en 2001, coordina las acciones relativas a la liberación de OMG en el medio ambiente y gestiona los permisos de importación y comercialización de **alimentos MG**, de conformidad con las directivas de la UE. (SN1S.s275)	Neutral (Regulation)
8.	The USA regards restrictions on the free flow of **GM food** worldwide as a restriction of its trade. (SN1E.s297) The USA has threatened action, through the WTO, against China, Croatia, Sri Lanka, Thailand, Australia and New Zealand. (SN1E.s298)	Estados Unidos considera las restricciones en la libre circulación de **alimentos MG** por todo el mundo como una limitación a su comercio y, por mediación de la OMC, ha amenazado con emprender acciones contra China, Croacia, Sri Lanka, Tailandia, Australia y Nueva Zelanda. (SN1S.s286)	Concern
9.	The USA is now threatening the EU with action through the WTO over the way it regulates **GM food**. (SN1E.s300) Marketing. (SN1E.s301)	Estados Unidos amenaza ahora a la UE con emprender acciones legales por mediación de la OMC por su manera de regular los **alimentos MG**. (SN1S.s288)	Concern
10.	The post-harvest distribution and marketing of **GM food** in Europe is examined in Chapter 12. (SN1E.s302)	En el capítulo 12 se aborda la distribución y comercialización posterior a la recolección de lo **alimentos MG** en Europa. (SN1S.s290)	Neutral
11.	The USA has viewed the labelling of **GM food** as unreasonable and a barrier to free trade. (SN1E.s312)	Estados Unidos ha juzgado poco razonable el etiquetado de **alimentos MG** y cree que supone una barrera para el libre comercio. (SN1S.s300)	Concern
12.	New and proposed legislation on the marketing and labelling of imported **GM food** in the EU has intensified the conflict over this issue. (SN1E.s315)	La legislación nueva y la que se está proponiendo para regular la comercialización y el etiquetado de los **alimentos MG** importados en la UE ha intensificado el conflicto por esta cuestión. (SN1S.s303)	Concern (-)
13.	The gulf between the USA and the EU over **GM food** has been wide. (SN1E.s320)	En materia de **alimentos MG**, ha existido un gran abismo entre las posiciones de Estados	Concern

		Unidos y la Unión Europea. (SN1S.s308)	
14.	This has been the case even for countries that have imposed bans or restrictions on the import of **GM food**. (SN1E.s357)	Ha sucedido así incluso en países que han impuesto prohibiciones o restricciones a la importación de **alimentos MG**. (SN1S.s344)	Unfavorable
15.	Prospects for **GM food**. (SN1E.s377)	PERSPECTIVAS PARA LOS **ALIMENTOS MG**. (SN1S.s364)	Neutral
16.	However, public unease about genetic engineering, particularly in Europe, has slowed the initial rapid expansion of **GM food** into the marketplace. (SN1E.s379)	Sin embargo, la inquietud de la opinión pública con respecto a la ingeniería genética, sobre todo en Europa, ha retrasado la rápida expansión inicial de los **alimentos MG** en el mercado. (SN1S.s366)	Concern (-)
17.	Regulatory authorities in the USA are now formulating guidelines to facilitate the differentiation of crops and the voluntary labelling of **GM food**. (SN1E.s391)	En la actualidad, las autoridades reguladoras estadounidenses están formulando directrices para facilitar la diferenciación de cultivos y el etiquetado voluntario de **alimentos MG**. (SN1S.s377)	Neutral (Regulation)
18.	It is still envisaged, however, that **GM food** will be the norm in the USA. (SN1E.s392)	Con todo, se sigue previendo que los **alimentos MG** sean lo normal en Estados Unidos. (SN1S.s378)	Neutral
19.	Nevertheless, the public in Europe are choosing organic food and rejecting **GM food**. (SN1E.s400)	No obstante, la opinión pública europea se está decantando por los alimentos orgánicos y está rechazando los **cultivos transgénicos**. (SN1S.s386)	Unfavorable
20.	Governments worldwide should have the power to restrict the cultivation of transgenic crops, and the sale of **GM food**, whenever they consider there to be unacceptable risks. (SN1E.s409)	Los gobiernos de todo el mundo deberían tener potestad para restringir el cultivo de transgénicos y la venta de **alimentos MG**, siempre que consideren que suponen un riesgo inaceptable. (SN1S.s396)	Concern (-)
21.	Where **GM food** is imported, countries should have the option of labelling it, to give concerned citizens a real choice about what they eat and how it is produced. (SN1E.s411)	Asimismo, en el caso de que haya importaciones de **alimentos MG**, los países deberían poder etiquetarlos, para conceder a los ciudadanos preocupados el verdadero derecho a elegir qué comen y cómo se produce. (SN1S.s398)	Concern
22.	Decisions relating to GMOs and **GM food** between 1990 and 2002 were taken under Directive 90/220/EEC on the Voluntary Release of Genetically Modified Organisms into the Environment. (SN12E.s22)	Entre 1990 y 2002, las decisiones relativas a los **alimentos** y organismos **MG** se tomaron con arreglo a la Directiva 90/220/EEC sobre la liberación intencional en el medio ambiente de organismos modificados genéticamente. (SN12S.s21)	Neutral (Regulation)
23.	However, the EU established a moratorium on further approvals for the marketing of **GM food** and transgenic crop seed in 1998. (SN12E.s217)	Sin embargo, la UE impuso una moratoria que impedía más autorizaciones de comercialización de **alimentos MG** y semillas transgénicas en 1998. (SN12S.s214)	Unfavorable
24.	Therefore, no additional **GM food** or GM food ingredients were approved for marketing between 1998 and 2002. (SN12E.s218)	Por consiguiente, entre 1998 y 2002 no se aprobó la comercialización de más **alimentos MG** o ingredientes alimentarios MG. (SN12S.s215)	Unfavorable
25.	**GM foods** in themselves are unlikely to present a major health risk. (SN1E.s230)	Es poco probable que los **alimentos MG** supongan, en sí mismos, un riesgo importante para la salud. (SN1S.s221)	Concern
26.	Therefore, nations that impose bans or restrictions on the import and sale of	Por consiguiente, las naciones que imponen prohibiciones o restricciones en la importación	Favorable

	GM foods risk coming under threat of retaliatory sanctions. (SN1E.s296)	y venta de **alimentos MG** se arriesgan a ser objeto de sanciones como represalia. (SN1S.s285)	
27.	In all these cases, the countries have backed down on imposing restrictions on GM imports or adopting compulsory labelling for **GM foods**. (SN1E.s299)	En todos estos casos, los países amenazados han dado marcha atrás en la imposición de restricciones a las importaciones MG o la adopción de un etiquetado obligatorio en los **alimentos MG**. (SN1S.s287)	Favorable
28.	Consumers in Europe and elsewhere, by contrast, have largely rejected **GM foods**, leading retailers and food processors to seek alternative non-GM supplies of commodity crops. (SN1E.s324)	En cambio, los consumidores de Europa y otras partes del mundo han rechazado ampliamente los **alimentos MG**, lo que ha obligado a minoristas y procesadores de alimentos a buscar suministros alternativos de cultivos de consumo no MG. (SN1S.s312)	Unfavorable
29.	Consumers in some countries appear to be comfortable with **GM foods**, while the public in other countries would like a choice about whether to buy them or not. (SN1E.s385)	Los consumidores de algunos países parecen sentirse cómodos con los **alimentos MG**, mientras que a la opinión pública de otros países le gustaría poder elegir si los compra o no. (SN1S.s371)	Concern
30.	Resistance to **GM foods** in Europe has impacted on American farmers. (SN1E.s387)	La resistencia a los **alimentos MG** en Europa ha afectado a los agricultores estadounidenses. (SN1S.s373)	Concern (-)
	3) *Genetically engineered* food/s (25)		
1.	One of the more outspoken critics in the USA, Jeremy Rifkin of the Washington-based Foundation on Economic Trends, asked to have labelling of the food and pre-market testing of any **genetically engineered food**. (ER8E.s141)	Uno de los críticos más activos, el estadounidense Jeremy Rifkin, de la Fundación sobre Tendencias Económicas, de Washington, ha propuesto que los **alimentos transgénicos** lleven una etiqueta identificativa y que sean sometidos a ensayos rigurosos antes de ponerlos en el mercado. (ER8S.s143)	Concern (English) / Concern (-) (Spanish)
2.	Can **genetically engineered food** and drugs be harmful? (ER14E.s22)	¿Pueden ser peligrosos los **alimentos** y medicamentos **producidos por ingeniería genética**? (ER14S.s22)	Concern
3.	The **genetically engineered food** could be compared with any and all varieties within the species. (MH8E.s181)	El **alimento genéticamente modificado** podría compararse con todas y cada una de las variedades dentro de la especie. (MH8S.s183)	Neutral
4.	FlavrSavr, a transgenic tomato that is the first **genetically engineered food** to find its way into the market, has been modified in this way. (SA10E.s337)	El Flavr Savr, un tomate transgénico que es el primer **alimento fabricado por ingeniería genética** que va a ser introducido en el mercado, ha sido modificado de esta manera. (SA10S.s337)	Neutral
5.	The manufacturers of **genetically engineered food** know they will have a tough job convincing the public to buy their products. (SA10E.s410)	Los fabricantes de **alimentos elaborados por ingeniería genética** saben que van a tener que trabajar duro para convencer a la opinión pública de que compre sus productos. (SA10S.s410)	Concern
6.	Added to this are strong pressure groups who promote the view that **genetically engineered food** is both unnatural and dangerous. (SA10E.s413)	A esto hay que añadir potentes grupos de presión que extienden la idea de que los **alimentos fabricados por ingeniería genética** son artificiales y peligrosos. (SA10S.s413)	Unfavorable
7.	But even if **genetically engineered food** turns out to be perfectly safe for the consumer there are bound to be	Pero incluso si los **alimentos elaborados por ingeniería genética** resultasen ser totalmente seguros para el consumidor, forzosamente habrá	Concern (-)

	wider concerns about the effect of transgenic plants on the environment. (SA10E.s433)	más preocupación acerca del efecto de las plantas transgénicas para el medio ambiente. (SA10S.s433)	
8.	They will represent a relatively small proportion of **genetically engineered food**, and are more likely to require specific labelling in markets around the world. (SN15E.s55)	Representarán una parte relativamente pequeña de los **alimentos modificados mediante ingeniería genética** y, seguramente, requerirán un etiquetado específico en los mercados de todo el mundo. (SN15S.s55)	Concern
9.	Given that the benefit to consumers of most **genetically engineered food** is small, the accuracy and amount of information available becomes crucial for an assessment of risk perception. (SN15E.s88)	Dado que gran parte de los **alimentos transgénicos** reportan un escaso beneficio a los consumidores, la cantidad de información disponible y su exactitud se convierte en un factor crucial para evaluar la percepción de riesgos. (SN15S.s88)	Concern
10.	The high turnout, a fifth of the population, and the large majority gave a clear signal to the government that the people did not want **genetically engineered food**. (SN15E.s194)	El elevado número de votantes, una quinta parte de la población, y la amplia mayoría constituyeron una clara señal para el gobierno de que la gente no quería **alimentos modificados mediante ingeniería genética**. (SN15S.s193)	Unfavorable
11.	I also met great campaigners all over the world: Farhad Mazhar of Naya Krishi Andolan and Farida Akhtar of UBINIG from Bangladesh, who successfully fought the attempt by Monsanto to use the microcredit scheme to introduce transgenic agriculture into their country ; Étienne Vernet of Ecoropa, France, who mobilised French scientists to openly question the safety of transgenic agriculture, and French farmers to revolt against the introduction of Novartis 's transgenic maize ; Florianne Koechlin and Pierre Lehmann, who campaigned for the Swiss referendum on banning transgenic agriculture and ' patents on life ' ; Isabel Bermejo, who first alerted the Spanish NGOs to the hazards of genetic-engineering biotechnology ; Clare Watson and Quentin Gargan of Genetic Concern in Ireland, who mounted the first legal challenge against the Irish Government for approving field trials of transgenic crops ; and in Britain, Malcolm Walker of Iceland Foods, the first retailer to reject transgenic produce, Patrick Holden of the Soil Association, who put organic agriculture firmly into the biotechnology debate, and Peter Melchett of Greenpeace UK, who organised, among other things, the boycott of **genetically engineered foods** by hundreds of food and wine writers. (MH1E.s69)	También conocí a grandes activistas de todo el mundo: Farhad Mazhar, de Naya Krishi Andolan, y Farida Akhtar, de UBINIG, de Bangladesh, quien luchó exitosamente contra el intento de Monsanto de utilizar los planes de microcrédito para introducir la agricultura transgénica en su país ; Etienne Vernet, de Ecoropa, Francia, quien movilizó a los científicos franceses para que cuestionasen abiertamente la seguridad de la agricultura transgénica, y a los granjeros franceses para que se rebelasen en contra de la introducción del maíz transgénico de N ovartis ; Florianne Koechlin y Pierre Lehmann, quienes hicieron campaña en favor del referendo suizo sobre la prohibición de la agricultura transgénica y las " patentes sobre la vida " ; Isabel Bermejo, quien alertó por primera vez a las ONG españolas sobre los peligros de la biotecnología de ingeniería genética ; Clare Watson y Quentin Gargan, de Genetic Concern, en Irlanda, quienes realizaron el primer cuestionamiento legal en contra del gobierno irlandés por aprobar pruebas de campo de cultivos transgénicos ; y en Gran Bretaña, Malcolm Walker, de Iceland Foods, el primer minorista que rechazó los productos transgénicos ; Patrick Holden, de la Soil Association, quien introdujo la agricultura orgánica firmemente en el debate sobre la biotecnología, y Peter Melchett, de Greenpeace, Reino Unido, quien organizó, entre otras cosas, el boicot a los **alimentos modificados por ingeniería genética** realizado por cientos de comentaristas sobre alimentos y vinos. (MH1S.s67)	Unfavorable
12.	I have in mind consumers, farmers and food	Pienso en los consumidores, agricultores y	Concern

	retailers who want to decide whether to accept **genetically engineered foods** ; health practitioners, insurers and people with disabling conditions looking for an informed perspective on genetic diagnosis and gene therapy ; ordinary citizens concerned about the ethical implications of genetic discrimination, eugenics, human cloning, patents on organisms and genes, and effects on the Third World ; and finally, activists and policy-makers seeking a global picture of how genetic-engineering biotechnology is shaping world politics and economics, as well as a deeper understanding of the science involved, in order to guide policy decisions. (MH1E.s81)	vendedores de alimentos que quieren decidir si aceptan o no **alimentos modificados por ingeniería genética** ; en los profesionales de la salud, aseguradoras y personas discapacitadas que buscan una perspectiva informada sobre el diagnóstico y la terapia genéticos ; en los ciudadanos corrientes preocupados por la consecuencias éticas de la discriminación genética, la eugenesia y la clonación humana, así como por las patentes sobre organismos y genes, y sus efectos en el Tercer Mundo ; y, finalmente, en los activistas y dirigentes políticos que buscan un panorama global acerca de cómo la biotecnología de ingeniería genética está moldeando la política y la economía mundiales, así como una comprensión más profunda de la ciencia involucrada, para guiar sus decisiones políticas. (MH1S.s79)	
13.	To proceed, read chapter 8 on genetic engineering in agriculture, which will tell you what you need to know about **genetically engineered foods** and why genetic engineering does not feed the world. (MH1E.s88)	Para continuar, lea el capítulo 8 sobre la ingeniería genética en la agricultura, que le relatará todo lo que usted debe saber sobre los **alimentos modificados por ingeniería genética** y por qué esta no sirve para alimentar al mundo. (MH1S.s87)	Unfavorable
14.	A record 1.2 million citizens, representing 20 per cent of the electorate, signed a people 's petition in 1997 for the banning of **genetically engineered foods**, the deliberate release of genetically modified organisms, and the patenting of life. (MH1E.s176)	Un número sin precedentes de 1,2 millones de ciudadanos, lo que representa el 20 % del electorado, firmó en 1997 una petición popular para prohibir los **alimentos manipulados genéticamente,** así como el lanzamiento deliberado de organismos genéticamente modificados y el patentamiento de la vida. (MH1S.s176)	Unfavorable
15.	" Unexpected " toxins and allergens have already been associated with **genetically engineered foods**. (MH2E.s129)	" Inesperadas " toxinas y alérgenos fueron asociados con los **alimentos producidos por ingeniería genética**. (MH2S.s130)	Unfavorable
16.	" Unexpected " toxins and allergens have been associated with **genetically engineered foods**. (MH2E.s140)	" Inesperadas " toxinas y alérgenos fueron asociados con los **alimentos producidos por ingeniería genética**. (MH2S.s141)	Unfavorable
17.	The same science claims to override any possible objections from the European Union to imports of **genetically engineered foods**, and any requirement for segregation and labelling. (MH2E.s179)	La misma ciencia reclama pasar por encima de cualquier posible objeción por parte de la Unión Europea a la importación de **alimentos producidos por ingeniería genética** y a todo requerimiento de segregación y rotulación. (MH2S.s180)	Favorable
18.	This brings it home to us that the issue is not simply whether we should accept **genetically engineered foods**: genetic-engineering agriculture is an assault on life and on our entire life support system. (MH8E.s135)	Esto hace evidente que el problema no es simplemente si debiéramos aceptar **alimentos modificados genéticamente**: la agricultura de ingeniería genética es un atropello a la vida y a todo nuestro sistema de mantenimiento de la vida. (MH8S.s137)	Unfavorable
19.	A legal case challenging the policy of the Food and Drug Administration in the Unite States on **genetically engineered foods** was begun in May 1998 by a coalition of scientists, health professionals, religious	Una demanda legal en contra de la política de la Administración de Drogas y Alimentos de Estados Unidos respecto de los **alimentos modificados genéticamente** fue iniciada en mayo de 1998 por una coalición de científicos,	Unfavorable

	leaders, an chefs, demanding adequate safety testing and mandatory labelling. (MH8E.s189)	profesionales de la salud, líderes religiosos y cocineros profesionales, exigiendo pruebas de seguridad adecuadas y una rotulación obligatoria. (MH8S.s191)	
20.	The government 's Chief Scientific Adviser and Chief Medical Officer have recommended that a health monitoring unit be set up for **genetically engineered foods**, similar to the one monitoring Creutzfeldt-Jakob disease (CJD), the human variant of ' mad cow disease'(BSE). (MH1E.s191) Its remit is to examine potential health effects, including ' foetal abnormalities, new cancers, and effects on the immune system. " (MH1E.s192)	El Consejero Científico Principal y el Oficial Médico Principal del gobierno recomendaron la creación de una unidad de monitoreo de la salud para los **alimentos alterados por ingeniería genética**, similar al que controla la enfermedad de Creutzfeldt-Jakob, la variante humana de la " enfermedad de la vaca loca " (BSE) cuyo propósito es examinar los efectos potenciales sobre la salud, incluyendo " anormalidades fetales, nuevos cánceres y efectos sobre el sistema inmunológico ". (MH1S.s192)	Neutral
21.	In May 1998 a coalition of scientists, health professionals, religious leaders and chefs began legal action in the United States challenging the polio of the Food and Drug Administration of approving the marketing of **genetically engineered foods**, demanding adequate safety testing and mandatory labelling. (MH1E.s205)	En mayo de 1998, una coalición de científicos, profesionales de la salud, líderes religiosos y chefs inició una acción legal en Estados Unidos que cuestiona la política de la Administración de Drogas y Alimentos (FDA) de aprobar la comercialización de **alimentos genéticamente modificados**, y exige pruebas apropiadas de seguridad y una rotulación obligatoria. (MH1S.s205)	Concern (-)
22.	However, public opinion has been swayed by the problem of the antibiotic resistance gene, and threatens the commercial viability of **genetically engineered foods**. (SA5E.s94)	Sin embargo, la opinión pública ha sido influenciada por el problema del gen de la resistencia a los antibióticos, y esto amenaza la viabilidad comercial de los **alimentos fabricados por ingeniería genética**. (SA5S.s94)	Concern (-)
23.	In 1992, the US Food and Drug Administration (FDA) stated that **genetically engineered foods** must be tested and labelled for allergy sensitivity if they have been created using DNA from any foods known to cause an allergic reaction. (SN8E.s28)	En 1992, la Food and Drug Administration (FDA) estadounidense declaró que los **alimentos transgénicos** debían someterse a pruebas y que era obligatorio especificar la sensibilidad alérgica en el etiquetado si se habían elaborado con ADN de cualquier alimento que se supiera que causaba una reacción alérgica. (SN8S.s29)	Concern
24.	In the USA, 1,500 chefs joined the Pure Food Campaign and displayed " We not serve **genetically engineered foods** " stickers on their menus. (SN13E.s77)	En Estados Unidos, 1.500 cocineros se unieron a la campaña " Por una comida pura " y exhibieron en sus menús unas pegatinas que rezaban: " No servimos **alimentos transgénicos** " (véase la nota 9). (SN13S.s77)	Unfavorable
25.	Consumer groups campaigning for the mandatory labelling of all **genetically engineered foods** have claimed that these foods are the antithesis of natural foods. (SN13E.s170)	Los grupos de consumidores que hacen campaña a favor del etiquetado obligatorio de todos los **alimentos transgénicos** han asegurado que son la antítesis de los elementos naturales. (SN13S.s170)	Unfavorable
	4) *New / novel* food/s (16)		
1.	A copy of this request is sent to the Commission, while advisory committees in the member state concerned, for example, the Advisory Committee on Novel Foods and Processes (ACNFP) in the UK, conduct a preliminary risk assessment of the	Se remite a la Comisión una copia de esta solicitud, al tiempo que los comités asesores del Estado miembro implicado, por ejemplo, el Advisory Committee on Novel Foods and Processes (ACNFP) en el Reino Unido, realizan una evaluación preliminar de los riesgos que	Concern

	novel food or food ingredient. (SN12E.s25)	plantea el **nuevo alimento** o ingrediente alimentario. (SN12S.s24)	
2.	In December 1996, after a protracted debate, the EU agreed on this new **Novel Food** and Food Ingredient Regulation. (SN13E.s98)	En diciembre de 1996, tras un prolongado debate, la UE alcanzó un acuerdo sobre este nuevo reglamento para **alimentos** e ingredientes alimentarios **nuevos**. (SN13S.s98)	Neutral (Regulation)
3.	The **Novel Food** and Food Ingredient Regulation was approved by the European Parliament in Strasbourg on 16 January 1997 and came into force on 15 May 1997, as Regulation 258/97/EC. (SN13E.s102)	El Reglamento sobre **alimentos** e ingredientes alimentarios **nuevos** fue aprobado por el Parlamento Europeo de Estrasburgo el 16 de enero de 1997 y entró en vigor el 15 de mayo de 1997, como Reglamento 258/97/EC. (SN13S.s102)	Neutral (Regulation)
4.	The **Novel Food** and Food Ingredient Regulation was attacked for being too vague, subject to interpretation and too broad by a range of environmental groups, including Greenpeace, who argued that it provided loopholes to those wanting to avoid labelling foods containing genetically modified ingredients. (SN13E.s106)	El Reglamento sobre **alimentos** e ingredientes alimentarios **nuevos** recibió críticas por ser demasiado vago, estar sujeto a interpretaciones y resultar demasiado general para varios grupos ecologistas, incluido Greenpeace, que sostuvo que proporcionaba resquicios legales a quienes querían evitar el etiquetado de alimentos que contuvieran ingredientes modificados genéticamente (véase la nota 15). (SN13S.s106)	Concern (-)
5.	The **Novel Food** and Food Ingredient Regulation, however, was an initial attempt to let consumers make some sense of the confusion caused by the lack of segregation, by imposing labels on those products where genetic engineering has made the greatest change to food composition. (SN13E.s121)	Sin embargo, el Reglamento sobre **alimentos** e ingredientes alimentarios **nuevos** constituyó un primer intento de conseguir que los consumidores sacaran algo en claro de la confusión provocada por la falta de separación al imponer etiquetas en aquellos productos en los que la ingeniería genética ha producido los mayores cambios en la composición de los alimentos. (SN13S.s121)	Concern
6.	Basically, the USDA grants permission to grow crops, the FDA assesses the safety of **novel foods**, while the EPA determines whether a product is safe both for human consumption and for the environment. (SN1E.s277)	Fundamentalmente, el USDA concede permisos para sembrar cultivos transgénicos ; la FDA evalúa la seguridad de los **nuevos alimentos**, mientras que la EPA determina si un producto es inocuo para el consumo humano y para el medio ambiente. (SN1S.s266)	Neutral (Regulation)
7.	The Advisory Committee on **Novel Foods** and Processes (ACNFP) provides expert guidance to the FSA. (SN1E.s289)	El Advisory Committee on **Novel Foods** and Processes (ACNFP) [Comité Consultivo sobre **Nuevos Alimentos** y Procesos] proporciona asesoramiento experto a la FSA. (SN1S.s278)	Neutral (Regulation)
8.	The government 's Advisory Committee on **Novel Foods** and Processes (ACNFP) decided that the presence of the antibiotic marker genes would not compromise the clinical or veterinary uses of antibiotics. (SN6E.s41)	El Advisory Committee on **Novel Foods** and Processes (ACNFP) del gobierno británico decidió que la presencia de los genes marcadores de antibióticos no comprometía los usos clínicos o veterinarios de los antibióticos. (SN6S.s43)	Concern
9.	The Advisory Committee on **Novel Foods** and Processes (ACNFP), for example, advised the UK government to vote in the European Union (EU) against the authorization for placing Ciba-Geigy 's B.t. maize on the market in 1996. (SN8E.s62)	Así, por ejemplo, el Advisory Committee on **Novel Foods** and Processes (ACNFP) aconsejó al gobierno británico, en la UE, que votara en contra de la autorización para comercializar el maíz B. t. de Ciba-Geigy en 1996. (SN8S.s62)	Unfavorable
10.	The possible transfer of human genes to food is an issue that has already occupied the UK government 's Advisory Committee on	La posible transferencia de genes humanos a los alimentos es una cuestión de la que ya se ha ocupado el Advisory Comité on **Novel Foods**	Concern

	Novel Foods and Processes (ACNFP). (SN9E.s14)	and Processes (ACNFP) del gobierno británico. (SN9S.s15)	
11.	The Advisory Committee on **Novel Foods** and Processes (ACFNP), an independent body of experts, advises on the health aspects of all applications to market novel foods in the UK. (SN11E.s99)	El Advisory Committee on **Novel Foods** and Processes (ACNFP), un organismo independiente formado por expertos, asesora sobre los aspectos relativos a la salud de todas las solicitudes para comercializar nuevos alimentos en el Reino Unido. (SN11S.s99)	Neutral (Regulation)
12.	In 1996, it started to bring these guidelines into line with EU regulations on **novel foods** and food ingredients. (SN11E.s106)	En 1996, empezó a adecuar estas directrices a la legislación de la UE en materia de **alimentos** e ingredientes alimentarios **nuevos**. (SN11S.s106)	Neutral (Regulation)
13.	A copy of this request is sent to the Commission, while advisory committees in the member state concerned, for example, the Advisory Committee on **Novel Foods** and Processes (ACNFP) in the UK, conduct a preliminary risk assessment of the novel food or food ingredient. (SN12E.s25)	Se remite a la Comisión una copia de esta solicitud, al tiempo que los comités asesores del Estado miembro implicado, por ejemplo, el Advisory Committee on **Novel Foods** and Processes (ACNFP) en el Reino Unido, realizan una evaluación preliminar de los riesgos que plantea el nuevo alimento o ingrediente alimentario. (SN12S.s24)	Concern
14.	Labelling, under the new legislation, would be required for **novel foods** only if they contained viable (' live ') genetically modified organisms, had modified ingredients that were no longer equivalent to existing ingredients, or contained materials that were not present in the original foodstuffs, or substances that may give rise to ethical concerns, such as animal genes. (SN13E.s100)	El etiquetado de los **nuevos alimentos**, de acuerdo con esta nueva legislación, sólo sería obligatorio si éstos contenían organismos modificados genéticamente viables (" vivos "), incluían ingredientes modificados que ya no fueran equivalentes a los ingredientes existentes, contuvieran materiales que no estuvieran presentes en los productos alimentarios originales o sustancias que suscitaran preocupaciones éticas, como genes animales. (SN13S.s100)	Concern
15.	The FDA has the primary responsibility for regulating food additives and **new foods**, although meat and poultry are within the remit of the USDA. (SN11E.s62)	La FDA es la principal responsable de regular los aditivos alimentarios y los **nuevos alimentos**, aunque la carne y las aves son competencia del USDA. (SN11S.s61)	Neutral (Regulation)
16.	In Europe there is the concept of a **novel food**, which may relate to the way it has been produced, even if the end product is the same as that made in the conventional way. (SA10E.s416)	En Europa, existe el concepto de **alimento novedoso,** que puede referirse a la manera en la que ha sido producido, incluso si el producto final es el mismo que el cultivado de modo convencional. (SA10S.s416)	Neutral
		5) *Transgenic* food/s (10)	
1.	Calgene 's " Flavr-Savr " tomato, genetically engineered to improve shelf life and the very first live **transgenic food** to be introduced to our supermarkets, has now been withdrawn. (MH3E.s188)	El tomate " Flavr-Savr " de Calgene, manipulado genéticamente para mejorar su tiempo de permanencia en el aparador, y el primer **alimento transgénico** vivo que se introdujo en nuestros supermercados, ha sido retirado. (MH3S.s191)	Unfavorable
2.	While some people balk at the very notion of **transgenic foods**, evidence supports the view that this approach to protecting crops from pests is safer for human and animal health and the environment than the use of synthetic chemical pesticides. (EG4E.s244)	A pesar de que mucha gente es contraria a la idea misma de los **alimentos transgénicos**, la evidencia respalda la opinión de que este método para proteger a los cultivos de las plagas es más seguro para la salud de animales y personas y para el entorno que el uso de plaguicidas químicos sintéticos. (EG4S.s245)	Favorable

3.	People with food allergies are particularly concerned over **transgenic foods**, since a chemical to which the react badly may be transferred by genetic engineering to a food in which it was previously absent. (EG7E.s180)	Las personas con alergia a ciertos alimentos están particularmente preocupadas por los **alimentos transgénicos**, ya que algún compuesto nocivo para ellas podría haber sido transferido mediante ingeniería genética a un alimento del que estuviera previamente ausente. (EG7S.s175)	Concern
4.	One serious concern over **transgenic foods** relates to their potential to be toxic or allergenic, which has become a concrete issue since a transgenic soybean containing a brazil nut gene was found to be allergenic to those sensitive to brazil nut. (MH8E.s163)	Una seria preocupación acerca de los **alimentos transgénicos** es su potencial para ser tóxicos o alergénicos, lo que se ha vuelto un problema concreto desde que se descubrió que una variedad de soja transgénica que contenía un gen de la nuez brasileña era alergénica para las personas sensibles a la nuez brasileña. (MH8S.s165)	Concern (-)
5.	Serious doubts over the safety of **transgenic foods** were raise by the recent experiments of Arpad Pusztai at the Rowett Institute. (MH8E.s191)	Los recientes experimentos de Arpad Pusztai, del Rowett Institute, plantean serias dudas acerca de la seguridad de los **alimentos transgénicos**. (MH8S.s193)	Concern (-)
6.	In the light of all this evidence one would be foolish to eat **transgenic foods**, as the manipulated DNA may resist digestion. (MH8E.s394)	A la luz de toda esta evidencia, sería insensato ingerir **alimentos transgénicos**, ya que el ADN extraño puede resistir la digestión. (MH8S.s396)	Unfavorable
7.	Moreover, one cannot assume, without adequate data, that DNA is automatically degraded in processed **transgenic foods**, such as Zeneca 's tomato paste, and the many foods containing processed transgenic soybean or maize. (MH8E.s398)	Más aún, no se puede suponer, sin datos adecuados, que el ADN se degrade automáticamente en los **alimentos transgénicos** procesados, como la pasta de tomate Zeneca y los muchos alimentos que contienen porotos de soja o maíz transgénicos procesados. (MH8S.s400)	Neutral
8.	There is a strong case for a moratorium, at the very least, and for all **transgenic foods** containing DNA to be withdrawn from the market. (MH8E.s402)	Existen fuertes presiones para que se establezca una moratoria, como mínimo, y para que todos los **alimentos transgénicos** que contienen ADN sean retirados del mercado. (MH8S.s404)	Unfavorable
9.	(6) The potential for transgenic DNA to infect cells after the ingestion of **transgenic foods**, to regenerate disease viruses, and to insert itself into the cells genome, causing harmful or lethal effects, including cancer. (MH8E.s417)	6. El potencial del ADN transgénico para infectar las células luego de la ingestión de **alimentos transgénicos**, para regenerar virus patogénicos, y para insertarse en el genoma de la célula, provocando efectos dañinos o letales, incluyendo el cáncer. (MH8S.s419)	Concern (-)
10.	The potential risks of **transgenic foods** are in many cases balanced against seemingly small benefits for the consumer, although the benefits to multinationals, growers and food-producers may have knock-on effects in terms of the economy, decreased wastage of food resources and via a range of other factors. (SN15E.s85)	En muchos casos, se sopesan los posibles riesgos de los **alimentos transgénicos** y los beneficios aparentemente escasos para el consumidor, aunque los beneficios para las multinacionales, los cultivadores y los productores de alimentos puedan tener repercusiones en lo tocante al ahorro, el menor desperdicio de recursos alimentarios y varios factores más. (SN15S.s85)	Concern (-)
6) *Modified* food/s (6)			
1.	The **modified food** contains the same ingredients, but just happens to be produced using genetic engineering. (SN13E.s86)	El **alimento modificado** contiene los mismos ingredientes, pero resulta que se ha producido empleando técnicas de ingeniería genética. (SN13S.s86)	Neutral

2.	The initial concern was that allergic reactions could occur to novel proteins present in **modified foods**. (SN1E.s218)	La preocupación inicial fueron las reacciones alérgicas que podían desencadenarse por las nuevas proteínas presentes en **los alimentos modificados**. (SN1S.s209)	Concern (-)
3.	The general climate of secrecy for commercial reasons, the lack of segregation and labelling of **modified foods**, and poor public relations on the part of the food industry, has done nothing to help dispel concerns about genetically modified foods. (SN15E.s102)	El ambiente general de secretismo por razones comerciales, la falta de diferenciación y etiquetado de los **alimentos transgénicos** y unas deficientes relaciones publicas por parte de la industria alimentaria no han contribuido en absoluto a disipar la preocupación que suscita este tipo de alimentos. (SN15S.s101)	Unfavorable
4.	The emphasis of this and other industry-supporting initiatives at that time was on the continuity between centuries-old biotechnology and crop improvements with genetic engineering, the safety of **modified foods**, and the fact that foods produced using genetic engineering are identical to foods produced using traditional techniques. (SN15E.s155)	El hincapié de esta y otras iniciativas de apoyo por parte de la industria recayó en la continuidad entre la biotecnología con siglos de antigüedad y la mejora en los cultivos mediante la ingeniería genética, la seguridad de los **alimentos modificados** y el hecho de que los alimentos producidos mediante ingeniería genética son idénticos a los desarrollados mediante técnicas tradicionales. (SN15S.s154)	Favorable
5.	It advised the food industry to avoid discussing the risks posed by **modified foods** and to move away from the logical fact-based approach, that had until then proved unsuccessful. (SN15E.s159)	La consultora recomendó a la industria alimentaria que evitara entrar en los riesgos que plantean los **alimentos modificados** y abandonara el planteamiento lógico basado en los datos, que hasta entonces no había dado resultado alguno. (SN15S.s158)	Concern (-)
6.	In future, companies wanting to market **modified foods** will have to apply to ANZFA for approval. (SN15E.s201)	En el futuro, las compañías que quieran comercializar **alimentos modificados** tendrán que solicitar la autorización de la ANZFA. (SN15S.s198)	Neutral (Regulation)
		7) *Genetically altered* food/s (1)	
1.	Will **genetically altered food** have less nutritional value? (EG7E.s372)	¿Tendrán los **alimentos transgénicos** igual valor nutritivo? (EG7S.s369)	Concern

Table 8.17: *ST-TT pairs of denominative variants for 'Adj + N (food/s)' (sci corpus).*

Denominative variants of *Adj + N (Food/s)* in the *soc corpus*			
#	*English*	*Spanish*	**SP**
		1) *GM* food/s (193)	
1.	MARTINA: BENEFITS OF **GM FOOD** " FAR OUTWEIGH THE COSTS ". (BL5E.s50)	MARTINA: LOS BENEFICIOS DE LOS **OMG** " SUPERAN CON MUCHO A LOS COSTES ". (BL5S.s50)	Favorable (Irony)
2.	HUMAN GENES IN **GM FOOD**. (BL14E.s293)	GENES HUMANOS EN **ALIMENTOS MG**. (BL14S.s290)	Neutral
3.	On May 13, 2003, the U.S. filed a challenge with the World Trade Organization (WTO), charging that the EU 's restrictive policy on **GM food** violates international agreements. (JS1E.s56)	El 13 de mayo de 2003, Estados Unidos presentó un recurso a la Organización Mundial del Comercio (OMC) en la que se acusaba a las restricciones puestas por la UE sobre los **alimentos GM** de violar los acuerdos internacionales. (JS1S.s55)	Concern
4.	This assumption is the cornerstone in U.S. policy, allowing millions of acres of **GM food** to be planted, sold, and eaten without prior safety testing. (JS1E.s183)	Esta hipótesis es la piedra angular de la política estadounidense, que permite que se planten millones de hectáreas de **productos modificados genéticamente** y que estos se vendan y consuman sin una evaluación de seguridad previa. (JS1S.s181)	Concern (-)
5.	James ' mistake, therefore, sidestepped the bigger issue - the damage to the rats did not come from the lectin, but apparently from the same process of genetic engineering that is used to create the **GM food** everyone was already eating. (JS1E.s291)	Así pues, el error de James eludió el tema fundamental: el daño sufrido por las ratas no era causado por la lectina, sino por el mismo proceso de ingeniería genética utilizado para elaborar los **alimentos GM** que consumía todo el mundo. (JS1S.s282)	Concern (-)
6.	And only 1 percent of the public thought that **GM food** " was good for society. " (JS1E.s477)	Y sólo el 1 por ciento pensaba que la **comida GM** " fuese buena para la sociedad ". (JS1S.s454)	Unfavorable
7.	It was all to start with the three pro-biotech, anti-Pusztai reports due out in the same week, followed immediately by the ministers ' announcement of new programs related to **GM food** and a high profile media blitz. (JS1E.s495)	Todo iba a comenzar con los tres informes en pro de la biotecnología y en contra de Pusztai, a publicarse en la misma semana, seguidos del anuncio, por parte de los ministros, de la puesta en marcha de nuevos programas relacionados con los **alimentos GM** y un intenso bombardeo mediático. (JS1S.s472)	Favorable
8.	Problems with **GM food** could therefore show up in organ and body weight - as it did with Pusztai 's young adolescent rats. (JS1E.s580)	Los problemas de los **alimentos GM** podrían entonces manifestarse en el peso de los órganos y del cuerpo, como ocurrió con las ratas adolescentes de Pusztai. (JS1S.s555)	Concern
9.	This increase roughly corresponds to the period when Americans have been eating **GM food**. (JS1E.s657)	Este incremento se corresponde aproximadamente con el periodo en que los estadounidenses han estado ingiriendo **alimentos GM**. (JS1S.s633)	Neutral
10.	With such slim research on the safety of **GM food** and such enormous risks, why are respected institutes, scientific panels, research journals, even government officials lining up to defend it as proven safe? (JS1E.s665)	Si la investigación acerca de la seguridad de los **alimentos GM** es tan escasa y los riesgos tan elevados, ¿por qué razón los institutos de renombre, las comisiones científicas, revistas de investigación e incluso organismos gubernamentales se alían para defender su seguridad? (JS1S.s641)	Concern (-)
11.	Many scientists are concerned that when	A muchos científicos les preocupa que cuando	Concern

	humans and animals eat **GM food**, the ARM genes will transfer into the bacteria found inside the digestive system. (JS2E.s231)	los humanos coman **alimentos GM**, los genes ARM se transfieran a las bacterias que se encuentran en el aparato digestivo. (JS2S.s222)	
12.	In fact, many of the potential problems already addressed in this list might change the health value of a **GM food**. (JS2E.s421)	En realidad, muchos de los problemas potenciales ya mencionados en esta lista pueden modificar el contenido nutricional de un **alimento GM**. (JS2S.s396)	Concern
13.	This lack of safeguards has prompted Pusztai to label allergies as the " Achilles heel of **GM food**. " (JS2E.s516)	Esta carencia de protección ha empujado a Pusztai a calificar las alergias como " talón de Aquiles de los **alimentos GM** ". (JS2S.s487)	Concern (-)
14.	" Given our current lack of understanding of the consequences of [GM] technology, " Schubert says, " **GM food** is not a safe option. " (JS2E.s522)	" Dada nuestra actual incomprensión de las consecuencias de la tecnología [GM] - dice Schubert-, los **alimentos GM** no constituyen una opción segura ". (JS2S.s493)	Unfavorable
15.	" Moreover, [**GM food** and GM food processing agents] may produce an immediate effect or it could take years for full toxicity to come to light. " (JS2E.s530)	" Además, [los **alimentos GM** y los agentes GM envueltos en los procesos alimentarios] podrían producir un efecto inmediato o bien tarde años el desarrollo completo de su toxicidad y hasta entonces no salga a la luz ". (JS2S.s501)	Concern (-)
16.	It 's important to note, however, that the FDA treats **GM food** entirely differently from drugs. (JS3E.s27)	Es importante señalar, sin embargo, que la FDA trata los **alimentos GM** por separado, sin considerarlos fármacos. (JS3S.s26)	Neutral (Regulation)
17.	This alternative hypothesis appears to have saved the reputation of the biotech industry, allowing **GM food** and supplements to continue to be sold without safety testing. (JS4E.s143)	Esta hipótesis alternativa parece haber salvado la reputación de la industria biotecnológica, ya que los **alimentos** y suplementos **GM** siguen a la venta sin haber tenido que someterse a pruebas que determinen su seguridad. (JS4S.s124)	Concern (-)
18.	The division recommended testing every **GM food** " before it enters the marketplace. " (JS5E.s102)	La división recomendaba que se sometiera todo **alimento GM** a prueba " antes de que salga al mercado ". (JS5S.s96)	Concern (English) / Concern - (Spanish)
19.	Gerald Guest, the director of FDA 's Center for Veterinary Medicine (CVM) sent a letter to Maryanski saying that he and the other CVM scientists concluded that there is " ample scientific justification " to require testing and review of each **GM food** before it is eaten by the public. (JS5E.s103)	Gerald Guest, director del Center for Veterinary Medicine (CVM) de la FDA, envió una carta a Maryanski en la que decía que, junto a otros científicos del CVM, había concluido que existen " múltiples justificaciones científicas para exigir la evaluación y prueba de todos los **alimentos GM** antes de que lleguen a los consumidores. (JS5S.s97)	Concern
20.	The FDA is n't the only government agency that regulates or promotes **GM food**. (JS5E.s232)	La FDA no es la única agencia gubernamental a cargo de regular o promover los **alimentos GM**. (JS5S.s213)	Neutral (Regulation)
21.	Dan Quayle 's Council on Competitiveness deregulated **GM food** in order to strengthen the economy and make American products more competitive overseas. (JS5E.s404)	Dan Quayle y su Council of Competitiveness eliminaron las normativas referentes a los **alimentos GM** con la intención de fortalecer la economía y mejorar la competitividad de los productos estadounidenses en los mercados ultramarinos. (JS5S.s374)	Favorable
22.	A 2003 ABC news poll also revealed that 92 percent the U.S. population want **GM food** to be labeled. (JS5E.s429)	Una encuesta de opinión llevada a cabo por ABC en 2003, puso de manifiesto que el 92 por ciento de la población estadounidense quería	Concern

		que se etiquetaran los **alimentos GM**. (JS5S.s397)	
23.	He said that the FDA found no scientific proof that GM foods were harmful. (JS5E.s447) He said the reason that Americans were not against **GM food** is because they trust the FDA. (JS5E.s448)	Dijo que la FDA no encontraba prueba científica de que los alimentos GM fueran perjudiciales, y que la razón por la que los estadounidenses no estaban en contra de los **alimentos GM** se debía a la confianza que profesan a la FDA. (JS5S.s414)	Favorable
24.	The fact that GM soy had recently entered the food supply was not lost on the researchers who, according to the Daily Express, " said their findings provide real evidence that **GM food** could have a tangible, harmful impact on the human body. " (JS6E.s32)	Los investigadores no pasaron por alto que hacía poco que la soja GM había entrado a formar parte de la alimentación de la población, pues según informó el Daily Express " dijeron que sus averiguaciones evidencian que los **alimentos GM** podrían tener un impacto concreto y perjudicial sobre el cuerpo humano ". (JS6S.s34)	Concern (-)
25.	It is also possible that **GM food** possesses new allergens, never before found in natural food. (JS6E.s46)	También es posible que los **alimentos GM** contengan nuevos alérgenos, nunca antes encontrados en los alimentos naturales. (JS6S.s48)	Concern
26.	To guard against this danger, the FDA 's 1992 policy lists examples of foods with known allergens and indicates that if a **GM food** uses genes from any of these, the manufacturer should consult with the agency. (JS6E.s63)	Para prevenir este peligro, la política de 1992 de la FDA establece una lista con ejemplos de alimentos que contienen alérgenos conocidos e indica que si un **alimento GM** utiliza un gen de algunos de ellos, el fabricante debería consultar con la agencia. (JS6S.s63)	Concern
27.	While they acknowledge that it is impossible to predict allergies with certainty, they created a series of questions in a decision tree format to better determine if a **GM food** will cause an allergic reaction. (JS6E.s101)	Aunque son conscientes de que es imposible predecir alergias con toda seguridad, idearon una serie de preguntas en formato de árbol de decisión que habrían de ayudar a determinar si un **alimento GM** podía causar alguna reacción alérgica. (JS6S.s100)	Concern
28.	The biotech industry was quick to disperse the news, claiming as always that **GM food** was safe to eat. (JS6E.s174)	La industria biotecnológica se apresuró en difundir la noticia y en afirmar: como siempre, que los **alimentos GM** no comportaban ningún riesgo para la salud. (JS6S.s173)	Favorable (English) / Concern (Spanish)
29.	Not long after the British press ' extensive coverage on Arpad Pusztai stirred up the public 's distrust for **GM food**, the Society came up with a plan called " Guidance for Editors. " (JS7E.s266)	No mucho después de que la amplia atención prestada por la prensa británica a Arpad Pusztai provocara la pérdida de confianza de la ciudadanía en los **alimentos GM**, dicha sociedad ideó un plan denominado " Consejos para editores ". (JS7S.s245)	Concern (-)
30.	The reduced phytoestrogen levels that Lappé and Bailey found demonstrate a recurring problem with GM foods. (JS7E.s378) Genetic engineering creates unpredictable changes ; the composition of a **GM food** might be quite different from its natural counterpart. (JS7E.s379)	Los reducidos niveles de fitoestrógenos que encontraron Lappé y Bailey toparon con un problema recurrente en los alimentos GM ; la ingeniería genética provoca cambios imprevisibles y, de igual modo, la composición de un **alimento GM** puede ser muy diferente a la de su correspondiente natural. (JS7S.s347)	Concern (-)
31.	Two members of the team worked in the field of biotechnology, although not with **GM food**. (JS7E.s507)	Dos de ellos trabajaban en el ámbito de la biotecnología, aunque no con **alimentos GM**. (JS7S.s468)	Neutral
32.	Over a nine-week period, the mice consumed 61 percent non-GM and 39	Durante un período de nueve semanas, los ratones consumieron un 61 por ciento de	Concern

	percent **GM food**. (JS7E.s788)	**alimentos** no GM y un 39 de **GM**. (JS7S.s731)	
33.	Hogendoorn then changed his experiment, to look for differences between a group fed **GM food** and another fed natural food. (JS7E.s789)	Así las cosas, Hogendoorn varió su experimento con la idea de identificar las diferencias entre un grupo alimentado con **productos GM** y otro con productos no GM. (JS7S.s732)	Neutral
34.	The mice fed **GM food** " seemed less active while in their cages. " (JS8E.s91)	Los ratones alimentados con **maíz GM** " parecían estar menos activos en la jaula ". (JS8S.s87)	Concern
35.	Schools throughout the UK and parts of Europe banned **GM food** years ago. (JS9E.s182)	Las del Reino Unido y del resto de Europa hace ya años que prohibieron los **alimentos GM**. (JS9S.s160)	Unfavorable
36.	Meacher elaborated on the dangers of transferring allergies into a **GM food**, overuse of herbicides, and the accidental switching on of a host organism 's gene at random. (JS9E.s251)	Meacher dio detalles sobre los peligros de transferir alergias a los **alimentos GM**, del uso abusivo de herbicidas y de la actuación accidental y al azar del gen de un organismo huésped. (JS9S.s223)	Unfavorable
37.	When I replay my tape of her speech, I hear predictions of a future with " GM warfare, GM forests, a diet riddled with **GM foods**, and a GM landscape... (BL14E.s109)	Cuando vuelvo a escuchar la cinta donde he grabado su alocución, detecto algunas predicciones sobre un futuro con " guerra MG, bosques MG, una dieta plagada de **alimentos MG**, y un paisaje MG... (BL14S.s107)	Concern
38.	Their public statement, also signed by chefs, reads: " As food professionals, we object to the introduction of **GM foods** into the food chain. (BL14E.s115)	Su documento público, firmado también por chefs, dice: " Como profesionales de la alimentación, objetamos a la introducción de **alimentos MG** en la cadena alimenticia. (BL14S.s113)	Unfavorable
39.	Greenberg wrote: " The latest survey shows an on-going collapse of public support for biotechnology and **GM foods**. (BL14E.s248)	Greenberg escribió: " El último estudio evidencia un colapso permanente del respaldo público de la biotecnología y los **alimentos MG**. (BL14S.s245)	Unfavorable
40.	It is a staggering fact that there have been virtually no clinical or biochemical tests of the impacts of eating **GM foods** on human health. (JS1E.s16)	Un hecho asombroso es que no se han realizado análisis clínicos o bioquímicos del impacto producido en la salud humana por la ingesta de **alimentos GM**. (JS1S.s17)	Concern (-)
41.	Bush was convinced that **GM foods** held the key to greater yields, expanded U.S. exports, and a better world. (JS1E.s31)	Bush estaba convencido de que los **alimentos GM** constituían la clave para la intensificación de los rendimientos y la expansión de las exportaciones estadounidenses, y, en definitiva, para un mundo mejor. (JS1S.s30)	Favorable
42.	Widespread resistance to **GM foods** has resulted in a global showdown. (JS1E.s52)	La resistencia generalizada a los **alimentos GM** ha dado como resultado un enfrentamiento global. (JS1S.s50)	Unfavorable
43.	While many of the stories in this book reveal government and corporate maneuvering worthy of an adventure novel, the impact of **GM foods** is personal. (JS1E.s63)	Pese a que muchos de los testimonios del presente libro describen unas maniobras gubernamentales y corporativas dignas de una novela de aventuras, el efecto de los **alimentos GM** recae en el individuo. (JS1S.s62)	Concern
44.	It wasn't until the massive food recall prompted by StarLink corn that Americans were even alerted to the fact that they were eating **GM foods** everyday. (JS1E.s99)	Con motivo de la masiva retirada de alimentos provocada por el maíz StarLink, se alertó a la población estadounidense de que estaba alimentándose a diario con **productos GM**, hecho que ni siquiera conocía. (JS1S.s97)	Unfavorable
45.	Moreover, the American press was forced	Y lo que es más, la prensa de Estados Unidos se	Concern (-)

	to question whether **GM foods** were safe. (JS1E.s100)	vio en la obligación de cuestionar si los **alimentos GM** eran seguros. (JS1S.s98)	
46.	At the time of the grant, no research had yet been published on the safety of **GM foods**, and the world 's scientific community had plenty of questions and concerns. (JS1E.s113)	En el momento en que se les concedió la subvención, aún no se había publicado ninguna investigación relativa a los riesgos de los **alimentos GM** y la comunidad científica mundial albergaba diversas dudas y preocupaciones. (JS1S.s111)	Concern
47.	Professor James was one of twelve scientists who comprised the Advisory Committee on Novel Foods and Processes (ACNFP), which was responsible for evaluating **GM foods** for sale in Britain. (JS1E.s120)	El profesor James fue uno de los doce científicos que formaban parte del Advisory Committee on Novel Foods and Processes (ACNFP ; Comité consultivo de nuevos alimentos y procesos), responsable de la evaluación de los **alimentos GM** a la venta en Gran Bretaña. (JS1S.s118)	Neutral (Regulation)
48.	Arpad and Susan, on the other hand, had already been working for more than two years on designing the methods for approving **GM foods**. (JS1E.s130)	Arpad y Susan, por el contrario, llevaban ya más de dos años dedicados al diseño de metodologías que sirvieran para la evaluación de **alimentos GM**. (JS1S.s128)	Favorable (English) / Neutral (Spanish)
49.	If scientists at his institute had created a better way to test **GM foods,** he reasoned, this could result in very lucrative contracts - millions of pounds pouring in. (JS1E.s164)	Si los científicos de su instituto habían descubierto un modo mejor para evaluar los **alimentos GM**, razonaba, ello traería como resultado contratos muy lucrativos, un caudal de millones de libras. (JS1S.s162)	Favorable
50.	If Pusztai 's results were limited to just these facts, they alone might have undermined the entire regulatory process of **GM foods.** (JS1E.s193)	Si los resultados obtenidos por Pusztai se limitasen a estas observaciones, éstos habrían bastado para socavar el proceso regulador al completo de los **alimentos GM**. (JS1S.s191)	Concern
51.	Pusztai knew that his results strongly suggested that the **GM foods** already approved and being eaten by hundreds of millions of people every day might be creating similar health problems in people, especially in children. (JS1E.s215)	Pusztai sabía que sus resultados sugerían a las claras que los **alimentos GM** ya aprobados, que todos los días estaban comiendo millones de personas, podrían estar generando similares problemas de salud en los individuos y, en especial, entre los niños. (JS1S.s213)	Concern (-)
52.	Furthermore, if human beings developed problems similar to his rats, it could take years to appear and it would be highly unlikely for anyone to suspect **GM foods** as the cause. (JS1E.s220)	Más aún, si se desarrollaban en seres humanos problemas similares a los de sus ratas, podrían tardar años en manifestarse y, además, sería muy improbable que nadie sospechara que los **alimentos GM** eran la causa. (JS1S.s218)	Concern (-)
53.	They knew that his team was the only one in the world conducting thorough feeding trials on **GM foods**. (JS1E.s226)	Sabían que su equipo era el único del mundo en llevar a cabo exhaustivos ensayos con **alimentos GM**. (JS1S.s225)	Neutral
54.	Asked if he would eat **GM foods** himself, he said, " If I had the choice I would certainly not eat it till I see at least comparable experimental evidence which we are producing for our genetically modified potatoes. (JS1E.s241)	Cuando le preguntaron si comería **alimentos GM**, respondió: " Si pudiera elegir no lo haría hasta que observara que se llevan a cabo pruebas, como mínimo, comparables a las que nosotros sometemos a nuestras patatas genéticamente modificadas. (JS1S.s238)	Unfavorable
55.	Monsanto Corporation, the biotech giant, was running full-page advertisements in newspapers touting the benefits of **GM foods** and attempting to enlist a skeptical public. (JS1E.s254)	La Monsanto Corporation, el gigante biotecnológico, publicaba anuncios a toda página en los periódicos en los que alababa las virtudes de los **alimentos GM** e intentaba conseguir convencer al público más escéptico. (JS1S.s248)	Favorable

56.	In his interviews and releases during the previous two days, James was applauding research that was ultimately critical of the way **GM foods** on the shelves had been tested. (JS1E.s327)	En las entrevistas y comunicados de los dos días previos, James aplaudió las investigaciones que se mostraban críticas con las pruebas efectuadas en los **alimentos GM** a la venta. (JS1S.s316)	Concern
57.	(According to the British press, Tony Blair himself had been the recipient of telephone calls from Bill Clinton, who was leaning on Blair to increase support for **GM foods**.) (JS1E.s333)	(Según la prensa británica, el mismo Tony Blair había recibido llamadas de Bill Clinton, quien ejercía presión sobre Blair para que éste apoyara los **alimentos GM**). (JS1S.s321)	Concern
58.	The unchallenged lies about his " mistakes " were sent all over the world and people were led to believe that there was no scientific basis for his warning about **GM foods**. (JS1E.s372)	Las mentiras no contrastadas sobre sus " errores " llegaron a todo el mundo e indujeron a la gente a creer que sus advertencias acerca de los **alimentos GM** no tenían ninguna base. (JS1S.s355)	Concern (-)
59.	In the UK and parts of Western Europe, however, substantial reporting had led to growing public contempt of **GM foods**. (JS1E.s423)	Sin embargo, en el Reino Unido y algunos lugares de Europa occidental los informes al respecto hicieron que el público mostrara una aversión cada vez mayor hacia los **productos GM**. (JS1S.s402)	Unfavorable
60.	A leaked October 1998 report prepared by pollster Stan Greenberg for Monsanto said, " The latest survey shows an ongoing collapse of public support for biotechnology and **GM foods**. " (JS1E.s424)	En octubre de 1998 se filtró un informe preparado por el encuestador Stan Greenberg para Monsanto en el que se afirmaba que " las últimas encuestas muestran un apoyo cada vez menor por parte de los consumidores hacia la biotecnología y los **alimentos GM** ". (JS1S.s403)	Concern (-)
61.	Among the defenders was the Royal Society, an organization that included many scientists who viewed the attack on **GM foods** as a threat to their own continued funding and livelihood. (JS1E.s435)	Entre los defensores estaba la Royal Society, una organización que incluía a muchos científicos que consideraban que el ataque a los **productos GM** amenazaba su financiación y continuidad. (JS1S.s413)	Favorable
62.	" There is a real problem for us here, and that is that you say that it is not right to discuss unpublished work ; as I understand, all of the evidence taken by the advisory committee [that approves **GM foods** for human consumption] comes from the commercial companies, all of that is unpublished. (JS1E.s439)	" Tenemos un verdadero problema y es que dice usted que no pueden comentarse investigaciones inéditas ; según lo he entendido, todas las pruebas recogidas por el comité consultivo [que aprueba **alimentos GM** para el consumo humano proceden de compañías comerciales, de modo que dicha información es inédita. (JS1S.s417)	Concern
63.	There is a hollow democratic deficit here, is there not? " (JS1E.s443) The MP added, " how is the general public out there to decide on the safety of **GM foods** when nothing is published on the safety of GM foods? " (JS1E.s444)	Se trata de un profundo déficit democrático, ¿no es verdad? - y agregó el miembro del Parlamento:- ¿Cómo va la sociedad a decidir si existen riesgos en los alimentos GM si no hay nada publicado sobre los riesgos de los **alimentos GM**? ". (JS1S.s421)	Concern (-)
64.	There is a hollow democratic deficit here, is there not? " (JS1E.s443) The MP added, " how is the general public out there to decide on the safety of GM foods when nothing is published on the safety of **GM foods**? " (JS1E.s444)	Se trata de un profundo déficit democrático, ¿no es verdad? - y agregó el miembro del Parlamento:- ¿Cómo va la sociedad a decidir si existen riesgos en los **alimentos GM** si no hay nada publicado sobre los riesgos de los alimentos GM? ". (JS1S.s421)	Concern (-)
65.	According to a February 1998 report in the Globe and Mail, since the Labour party	Tal y como muestra un reportaje publicado por el diario Globe and Mail en febrero de 1998,	Neutral

	took office the previous year, " government officials and ministers have met companies involved in **GM foods** eighty-one times (twenty-three with Monsanto alone). " (JS1E.s470)	desde la toma de posesión del Gobierno del año anterior, " los secretarios y ministros del Gobierno se han reunido con compañías relacionadas con los **alimentos GM** en ochenta y una ocasiones (veintitrés a solas con Monsanto) ". (JS1S.s447)	
66.	For example, in spite of its claims that **GM foods** were absolutely safe, a report leaked at the beginning of the year showed that the government was n't quite sure. (JS1E.s479)	Por ejemplo, pese a proclamar que los **alimentos GM** eran por completo seguros, un informe filtrado a comienzos de año mostraba que el Gobierno no estaba tan seguro. (JS1S.s456)	Concern (-)
67.	The committee wanted to cross-reference purchasing records with health databases to see if those eating **GM foods** were more prone to get sick. (JS1E.s481)	El comité quería cruzar los datos de los registros de consumo con las bases de datos del ministerio de Salud para ver si los que comían **alimentos GM** presentaban mayor tendencia a enfermarse. (JS1S.s458)	Concern
68.	Now the government leaders were preparing an initiative to win back public confidence in **GM foods**. (JS1E.s484)	Los líderes gubernamentales pasaron a preparar una iniciativa para volver a ganarse la confianza social en los **alimentos GM**. (JS1S.s461)	Concern (-)
69.	According to a leaked private document obtained by the Independent on Sunday, the Health minister, Environment minister, and the Food Safety minister met on May 10 and prepared " an astonishingly detailed strategy for spinning, and mobilizing support for " **GM foods**. (JS1E.s485)	Según reza un documento privado filtrado que obtuvo el Independent on Sunday, el ministro de Sanidad, el de Medio ambiente y el de Seguridad alimentaria, se reunieron el 10 de mayo y prepararon " una pasmosa y detallada estrategia para levantar y movilizar apoyos a " los **alimentos GM**. (JS1S.s462)	Concern (-)
70.	Observers interpreted the Committee 's report as the government 's attempt to protect the reputation of **GM foods**, while sacrificing the reputation of Pusztai. (JS1E.s503)	Los observadores interpretaron el informe del comité como un intento del Gobierno de proteger la reputación de los **alimentos GM** y sacrificar la de Pusztai. (JS1S.s480)	Concern
71.	But the week that was designed to regain the public 's confidence in **GM foods** did n't go entirely as planned. (JS1E.s516)	Pese a ello, la semana pensada para recuperar la confianza de la sociedad en los **alimentos GM** no marchó exactamente como se había esperado. (JS1S.s493)	Concern (-)
72.	Pusztai 's potato study, plus his earlier paper on experimental GM peas, therefore, remain the only two published independent peer-reviewed feeding studies on the safety of **GM foods**. (JS1E.s565)	En consecuencia, el estudio de Pusztai sobre la patata, junto a su anterior trabajo con guisantes GM, continuaron siendo los únicos estudios publicados sobre la seguridad alimentaria de los **productos GM**. (JS1S.s540)	Neutral
73.	Pryme and Lembcke, who published a paper in Nutrition and Health that analyzed all peer-reviewed feeding studies on **GM foods**, also pointed out that the percentage of protein in the feed used in the Roundup Ready study was " artificially too high. " (JS1E.s590)	Pryme y Lembcke, que publicaron un trabajo en Nutrition and Health en el que analizaban todos los estudios evaluadores de los **alimentos GM**, también señalaron que el porcentaje de proteínas en los alimentos utilizados en el estudio del Roundup Ready era " artificialmente alto ". (JS1S.s565)	Concern
74.	The complete body of research on the safety of **GM foods** also includes: a study published in a non-peer-reviewed journal, which demonstrated that tissue samples from the digestive tract of both humans and monkeys reacted with GM tomatoes in a test tube ; an unpublished feeding study	La investigación completa sobre la seguridad de los **alimentos GM** incluye: un estudio publicado en una revista no sometida a revisiones colegiadas, que demostró que en un tubo de ensayo las muestras de tejido del tracto digestivo tanto de humanos como de simios reaccionaban con tomates GM ; un estudio	Unfavorable

	of a GM corn grown in the U.S., which showed an increased death rate among GM-fed chickens ; studies comparing the nutritional content of GM foods with their natural counterparts, demonstrating clear differences between the two types of food ; research demonstrating that GM foods can produce new allergens (see Chapter 6) ; highly controversial studies on the GM bovine growth hormone, which apparently omitted incriminating data (see Chapter 3) ; and the industry 's own studies, such as those submitted to the UK committee that had shocked Pusztai by their inadequacy. (JS1E.s641)	inédito sobre maíz GM cultivado en Estados Unidos, que mostró un índice de mortalidad superior entre los pollos alimentados con maíz GM ; estudios que comparan el contenido nutricional de los alimentos GM con los naturales y que demuestran claras diferencias entre ambos ; investigaciones que señalan que los alimentos GM pueden producir nuevos alérgenos (véase Capítulo 6) ; estudios controvertidos sobre la hormona de crecimiento bovino GM, que, parece ser, omiten datos incriminadores (véase Capítulo 3) ; y los propios estudios de la industria, como los presentados ante el comité británico y que tanto sorprendieron a Pusztai por sus deficiencias. (JS1S.s617)	
75.	The complete body of research on the safety of GM foods also includes: a study published in a non-peer-reviewed journal, which demonstrated that tissue samples from the digestive tract of both humans and monkeys reacted with GM tomatoes in a test tube ; an unpublished feeding study of a GM corn grown in the U.S., which showed an increased death rate among GM-fed chickens ; studies comparing the nutritional content of **GM foods** with their natural counterparts, demonstrating clear differences between the two types of food ; research demonstrating that GM foods can produce new allergens (see Chapter 6) ; highly controversial studies on the GM bovine growth hormone, which apparently omitted incriminating data (see Chapter 3) ; and the industry 's own studies, such as those submitted to the UK committee that had shocked Pusztai by their inadequacy. (JS1E.s641)	La investigación completa sobre la seguridad de los alimentos GM incluye: un estudio publicado en una revista no sometida a revisiones colegiadas, que demostró que en un tubo de ensayo las muestras de tejido del tracto digestivo tanto de humanos como de simios reaccionaban con tomates GM ; un estudio inédito sobre maíz GM cultivado en Estados Unidos, que mostró un índice de mortalidad superior entre los pollos alimentados con maíz GM ; estudios que comparan el contenido nutricional de los **alimentos GM** con los naturales y que demuestran claras diferencias entre ambos ; investigaciones que señalan que los alimentos GM pueden producir nuevos alérgenos (véase Capítulo 6) ; estudios controvertidos sobre la hormona de crecimiento bovino GM, que, parece ser, omiten datos incriminadores (véase Capítulo 3) ; y los propios estudios de la industria, como los presentados ante el comité británico y que tanto sorprendieron a Pusztai por sus deficiencias. (JS1S.s617)	Unfavorable
76.	The complete body of research on the safety of GM foods also includes: a study published in a non-peer-reviewed journal, which demonstrated that tissue samples from the digestive tract of both humans and monkeys reacted with GM tomatoes in a test tube ; an unpublished feeding study of a GM corn grown in the U.S., which showed an increased death rate among GM-fed chickens ; studies comparing the nutritional content of GM foods with their natural counterparts, demonstrating clear differences between the two types of food ; research demonstrating that **GM foods** can produce new allergens (see Chapter 6) ; highly controversial studies on the GM bovine growth hormone, which apparently omitted incriminating data (see	La investigación completa sobre la seguridad de los alimentos GM incluye: un estudio publicado en una revista no sometida a revisiones colegiadas, que demostró que en un tubo de ensayo las muestras de tejido del tracto digestivo tanto de humanos como de simios reaccionaban con tomates GM ; un estudio inédito sobre maíz GM cultivado en Estados Unidos, que mostró un índice de mortalidad superior entre los pollos alimentados con maíz GM ; estudios que comparan el contenido nutricional de los alimentos GM con los naturales y que demuestran claras diferencias entre ambos ; investigaciones que señalan que los **alimentos GM** pueden producir nuevos alérgenos (véase Capítulo 6) ; estudios controvertidos sobre la hormona de crecimiento bovino GM, que, parece ser, omiten datos	Unfavorable

	Chapter 3) ; and the industry 's own studies, such as those submitted to the UK committee that had shocked Pusztai by their inadequacy. (JS1E.s641)	incriminadores (véase Capítulo 3) ; y los propios estudios de la industria, como los presentados ante el comité británico y que tanto sorprendieron a Pusztai por sus deficiencias. (JS1S.s617)	
77.	In spite of this small body of research, **GM foods** are a regular part of the U.S. diet. (JS1E.s642)	A pesar de estos estudios, los **alimentos GM** forman parte de la dieta de los estadounidenses. (JS1S.s618)	Concern
78.	There is no way to determine if these **GM foods** are creating serious health problems. (JS1E.s651)	Así pues, no hay forma de saber si estos **alimentos GM** están ocasionando problemas de salud. (JS1S.s627)	Concern (-)
79.	Is there a connection to **GM foods**? (JS1E.s662)	¿Existe alguna relación con los **alimentos GM**? (JS1S.s638)	Neutral
80.	How many other scientists, like Arpad Pusztai, discovered unexpected problems with **GM foods**, but due to funding or employment considerations, chose not to pursue it? (JS1E.s716)	¿Cuántos otros científicos, al igual que Arpad Pusztai, descubrieron problemas con los **alimentos GM**, pero debido a cuestiones de financiación o de empleo decidieron no seguir adelante? (JS1S.s690)	Concern
81.	The problems with **GM foods** may be irreversible and the true effects may only be seen well in the future. (JS1E.s726)	Los problemas ocasionados por los **alimentos GM** pueden ser irreversibles y los efectos reales pueden no detectarse hasta pasado un tiempo. (JS1S.s699)	Unfavorable
82.	Due to Pusztai 's unexpected " popularity, " he was approached by numerous scientists who quietly described their own surprise discoveries, further condemning the safety of **GM foods**. (JS1E.s736)	A causa de la inesperada " popularidad " de Pusztai, varios científicos se pusieron en contacto con él y comenzaron a anunciar sus también sorprendentes descubrimientos en los que se ponía en duda la seguridad de los **alimentos GM**. (JS1S.s708)	Concern (-)
83.	More pertinent, however, is a 2002 study that was dubbed " the world 's first known trial of **GM foods** on human volunteers. " (JS2E.s239)	De todas maneras, resulta más pertinente un estudio de 2002 al que se calificó de " primera investigación en el mundo con **alimentos GM** en voluntarios humanos ". (JS2S.s230)	Neutral
84.	Hansen told an EPA panel that since this promoter operates " outside of normal regulatory circuits " of the plant 's own DNA, it " may be one of the reasons why [**GM foods**] are known to be so unstable. " (JS2E.s308)	Hansen comunicó a la comisión de la EPA que dado que este promotor actúa " fuera de los circuitos de regulación habituales " del ADN de la propia planta, " puede ser una de las razones que lleven a pensar que los **alimentos GM** carecen de estabilidad ". (JS2S.s291)	Concern
85.	In addition to waking viruses in the DNA of corn, soy, and other **GM foods**, they are concerned that the promoters might move between organisms through horizontal gene transfer. (JS2E.s341)	Además de despertar virus en el ADN del maíz, la soja y otros **alimentos GM**, los científicos temen que los promotores puedan también extenderse entre los organismos mediante transferencia genética horizontal. (JS2S.s322)	Concern
86.	The CaMV promoter in **GM foods**, however, is naked viral DNA, with no such restrictions. (JS2E.s374)	Sin embargo, el promotor CaMV de los **alimentos GM** es ADN viral desnudo, y por ende libre de este tipo de restricciones. (JS2S.s351)	Neutral
87.	Troubled by Gore 's unquestioning acceptance of **GM foods**, Vlieger asked Gore to support a recently introduced bill in congress requiring that GM foods be labeled. (JS2E.s539)	Preocupado por la aceptación incuestionable de los **alimentos GM** que demostraba Gore, Vlieger le pidió que apoyase un proyecto de ley hacía poco presentado en el congreso en el que se estipulaba el etiquetado de los alimentos GM. (JS2S.s510)	Concern

88.	Troubled by Gore 's unquestioning acceptance of GM foods, Vlieger asked Gore to support a recently introduced bill in congress requiring that **GM foods** be labeled. (JS2E.s539)	Preocupado por la aceptación incuestionable de los alimentos GM que demostraba Gore, Vlieger le pidió que apoyase un proyecto de ley hacía poco presentado en el congreso en el que se estipulaba el etiquetado de los **alimentos GM**. (JS2S.s510)	Concern
89.	While the FDA spent several years evaluating rbGH, there is virtually no safety testing required for **GM foods**. (JS3E.s28)	Aunque la FDA haya dedicado años a la evaluación de la rbGH, no existen las pruebas de seguridad adecuadas de los **alimentos GM**. (JS3S.s27)	Concern (-)
90.	In defense of the safety of **GM foods**, he said, " Throughout the [approval] process, the public has ample opportunity for participation and comment, and data on which regulatory decisions are based are readily available. ") (JS3E.s164)	En defensa de los **alimentos GM**, dijo: " A lo largo del proceso [de aprobación] la sociedad tiene la opción de participar y comentar así como de acceder a los datos en los que se basan las decisiones de regulación. ") (JS3S.s159)	Favorable
91.	The same holds true for **GM foods**. (JS4E.s304)	Lo mismo sigue siendo válido para los **alimentos GM**. (JS4S.s276)	Neutral
92.	By " receive the same oversight as other products, " Quayle meant that **GM foods** would be considered just as safe as natural, non-GM foods. (JS5E.s59)	Por " se les dedicará... las mismas evaluaciones que a los demás ", Quayle se refería a que iban a considerar que los **productos GM** eran tan saludables como los naturales no manipulados. (JS5S.s54)	Favorable
93.	According to public interest attorney Steven Druker, who has studied the FDA 's internal files, " During Mr. Taylor 's tenure as Deputy Commissioner, references to the unintended negative effects of bioengineering were progressively deleted from drafts of the policy statement (over the protests of agency scientists), and a final statement was issued claiming (a) that **[GM] foods** are no riskier than others and (b) that the agency has no information to the contrary. " (JS5E.s73)	Según el abogado a beneficio del interés público Steven Druker, quien ha examinado la documentación interna de la FDA, " Mientras el señor Taylor ejerció como comisario delegado (pese a las protestas de los científicos de la agencia), las referencias a efectos negativos involuntariamente provocados por la biotecnología fueron desapareciendo de las declaraciones políticas, y se sacó un comunicado final en el que se afirmaba, a), que los **alimentos GM** no eran más peligrosos que otros, y b), que la agencia no disponía de información que apuntase lo contrario ". (JS5S.s68)	Favorable
94.	The policy boldly claimed that there was no information to indicate that **GM foods** were different or more risky than natural varieties. (JS5E.s77) Since the American public generally trusts the FDA, they assumed that no such risks existed. (JS5E.s78)	La agencia afirmaba que no existían datos indicativos de que los **alimentos GM** fuesen diferentes o más peligrosos que las respectivas variedades naturales y, puesto que la sociedad estadounidense suele confiar en la FDA, la ciudadanía asumió que no se daban tales riesgos. (JS5S.s72)	Favorable
95.	Moreover, Pribyl wrote " there is no certainty that [the breeders of **GM foods**] will be able to pick up effects that might not be obvious. " (JS5E.s86)	Además, Prybil escribió que " no puede asegurarse que [los productores de **alimentos GM**] vayan a ser capaces de advertir unos efectos que tal vez no sean evidentes ". (JS5S.s80)	Concern (-)
96.	According to Druker, records show that the majority of these scientists identified potential risks of **GM foods.** (JS5E.s90)	Según Druker, los registros demuestran que la mayoría de aquellos científicos identificaron riesgos potenciales en los **alimentos GM**. (JS5S.s84)	Concern (-)
97.	They could see for themselves that the agency 's scientists were not merely asking	Así, tuvieron ocasión de comprobar que los científicos de la agencia no se limitaban a hacer	Unfavorable

	questions ; many of their statements were quite emphatic about the unique risks of **GM foods.** (JS5E.s141)	preguntas, sino que algunas de sus afirmaciones sobre los riesgos de los **alimentos GM** eran categóricas. (JS5S.s131)	
98.	Maryanski, other FDA officials, and representatives throughout the U.S. government continue to claim that there is overwhelming consensus among scientists that **GM foods** are safe. (JS5E.s142)	Maryanski, otros funcionarios de la FDA y representantes gubernamentales siguen sosteniendo que entre los científicos existe un consenso generalizado acerca de la seguridad de los **alimentos GM**. (JS5S.s132)	Neutral
99.	The report said it was " scientifically unjustifiable " to presume that **GM foods** are safe. (JS5E.s152)	Su informe sostenía que asumir que los **alimentos GM** son seguros es " injustificable desde el punto de vista científico ". (JS5S.s141)	Concern (-)
100.	The report explains that the " default prediction " for any **GM foods** is that " expression of a new gene (and its products)... will be accompanied by a range of collateral changes in expression of other genes, changes in the pattern of proteins produced and/or changes in metabolic activities. " (JS5E.s153)	En el informe se explica que " ante la ausencia de otras pruebas, la única predicción " para cualquier **alimento GM** es que " la manifestación de un nuevo gen [y sus productos]... estará acompañada por diversos cambios colaterales en la manifestación de otros genes, cambios en el orden de las proteínas producidas y/o cambios en el metabolismo ". (JS5S.s142)	Concern
101.	Druker also points to a statement in one FDA scientist 's memo that shows the agency administrators had instructed their scientists to subject **GM foods** to a lower safety standard than that normally applied to food additives: " It has been made clear to us that this present submission [FlavrSavr rat study] is not a food additive petition and the safety standard is not the food additive safety standard. (JS5E.s196)	Druker menciona también una afirmación extraída del memorando de uno de los científicos de la FDA que demuestra que los administradores de la agencia pidieron a sus científicos que sometieran **los alimentos GM** a pruebas de seguridad menos estrictas que las que deben pasar los aditivos alimentarios: " Nos han dejado claro que esta propuesta [estudio FlavrSavr con ratas] no es una petición para un aditivo alimentario y los niveles de seguridad no son los mismos que para los aditivos. (JS5S.s182)	Concern (-)
102.	The approval of **GM foods** is better appreciated in light of the perennial challenges faced by the FDA. (JS5E.s200)	La aprobación de **alimentos GM** se aprecia mejor a la luz de los constantes problemas a los que debe enfrentarse la FDA. (JS5S.s186)	Concern (-)
103.	The influence of the OMB was brought to light in late 1990 when, in response to the FDA 's long delay in establishing some new rules for health claims on food (unrelated to **GM foods**), the Congress mounted an investigation of the agency. (JS5E.s218)	La influencia de la OMB salió a la luz a finales de 1990 cuando, en respuesta a los largos retrasos de la FDA para fijar nuevas normas para la seguridad de alimentos (sin relación alguna con los **alimentos GM**), el Congreso decidió investigar a la agencia. (JS5S.s201)	Concern
104.	Just as the FDA regulates **GM foods** with lower standards than other food additives, the EPA regulates them with lower standards than chemicals. (JS5E.s271)	De la misma forma que la FDA regula los **alimentos GM** siguiendo criterios menos rigurosos que los que utiliza para regular otros aditivos, la EPA los regula con criterios menos rigurosos que los que aplica a los productos químicos. (JS5S.s252)	Concern (-)
105.	**GM foods** do n't enjoy these safeguards. (JS5E.s273)	Los **alimentos GM** no gozan de estas garantías. (JS5S.s254)	Unfavorable
106.	When the FDA first introduced its policy on **GM foods**, they created a method by which the biotech companies could voluntarily consult with the agency. (JS5E.s283)	Cuando la FDA introdujo su política sobre los **alimentos GM**, creó un método por el cual las compañías biotecnológicas podrían consultar voluntariamente con la agencia. (JS5S.s263)	Neutral

107.	In response to public criticism about the regulatory policy on **GM foods** and demands by consumer and environmental groups for mandatory labeling of GM foods, in May 1999 the Clinton administration announced a set of changes that were meant to bolster consumer confidence. (JS5E.s286)	En respuesta a las opiniones críticas generalizadas acerca de la política de regulación de **productos GM** y las peticiones por parte de los grupos medioambientales y de consumidores de que los alimentos GM lleven obligatoriamente etiquetas, la administración Clinton anunció, en mayo de 1999, una serie de cambios que habrían de devolver la confianza a los consumidores. (JS5S.s266)	Concern
108.	In response to public criticism about the regulatory policy on GM foods and demands by consumer and environmental groups for mandatory labeling of **GM foods**, in May 1999 the Clinton administration announced a set of changes that were meant to bolster consumer confidence. (JS5E.s286)	En respuesta a las opiniones críticas generalizadas acerca de la política de regulación de productos GM y las peticiones por parte de los grupos medioambientales y de consumidores de que los **alimentos GM** lleven obligatoriamente etiquetas, la administración Clinton anunció, en mayo de 1999, una serie de cambios que habrían de devolver la confianza a los consumidores. (JS5S.s266)	Concern
109.	In 1994, 181 congressmen co-sponsored a bill that would require labeling of **GM foods**. (JS5E.s322)	En 1994, 181 congresistas promovieron una propuesta de ley en busca de que se requiriese identificar con etiquetas a los **alimentos GM**. (JS5S.s300)	Concern
110.	In addition, the industry has committed a quarter of a billion dollars over five years to convince the public that **GM foods** are the right choice. (JS5E.s337)	Además, la industria ha comprometido 250.000 millones de dólares en cinco años para convencer a la sociedad de que los **alimentos GM** son la elección adecuada. (JS5S.s313)	Favorable
111.	Former Secretary of Agriculture Dan Glickman had been one of the Clinton administration 's staunchest defenders of biotech, touring Europe with industry representatives to promote **GM foods.** (JS5E.s378)	Dan Glickman, antiguo secretario de Agricultura, fue, en la administración Clinton, uno de los más firmes defensores de la biotecnología, hasta el punto de que recorrió Europa con representantes del sector para promocionar los **alimentos GM**. (JS5S.s351)	Favorable
112.	Glickman 's concerns about **GM foods** run deeper than just labeling. (JS5E.s400)	Glickman teme que lo de los **alimentos GM** vaya más allá que las etiquetas. (JS5S.s371)	Concern
113.	The company 's aggressive strategy has been credited, in part, for the eruption of global opposition to **GM foods**. (JS5E.s436)	La agresiva estrategia de la empresa se ha justificado, en parte, por la aparición de una oposición global a los **alimentos GM**. (JS5S.s404)	Unfavorable
114.	U.S. Deputy Secretary of Commerce David Aaron told European representatives in 1999, " Not a rash, not a sneeze, not a cough, not a watery eye has been developed from **[GM foods],** and that 's because we have been extremely careful in our process of approving them. " (JS5E.s446)	El subsecretario de Comercio de Estados Unidos David Aaron dijo a representantes europeos en 1999 que " Ni un sarpullido ni una tos ni un ojo lloroso, pueden achacarse a los **alimentos GM**, y eso es porque hemos sido muy cuidadosos a la hora de aprobarlos ". (JS5S.s413)	Favorable
115.	He said that the FDA found no scientific proof that **GM foods** were harmful. (JS5E.s447) He said the reason that Americans were not against GM food is because they trust the FDA. (JS5E.s448)	Dijo que la FDA no encontraba prueba científica de que los **alimentos GM** fueran perjudiciales, y que la razón por la que los estadounidenses no estaban en contra de los alimentos GM se debía a la confianza que profesan a la FDA. (JS5S.s414)	Favorable
116.	*Many people believe that the FDA policy defines **GM foods** as " substantially equivalent " to their natural counterparts.	* Mucha gente opina que la política de la FDA define a los **alimentos GM** como sustancialmente equivalentes a sus variedades	Favorable

	(JS5E.s459)	naturales. (JS5S.s424)	
117.	The term exposed the agency 's policy to challenges, so they have stopped using it in connection with **GM foods**. (JS5E.s461)/**T**	El término expuso la línea política de la agencia a criticas, así que han dejado de utilizarlo en relación a los **alimentos GM**. (JS5S.s426)	Concern
118.	Graham said, " We believe this raises serious new questions about the safety of **GM foods**. " (JS6E.s33)	Según Graham, " Creemos que esto hace cuestionar de manera seria la seguridad de los **alimentos GM** ". (JS6S.s35)	Concern (-)
119.	At the moment no allergy tests are carried out before **GM foods** are marketed. " (JS6E.s38)	Por ahora no se realizan pruebas de alergia antes de la comercialización de los **alimentos GM** ". (JS6S.s40)	Concern
120.	More worrisome is that current **GM foods** get their genes from bacteria, viruses, and other organisms. (JS6E.s78)	Más preocupante aún es que los **alimentos GM** actuales reciben genes de bacterias, virus y otros organismos. (JS6S.s78)	Concern (-)
121.	He said, " I think that is the Achilles heel of these **GM foods.** (JS6E.s96)	Según Pusztai: " En mi opinión ese es el talón de Aquiles de los **alimentos GM**. (JS6S.s95)	Concern (-)
122.	This has led some scientists to call for " post-market surveillance " of new **GM foods** for allergic reactions, in much the same way newly introduced drugs are monitored for side effects. (JS6E.s98)	Todo esto ha hecho que algunos científicos pidan " vigilancia tras la comercialización " de los **productos GM** para observar posibles reacciones alérgicas, de la misma manera en que se observan los efectos secundarios de los medicamentos de reciente introducción. (JS6S.s97)	Concern
123.	In January 2001, the Food and Agriculture Organization of the United Nations (FAO) and the World Health Organization (WHO) convened a joint expert consultation and created a set of recommended guidelines to evaluate the allergenicity of **GM foods.** (JS6E.s100)	En, enero de 2001, la Organización de las Naciones Unidas para la Agricultura y la Alimentación (FAO) y la Organización Mundial de la Salud (OMS) convocaron una reunión de expertos y establecieron una serie de pautas recomendadas para evaluar la alergenicidad de los **alimentos GM**. (JS6S.s99)	Concern
124.	The StarLink incident of 2000 demonstrates how **GM foods** might be contributing to the increasing number of allergies, and how unprepared the government is to monitor, detect, or deal with allergic outbreaks. (JS6E.s108)	El incidente StarLink en el año 2000 demuestra que los **alimentos GM** pueden estar contribuyendo al número creciente de alergias y lo poco preparado que está el Gobierno para controlar, detectar o encargarse de los brotes de alergia. (JS6S.s107)	Concern (-)
125.	The U.S. public began questioning the safety of **GM foods** for the first time. (JS6E.s159)	Fue la primera vez que la población estadounidense dudó de los **alimentos GM**. (JS6S.s158)	Concern (-)
126.	The advisory panel also recommended to the EPA that allergy testing should be expanded to include all **GM foods.** (JS6E.s247)	La comisión consultiva también recomendó a la EPA que las pruebas en busca de alérgenos deberían aplicarse a todos los **alimentos GM**. (JS6S.s237)	Concern
127.	Due to the shifting nutritional make-up of **GM foods**, accurate and reliable safety assessments of any kind may be impossible. (JS6E.s371)	Debido a la inestable composición nutricional de los **alimentos GM**, las valoraciones de seguridad precisas y fiables, sean del tipo que sean, tal vez resulten imposibles. (JS6S.s352)	Concern (-)
128.	The following stories provide examples of how public opinion about **GM foods** has been manipulated. (JS7E.s5)	Las siguientes historias sirven de ejemplo para corroborar que la opinión pública sobre los **OGM** ha estado totalmente manipulada. (JS7S.s5)	Unfavorable
129.	According to their press statement, their report " found an overwhelming bias in	Según reza su nota de prensa, en su estudio " encontraron una parcialidad abrumadora a favor	Favorable

	favor of **GM foods** not only on editorial pages, but also on op-ed pages, a forum usually reserved for a variety of opinions. (JS7E.s257)	de los **alimentos GM**, presente no sólo en las páginas editoriales sino también en las de tribuna, que suelen ser un espacio para dar cabida a la diversidad de opiniones. (JS7S.s237)	
130.	In fact, the report found that some newspapers surveyed did not publish a single critical op-ed on **GM foods** and crops, while publishing several in support. " (JS7E.s258)	De hecho, observaron que muchos de los periódicos examinados no habían publicado ni tan sólo una critica de los **alimentos** y cultivos **GM** en sus páginas de tribuna y sí varios a favor ". (JS7S.s238)	Favorable
131.	The report showed that between September 1999 and August 2001, " Newspaper editorials were united in supporting **GM foods** and crops and only diverged on the issue of labeling. " (JS7E.s260)	El informe mostraba que entre septiembre de 1999 y agosto de 2001 las editoriales de los periódicos estuvieron unidas en su apoyo a los **alimentos** y cultivos **GM**, y sólo se dieron divergencias en lo tocante al asunto de las etiquetas ". (JS7S.s240)	Favorable
132.	The arguments pitched in favor of **GM foods** were " by and large, the same arguments used by the biotechnology industry in their advertising campaigns. " (JS7E.s261)	Los argumentos lanzados a favor de los **alimentos GM** eran, " punto por punto idénticos a los utilizados por la industria biotecnológica en sus campañas publicitarias ". (JS7S.s241)	Favorable
133.	In the op-ed pages, " a forum usually reserved for a variety of opinions, " thirty-one out of forty pieces appearing in the major newspapers and magazines in America supported **GM foods** ; only seven were critical. (JS7E.s262) Another two argued for labeling. (JS7E.s263)	En las páginas de tribuna, " un espacio para dar cabida a la diversidad de opiniones ", treinta y uno de los cuarenta artículos publicados por los principales periódicos y revistas estadounidenses se situaron a favor de los **alimentos GM**, mientras que sólo siete fueron críticos y otros dos trataban la polémica de las etiquetas. (JS7S.s242)	Concern (-)
134.	In the UK, where there is apparently more freedom to criticize **GM foods**, organizations like the Royal Society have tried to squelch that freedom. (JS7E.s265)	En el Reino Unido, donde parece haber una mayor libertad para criticar los **alimentos GM**, organizaciones como la Royal Society han intentado aplastar esa libertad. (JS7S.s244)	Concern (-)
135.	According to the report " Suppressing Dissent in Science with **GM Foods**, " " Before interviewing any scientist, the journalist will be expected to have consulted the officially nominated expert in the field. " (JS7E.s268)	Según el informe Suppressing Dissent in Science with GM Foods (la supresión de la discusión científica sobre los **alimentos GM**), " Antes de que entreviste a cualquier científico, se espera que el periodista haya consultado al experto oficial en la materia ". (JS7S.s247)	Unfavorable
136.	That was the message in Monsanto 's European-wide advertising campaign, designed to calm fears of **GM foods**. (JS7E.s314)	Ése fue el mensaje de Monsanto en su gran campaña publicitaria europea, pensada para acallar los temores a los **alimentos GM**. (JS7S.s289)	Concern (-)
137.	The reduced phytoestrogen levels that Lappé and Bailey found demonstrate a recurring problem with **GM foods**. (JS7E.s378) Genetic engineering creates unpredictable changes ; the composition of a GM food might be quite different from its natural counterpart. (JS7E.s379)	Los reducidos niveles de fitoestrógenos que encontraron Lappé y Bailey toparon con un problema recurrente en los **alimentos GM** ; la ingeniería genética provoca cambios imprevisibles y, de igual modo, la composición de un alimento GM puede ser muy diferente a la de su correspondiente natural. (JS7S.s347)	Concern (-)
138.	It is up to the whims and wisdom of the FDA regulators to determine what nutritional differences are allowed for **GM foods**. (JS7E.s392)	Así, la fijación de las diferencias nutricionales permisibles en los **alimentos GM** está sujeta al antojo de los inspectores de la FDA. (JS7S.s360)	Concern (-)
139.	Hence, the foundation of the FDA policy	Por lo tanto, los fundamentos de la línea política	Concern (-)

	is a non-scientific, non-binding guideline that allows **GM foods** into the market in spite of significant nutritional differences. (JS7E.s394)	de la FDA descansan en una concepción no científica ni vinculante, por la cual se permite que los **alimentos GM** estén en los mercados a pesar de sus ostensibles diferencias nutricionales. (JS7S.s362)	
140.	And although the U.S. press had failed to report virtually all evidence about the potential health risks of **GM foods**, an attack on monarchs was too much to ignore. (JS7E.s409)	Y aunque la prensa de Estados Unidos no había informado sobre los posibles riesgos de los **alimentos GM**, un problema con las monarca era demasiado ignorar. (JS7S.s374)	Concern (-)
141.	His organization, Alliance for Biointegrity, along with the International Center for Technology Assessment (CTA) in Washington, D.C., spearheaded a lawsuit to rein in the pro-biotech agency and force them to test **GM foods** and to label them. (JS7E.s487)	Su organización, la Alliance for Biointegrity (Alianza para la biointegridad), junto con el International Center for Technology Assessment (Centro internacional de asesoramiento tecnológico ; CTA por sus siglas en inglés) de Washington D.C., encabezó una demanda para frenar las acciones de la agencia biotecnológica y hacer que llevara a cabo las pruebas de seguridad necesarias en los **alimentos GM** y colocara en ellos las etiquetas pertinentes. (JS7S.s449)	Concern (-)
142.	On the religious front, Druker argued that by not labeling **GM foods** the FDA was not allowing individuals to practice their religious freedom. (JS7E.s489)	Desde el punto de vista de la religión, Druker argumentó que si no etiquetaba sus **productos GM**, la FDA estaba privando a la gente de ejercitar su libertad de religión. (JS7S.s451)	Concern (-)
143.	Based on three separate laws, the Food, Drug, and Cosmetic Act, the U.S. constitution, and the Religious Freedom Restoration Act, Druker reasoned that individuals who were religiously opposed to eating **GM foods** must be able to identify them in order to avoid them. (JS7E.s490)	Basándose en tres leyes distintas, la Food, Drug and Cosmetic Act, la constitución de los Estados Unidos y la Religious Freedom Restoration Act (Acta de restauración de libertad religiosa), Druker argumentó que la gente que se oponía a ingerir **alimentos GM** por motivos religiosos debía poder identificarlos para así evitarlos. (JS7S.s452)	Unfavorable
144.	On the scientific side, Druker believed that the FDA had violated the law by presuming that all **GM foods** are Generally Recognized as Safe (GRAS). (JS7E.s494)	Desde el punto de vista científico, Druker creía que la FDA quebrantó la ley cuando presumió que todos los **alimentos GM** son generalmente reconocidos como seguros (GRAS, por sus siglas en inglés). (JS7S.s455)	Concern (-)
145.	**GM Foods** did not meet either criterion. (JS7E.s500)	Los **alimentos GM** no siguen ninguno de los dos criterios. (JS7S.s461)	Unfavorable
146.	There were no peer-reviewed articles demonstrating the safety of any of these foods, and many eminent scientists believed **GM foods** to be unsafe. (JS7E.s501)	No existían artículos revisados que demostraran su seguridad y muchos eminentes científicos creían que los **alimentos GM** entrañaban riesgos. (JS7S.s462)	Unfavorable
147.	The very fact that prominent scientists were suing the FDA and publicly declaring that **GM foods** cannot be presumed safe should, Druker reasoned, demonstrate that there was not a consensus on safety. (JS7E.s511)	Druker asumió que el hecho de que científicos de renombre estuvieran demandando a la FDA y declarando públicamente que los **alimentos GM** no pueden ser considerados seguros debería demostrar que no existía un consenso acerca de su seguridad. (JS7S.s472)	Unfavorable
148.	The FDA policy had claimed that the agency was not aware of any evidence that **GM foods** differed from normal, natural foods in any meaningful way. (JS7E.s522)	La información de la FDA sostenía que la agencia no tenía constancia de que los **alimentos GM** difirieran en nada de los naturales. (JS7S.s483)	Favorable

149.	Finally, in January 2001, a year and a half after Druker 's press conference, the Times ran an in-depth story on the history of Monsanto 's influence at the FDA, which did include quotes taken from a couple of FDA scientists warning their superiors about the health risks of **GM foods**. (JS7E.s538)	Finalmente, en enero de 2001, un año y medio después de la rueda de prensa, el Times publicó un artículo que trataba en profundidad la historia de la influencia de Monsanto sobre la FDA en el que se incluían las advertencias acerca de los riesgos para la salud de los **alimentos GM** que científicos que trabajaban para la agencia habían hecho a sus superiores. (JS7S.s499)	Unfavorable
150.	The article was unprecedented, giving American readers an insight into government corruption surrounding approval of **GM foods**. (JS7E.s539)	Este artículo fue el primero que ofreció a los lectores de Estados Unidos una visión en profundidad de la corrupción gubernamental que rodeaba la aprobación de los **alimentos GM**. (JS7S.s500)	Unfavorable
151.	A couple of days later, ABC news aired a three-minute story about **GM foods.** (JS7E.s554)	Un par de días más tarde, la cadena emitió una historia sobre los **alimentos GM**. (JS7S.s513)	Neutral
152.	Curious about consumer response to **GM foods**, in 2000 the FDA conducted twelve focus groups around the country where they interviewed citizens about the issue. (JS7E.s575)	En el año 2000, la FDA sintió curiosidad por la opinión de los consumidores sobre los **alimentos GM** y envió doce grupos de sondeo por todo el país para que preguntaran a los ciudadanos sobre el tema. (JS7S.s534)	Concern
153.	It turned out that most people did n't know they were eating **GM foods**, let alone eating them at almost every meal. (JS7E.s576)	Resultó que la mayoría de la gente no sabía que estaba consumiendo **alimentos GM**, y aún menos que los ingerían en prácticamente cada una de las comidas. (JS7S.s535)	Concern (-)
154.	Various polls in the U.S. show that 70 to 94 percent of the population favor mandatory labeling of **GM foods**. (JS7E.s582)	Algunas encuestas de Estados Unidos muestran que entre el 70 y el 94 por ciento de la población está a favor del etiquetado obligatorio de los **alimentos GM**. (JS7S.s540)	Concern
155.	The stated policy of the United States is to promote **GM foods**, and many believe that labeling would hamper that goal. (JS7E.s584)	Estados Unidos, no. (JS7S.s542) La política del país es promover los **alimentos GM**, y muchos creen que las etiquetas obstaculizarían el objetivo. (JS7S.s543)	Favorable
156.	You Decide, delivered nearly 500,000 signatures to the nation 's leaders on June 17, 1999, asking that **GM foods** be labeled. (JS7E.s589)	You Decide (Alimentos genéticamente modificados: ¿son seguros? tú decides) recogió más de 500.000 firmas que entregó, a los gobernantes del país el 17 de junio de 1999, para pedir que los **alimentos GM** llevaran la etiqueta correspondiente. (JS7S.s548)	Concern
157.	Moreover, any pretense of safety, precision, or predictability of the effects of GM crops would have to be abandoned and **GM foods** would likely be finished. (JS7E.s728)	Además, tendría que abandonarse cualquier pretensión en cuanto a la seguridad, precisión y previsión, de los efectos de los **cultivos GM**, los cuales, como consecuencia probable, habrían de erradicarse. (JS7S.s677)	Concern (-)
158.	One of Smetacek 's letters, which accused Greenpeace of deliberately spreading fears about **GM foods** to further its own financial interests, appeared in the Glagow Herald. (JS7E.s746)	Uno de sus textos, en que acusaba a Greenpeace de extender el temor a los **alimentos GM** con el propósito de ampliar sus intereses financieros, apareció en el Glasgow Herald. (JS7S.s693)	Unfavorable
159.	And no research has yet looked at these effects related to **GM foods**. (JS8E.s87)	Y no se ha realizado aún ningún estudio sobre la relación entre estos efectos y los **alimentos GM**. (JS8S.s83)	Concern (-)
160.	Certainly this single observation is an	Por supuesto, esta reacción es insuficiente para	Concern

	insufficient basis on which to draw conclusions about the effects of **GM foods** on the human psyche. (JS8E.s94)	sacar conclusiones sobre los efectos de los **alimentos GM** en la salud mental de los humanos. (JS8S.s90)	
161.	The focus of this book, however, is on **GM foods** that use gene insertion. (JS8E.s145)	Sin embargo, este libro se centra en los **alimentos GM** a los que sí se insertan genes. (JS8S.s138)	Neutral
162.	Responding to statements by U.S. Trade Representative Robert Zoellick attacking the EU 's stance on **GM foods**, European Development Commissioner Poul Nielson said, " This is a strange discussion. (JS8E.s297) Very strange. (JS8E.s298)	En respuesta a las declaraciones de Robert Zoellick, representante de Comercio de Estados Unidos, en las que atacaba la actitud que en materia de **alimentos GM** mantenía la Unión Europea, el comisario de Desarrollo de la Unión Europea, Poul Nielson, dijo: " Es una discusión rara, muy rara. (JS8S.s248)	Concern (-)
163.	After you effectively counter arguments that the technology is precise, the FDA has proven it safe, and it 's just like traditional crossbreeding, in the end the discussion will come to the moral imperative that we need **GM foods** to feed the world. (JS9E.s40)	Tras haber hecho frente a los argumentos que afirman la precisión de la tecnología y la aprobación que le otorgó la FDA, y los que la equiparan a los cruzamientos tradicionales, el debate desembocará en un imperativo moral: necesitamos los **alimentos GM** para alimentar al mundo. (JS9S.s36)	Favorable
164.	But whenever anyone brushed lightly on the topic of public resistance to **GM foods**, they all said the same sentence: " It 's not a food safety issue. " (JS9E.s51)	En esas, cada vez que alguien insinuaba vagamente el tema de la resistencia social a los **alimentos GM**, todos ellos recitaban la misma frase: " No es ése un tema de seguridad alimentaria ". (JS9S.s47)	Concern (-)
165.	Each speaker would characterize the arguments against **GM foods** as cultural, or religious, or philosophical, or anti-science, or complicated, or a trade barrier, or anti-American. (JS9E.s52)	Calificaban los argumentos contrarios a los **alimentos GM** de culturales, religiosos, filosóficos, opuestos a la ciencia, complicados, desfavorables para el mercado o enemigos de Estados Unidos. (JS9S.s48)	Concern (-)
166.	During a break, I started up a conversation with a graduate student doing research on the sociological issues surrounding **GM foods**. (JS9E.s56)	Durante el descanso, inicé una conversación con una estudiante de postgrado ocupada en investigar cuestiones sociológicas en el contexto de los **alimentos GM**. (JS9S.s51)	Concern
167.	As she shared some details of her work, she referred to the resistance to **GM foods** expressed in Europe and elsewhere. (JS9E.s57)	Mientras me hacía participe de ciertos detalles de su trabajo, se refirió a la resistencia a los **alimentos GM** manifestada en Europa y otros lugares. (JS9S.s52)	Concern (-)
168.	The graduate student believed that there is no food safety issue with **GM foods** and the Monsanto scientist at lunch believed GM foods could feed the starving. (JS9E.s64)	La estudiante de postgrado creía que no hay tema de seguridad alimentaria que valga en los **alimentos GM**, y el científico de Monsanto, durante la comida, creía que los alimentos GM podrían alimentar a los hambrientos. (JS9S.s59)	Concern
169.	The graduate student believed that there is no food safety issue with GM foods and the Monsanto scientist at lunch believed **GM foods** could feed the starving. (JS9E.s64)	La estudiante de postgrado creía que no hay tema de seguridad alimentaria que valga en los alimentos GM, y el científico de Monsanto, durante la comida, creía que los **alimentos GM** podrían alimentar a los hambrientos. (JS9S.s59)	Concern
170.	Jack Kemp, former Republican nominee for vice president had some choice words for those who called for safety testing and labeling of **GM foods**. (JS9E.s71)	Jack Kemp, antiguo candidato republicano a la vicepresidencia, tenía en su haber algunas palabras adecuadas para quienes reclamaban pruebas de seguridad y etiquetas para los **alimentos GM**. (JS9S.s64)	Favorable

171.	To convince someone that **GM foods** carry serious risks usually takes a prolonged discussion. (JS9E.s80) It takes an even longer discussion to inspire someone to actually change his or her lifelong eating habits. (JS9E.s81)	Para convencer a cualquiera de que los **alimentos GM** conllevan graves riesgos suele hacer falta una prolongada conversación, que se alarga aún más si lo que se pretende es cambiarle los hábitos de alimentación. (JS9S.s73)	Unfavorable
172.	Instead, they have been subjected to relentless promotion by the biotech industry and bullying by the U.S. government to accept **GM foods** and crops. (JS9E.s92)	Ellos han sido objeto de incesantes campañas de la industria biotecnológica e intimidaciones del Gobierno estadounidense, todo ello encaminado a que dieran su aceptación a los **alimentos** y cultivos **GM**. (JS9S.s83)	Favorable
173.	After receiving several letters expressing concerns about **GM foods**, the company 's chairman Malcolm Walker decided to find out what all the fuss was about. (JS9E.s102)	Tras recibir diversas cartas en las que se expresaban preocupaciones por los **alimentos GM**, Malcolm Walker, el director de la empresa, decidió descubrir la razón de aquel alboroto. (JS9S.s87)	Concern (-)
174.	They resented the biotech companies for the whole mess. (JS9E.s131) After all, the food industry did n't ask for **GM foods** and did not benefit from them in any way. (JS9E.s132)	Las compañías biotecnológicas, como resultado, se resintieron, pues, después de todo, la industria alimentaria no había pedido los **alimentos GM** y no obtenía ningún beneficio con ellos. (JS9S.s112)	Concern (-)
175.	**GM foods** were not cheaper or more appealing. (JS9E.s133) They were an expensive problem thrust on them from what they considered an insensitive and greedy American industry. (JS9E.s134)	Los **alimentos GM** no eran más baratos ni tampoco más apetecibles, sino que, por el contrario, constituían un gravoso problema debido a la que consideraban insensible y codiciosa industria estadounidense. (JS9S.s113)	Concern (-)
176.	The effectiveness of this strategy is illustrated by the Grocery Manufacturers Association 's (GMA) ubiquitous presence in the media defending **GM foods**. (JS9E.s136)	La efectividad de esa estrategia tiene un buen ejemplo en la ubicuidad de la Grocery Manufacturers Association (Asociación de productores de comestibles ; GMA por sus siglas en inglés), que prodiga su presencia en todos los medios de comunicación en defensa de los **alimentos GM**. (JS9S.s115)	Favorable
177.	Consumers were alerted to potential dangers and many Americans realized for the first time that they were eating **GM foods**. (JS9E.s140)	Se alertó a los consumidores de los peligros potenciales y muchos estadounidenses se dieron cuenta, por vez primera, de que estaban comiendo **alimentos GM**. (JS9S.s119)	Concern (-)
178.	Even one large company changing its policy could make **GM foods** unpopular very quickly. (JS9E.s152)	Incluso el que una gran compañía decidiese cambiar su política podría ser suficiente para que los **alimentos GM** se lucieran impopulares en un corto lapso de tiempo. (JS9S.s131)	Concern (-)
179.	Please email or write food companies to share your concerns about **GM foods**. (JS9E.s155)	Por favor, lector o lectora, mande un correo electrónico o escriba a las compañías alimentarias para participarles sus preocupaciones acerca de los **alimentos GM**. (JS9S.s134)	Concern (-)
180.	With your message, please suggest that they read this book ; they 'll learn about the health risks of **GM foods** and the significant liability they face by using them. (JS9E.s157)	En su mensaje sugiérales que lean el presente libro ; sabrán los riesgos de salud que corren debidos a los **alimentos GM** y las pesadas responsabilidades a las que se enfrentan al utilizarlos. (JS9S.s136)	Unfavorable
181.	For example, I asked the owner of a local restaurant to take **GM foods** off his menu, explaining that there were several people	Por ejemplo, yo le pedí al propietario de un restaurante de la zona donde vivo que retirara los **alimentos GM** de su menú porque había	Unfavorable

	in town that avoided them. (JS9E.s165)	gente que prefería no tomarlos. (JS9S.s144)	
182.	Not to be outdone, a competing restaurant one block away also removed **GM foods**. (JS9E.s171)	Para que su negocio no se resintiera, un restaurante cercano eliminó los **productos GM**. (JS9S.s150)	Unfavorable
183.	I never once had to discuss any safety issues about **GM foods**. (JS9E.s177)	En ninguno de los casos tuve que mencionar los problemas de salud relacionados con los **OGM**. (JS9S.s155)	Concern (-)
184.	It was enough for the restaurant owners to know that their customers preferred not to eat **GM foods**, or that a competitor was responding to that preference. (JS9E.s178)	A los propietarios de los restaurantes les bastó con saber que sus clientes preferían no comer **alimentos GM** o que un negocio de la competencia estaba ya satisfaciendo esa preferencia. (JS9S.s156)	Unfavorable
185.	Children are at greatest risk from the potential dangers of **GM foods**. (JS9E.s187)	Los niños corren un riesgo mayor de sufrir los efectos potencialmente peligrosos de los **alimentos GM**. (JS9S.s165)	Concern (-)
186.	This book also does not explore the most dangerous aspect of **GM foods** - the environmental impact. (JS9E.s210)	En este libro tampoco se analiza el aspecto más peligroso de los **alimentos GM**: el impacto que tienen sobre el medio ambiente. (JS9S.s184)	Unfavorable
187.	The devastating environmental implications of **GM foods** are discussed in my forthcoming book, along with corresponding stories of government negligence and complicity. (JS9E.s213)	En mi próximo libro analizo los devastadores efectos sobre el medio ambiente de los **alimentos GM** así como la negligencia y complicidad de los organismos gubernamentales en el asunto. (JS9S.s187)	Unfavorable
188.	The narrow focus of this first book on the health risks of **GM foods** is intentional. (JS9E.s219) It is designed to be a catalyst for change. (JS9E.s220)	Mi intención en este libro fue limitarme a los riesgos que comportan los **alimentos GM** e intentar que sirviera como catalizador de un cambio. (JS9S.s192)	Unfavorable
189.	While I use the term " lies " to describe assertions that **GM foods** are safe, I do not believe that most people who make that claim are liars. (JS9E.s225)	Aunque utilizo la palabra " mentiras " para describir las afirmaciones sobre la seguridad de los **alimentos GM**, creo que la mayor parte de la gente que hace tales aseveraciones no son mentirosos. (JS9S.s197)	Unfavorable
190.	When the U.S. announced on May 13, 2003, that it would challenge the European Union 's policy on **GM foods** through the World Trade Organization, U.S. Trade Representative Robert Zoellick blamed fears of GM foods on " special interests that hype hysteria. " (JS9E.s230)	Cuando, el 13 de mayo de 2003, Estados Unidos anunció que estaba dispuesto a retar la política de la Unión Europea en lo concerniente a los **alimentos GM** a través de la Organización Mundial del Comercio, el representante de Comercio de Estados Unidos, Robert Zoellick, dijo que la culpa de los temores que suscitan estos alimentos se debe a " intereses determinados para extender la histeria ". (JS9S.s201)	Concern (-)
191.	Pro-biotech rhetoric is on the rise as the U.S. attempts to force **GM foods** onto countries around the world. (JS9E.s236)	Los argumentos a favor de la industria biotecnológica van en aumento a medida que Estados Unidos intenta imponer la introducción de los **alimentos GM** en todo el mundo. (JS9S.s207)	Favorable
		GMO food/s (2)	
192.	I also think we 're headed toward a two-track system: There will be **GMO food** and non-GMO food, and the non-GMO food system will need determined, fail-safe preservation from	También creo que nos estamos dirigiendo hacia un sistema bifurcado: habrá **comida con OMG** y comida sin OMG, y el sistema alimenticio libre de OMG requerirá una conservación determinada, a prueba de fallos, durante todo	Neutral

	farm field to supermarket with separate farm implements, grain elevators, processing plants, and even ships, in much the same way kosher food is kept untainted. (BL1E.s372)	ese proceso que media entre el campo de labranza y el supermercado, y deberá disponer de aperos agrícolas propios, elevadores de granos, plantas procesadoras, e incluso barcos, de un modo parecido a como los alimentos kosher se mantienen incontaminados actualmente. (BL1S.s367)	
193.	The advertising did not penetrate a large portion of the [intended audience] and, among those who read the advertising, it did little to increase public acceptance of **GMO foods**. " (BL15E.s179)	La publicidad no hizo mella en un amplio sector del [público previsto] y, entre aquellos que leyeron los anuncios, poco hicieron éstos para aumentar la aceptación pública de los **OMG**. " (BL15S.s175)	Concern
2) *Genetically modified* food/s (98)			
1.	In making a case for my reporting project, I tagged 1998 as a pivotal year for **genetically modified food**. (BL1E.s59)	Para establecer las bases de mi proyecto informativo, consideré que 1998 fue un año crucial para los **alimentos transgénicos**. (BL1S.s58)	Neutral
2.	**GENETICALLY MODIFIED FOOD** is part of the fabric of American life. " (BL1E.s110)	- Los **alimentos modificados genéticamente** forman parte del tejido de la vida norteamericana. (BL1S.s107)	Neutral
3.	It is Opening Day at Camden Yards, and Gene has invited me to watch baseball and, as I suspected, to talk about **genetically modified food**. (BL1E.s119)	Es el día de la inauguración de Camden Yards, y Gene me ha invitado a ver un partido de béisbol y, como ya sospechaba, con el objetivo de que hablemos sobre los **alimentos modificados genéticamente**. (BL1S.s116)	Neutral
4.	He would love to see scientists hasten their quest to produce **genetically modified food** that is more nutritious - or more appealing in any way - so that people wo n't be suspicious when they learn GMOs have occupied their supermarket shelves. (BL1E.s125)	Le encantaría ver cómo los científicos aceleran su investigación, para producir **alimentos alterados genéticamente** que sean más nutritivos (o atractivos en cualquier otro sentido), de modo que el público no se alarme cuando se entere de que los OMG han invadido los estantes de sus supermercados. (BL1S.s122)	Concern (English) / Concern (-) (Spanish)
5.	With so many foods modified so soon, the creators of **genetically modified food** have led us to believe that the march of biotechnology is unstoppable. (BL1E.s209)	Debido a la enorme cantidad de **alimentos que ya han sido modificados**, los creadores de la comida transgénica nos han hecho pensar que el avance de la biotecnología es imparable. (BL1S.s205)	Favorable
6.	" They hit us with everything they had, and they could n't put us down, " he says, describing the efforts of opponents to **genetically modified food**. (BL1E.s253)	- Nos han atacado con todas las armas disponibles, y no pudieron reducirnos - me dice, describiendo los esfuerzos de los adversarios de los **alimentos genéticamente modificados**-. (BL1S.s249)	Unfavorable
7.	For all its efforts, Monsanto has endured an extraordinary barrage of skepticism, criticism, and outright condemnation unleashed around the world on the arrival of **genetically modified food**. (BL2E.s36)	A pesar de todos sus esfuerzos, Monsanto se ha enfrentado a una extraordinaria dosis de escepticismo, críticas y condenas radicales, una mezcla que se liberó en el mundo con el advenimiento de los **alimentos modificados genéticamente**. (BL2S.s35)	Unfavorable
8.	But it 's a protein that won a sliver of immortality in the biotechnology debate by prompting reexamination of the United States government 's patchwork regulations for **genetically modified food**.	Pero es una proteína que obtuvo su minuto de gloria inmortal en el debate sobre la biotecnología, cuando motivó que el gobierno de los Estados Unidos reexaminara los reglamentos deslavazados sobre los **alimentos**	Concern

	(BL3E.s7)	**genéticamente modificados**. (BL3S.s7)	
9.	The activists had searched for a way to demonstrate the shortcomings of the government, particularly the Food and Drug Administration, in regulating **genetically modified food**. (BL3E.s33)	Los activistas han buscado la manera de evidenciar los fallos del gobierno, sobre todo de la Food and Drug Administration (FDA), a la hora de regular los **alimentos transgénicos**. (BL3S.s33)	Unfavorable
10.	I watched Monsanto, the leader in the laboratory race to design **genetically modified food**, deploy its Washington connections to persuade the government to adopt a set of regulatory guidelines. (BL3E.s111)	Contemplé cómo Monsanto, la empresa líder en la carrera de los laboratorios para diseñar **alimentos alterados genéticamente**, usaba sus contactos en Washington para convencer al gobierno de que adoptase un conjunto de pautas reguladoras. (BL3S.s111)	Concern (-)
11.	But if people do n't know they 're eating **genetically modified food** - and the FDA says that labeling is n't necessary - I wondered how people would have the information to report that they became nauseated or went into anaphylactic shock from food with altered DNA. (BL3E.s179)	Pero si las personas no saben que están consumiendo **alimentos modificados genéticamente** (y la FDA decía que la especificación de esta cualidad en el etiquetado no era necesaria), yo me preguntaba cómo esos mismos consumidores dispondrían de la información necesaria para informar de que sentían náuseas o habían padecido un shock anafiláctico debido a la ingesta de alimentos con un ADN alterado. (BL3S.s178)	Concern
12.	By November, the StarLink was detected in corn exports to Japan, American farmers ' biggest export market and a country on the verge of a new labeling system because concerns about **genetically modified food** were running so high. (BL3E.s193)	En noviembre, se detectó StarLink en exportaciones de maíz para Japón, el mercado más grande norteamericano en lo que a granos se refiere, y un país que estaba a punto de introducir un nuevo sistema de etiquetado, debido a la extendida preocupación de los consumidores sobre los **alimentos modificados genéticamente**. (BL3S.s192)	Concern (-)
13.	I intend to ask Tim why so many American farmers are converting vast swaths of ground into factories for **genetically modified food**. (BL6E.s76)	Tengo intención de preguntar a Tim por qué tantos granjeros americanos están convirtiendo vastas extensiones de terreno en fábricas de **alimentos modificados genéticamente**. (BL6S.s78)	Concern
14.	I ca n't say I know what will happen as far as acceptance of **genetically modified food** in the world. (BL6E.s186) But standing in this field of genetically modified corn, I am able to see that the future holds nervous times for farmers like Tim Seifert. (BL6E.s187)	No puedo decir que sé cómo evolucionará con la aceptación de los **alimentos transgénicos** en el mundo, pero, de pie en medio de este campo de maíz alterado genéticamente, sí que veo que el futuro trae consigo una época turbulenta para agricultores como Tim Seifert. (BL6S.s187)	Concern (-)
15.	But he may be recalled for something else: triggering a reevaluation of a hard-edged U.S. policy in the world war over **genetically modified food**. (BL8E.s134)	Pero es posible que el mundo le recuerde por otro motivo: por reactivar una reevaluación de la contundente política estadounidense en la guerra mundial sobre los **alimentos modificados genéticamente**. (BL8S.s132)	Unfavorable
16.	And, in my estimation, Glickman may be remembered more than anything else for forcing the government to change its tune and consider better regulations of **genetically modified food**. (BL8E.s148)	Y, bajo mi punto de vista, es posible que a Glickam se le recuerde sobre todo por forzar al gobierno a cambiar su actitud, planteándose una mejora en la regulación de los **alimentos modificados genéticamente**. (BL8S.s146)	Concern
17.	In 1999, before a previous Press Club appearance, he had n't, he said, submitted his speech on **genetically**	En 1999, me dijo que antes de una aparición en el Press Club, había enviado a la Casa Blanca su discurso sobre los **alimentos modificados**	Concern

	modified food to the White House for the usual vetting by policy hawks and lawyers. (BL8E.s197)	**genéticamente**, para que los vigilantes de la política y los abogados lo examinaran. (BL8S.s193)	
18.	Nor had I expected the unfamiliarity with **genetically modified food** - even from neighbors who read highbrow journals and hold biotech stocks. (BL9E.s160)	Tampoco esperaba el poco conocimiento que tiene la gente sobre los **alimentos modificados genéticamente**, incluso los vecinos que leen revistas científicas y tienen acciones en la industria biotecnológica. (BL9S.s155)	Concern
19.	Aware of my broader interest in **genetically modified food**, Neill told me that he was concerned about the potential safety threats from reordering the genetic materials of crops. (BL11E.s239)	Consciente de mis amplios intereses sobre los **alimentos transgénicos**, Neill me contó que le preocupaban las potenciales amenazas para la salud que conllevaba la reordenación de los materiales genéticos en los cultivos. (BL11S.s235)	Concern (-)
20.	But down at her famous Ballymaloe Cookery School at Shanagarry, adjacent to Fitzgerald 's acreage, Allen 's normally cheery outlook is dampened these days by something other than fallen soufflés: **genetically modified food**. (BL12E.s234)	Pero en su famosa Ballymaloe Cookery School, en Shanagarry, adyacente a los acres que son propiedad de Fitzgerald, hoy día la expresión de Allen, que por lo general es de optimismo, se ve ensombrecida por algo más que un soufflé que haya salido mal: los **alimentos modificados genéticamente**. (BL12S.s229)	Concern (-)
21.	But a greater threat is what she represents - Europe 's multibillion-dollar organic-food industry and the growing sense that **genetically modified food** has nothing to offer people who equate health with what they eat. (BL12E.s274)	Pero lo que ella simboliza constituye una amenaza aún mayor: la industria multibillonaria de los alimentos orgánicos, y la creciente impresión de que los **alimentos transgénicos** no tienen nada que ofrecer a las personas que identifican su salud con los alimentos que consumen. (BL12S.s267)	Unfavorable
22.	In **genetically modified food**, Ireland 's warring factions found a common enemy. (BL12E.s297)	Dentro del ámbito de los **alimentos modificados genéticamente**, las facciones irlandesas en eterna lucha han encontrado un enemigo común. (BL12S.s290)	Unfavorable
23.	What they decide will help shape French policy that could in turn determine the future of **genetically modified food** in all of Europe. (BL13E.s68)	Lo que se decida en ella contribuirá a conformar la política francesa que, a su vez, podría determinar el futuro de los **alimentos modificados genéticamente** en toda Europa. (BL13S.s67)	Neutral
24.	Until recently, the arrival of **genetically modified food** in Europe looked like a fait accompli. (BL13E.s70)	Hasta hace poco, la llegada de los **alimentos transgénicos** a Europa parecía un hecho consumado. (BL13S.s69)	Concern
25.	Mireille Roine, a retiree and, at fifty-eight, the oldest member, announces that the citizens group found no health threat to humans from **genetically modified food**. (BL13E.s237)	Mireille Roine, jubilada y, a sus 58 años, el miembro de más edad, anuncia que el grupo de ciudadanos no ha detectado ninguna amenaza para la salud humana en los **alimentos modificados genéticamente**. (BL13S.s235)	Concern
26.	In the brief but stormy history of **genetically modified food**, late 1998 to early 1999 was the period and Britain the country where counterinsurgency rose. (BL14E.s42)	En la breve pero turbulenta historia de los **alimentos modificados genéticamente,** el período entre finales de 1998 y principios de 1999, y en Gran Bretaña, fue cuando y donde surgió el contraataque. (BL14S.s42)	Concern (-)
27.	The advance of **genetically modified food** had stalled, and perhaps not just in Europe. (BL14E.s53)	El avance de los **alimentos genéticamente modificados** se había detenido, y quizá no sólo en Europa. (BL14S.s53)	Concern (-)
28.	Five days later, a Guardian story began: "	Cinco días después, un artículo del Guardian	Unfavorable

	An outbreak of a fatal disease that infected 5,000 people, killing 37 and leaving 1,500 permanently ill, was linked to **genetically modified food**, a Labor MP claimed in a Commons debate yesterday. " (BL14E.s305)	comenzaba diciendo: " Ayer, en un debate de la Cámara de los Comunes, un diputado laborista relacionó un estallido de una enfermedad letal que contagió a 5000 personas, matando a 37 de ellas y dejando a otras 1500 con una enfermedad crónica, con los **alimentos transgénicos** ". (BL14S.s302)	
29.	" For a man who has always seemed to understand the issues that really matter to the public, " a Guardian editorial began, " Tony Blair 's touch appears to have abandoned him on **genetically modified food**. " (BL14E.s311)	Una editorial del Guardian empezaba diciendo: " Tony Blair, un hombre que siempre ha parecido comprender cuáles son los temas realmente importantes para el público, da la impresión de que su mano izquierda le ha abandonado en lo tocante a los **alimentos alterados genéticamente** ". (BL14S.s308)	Concern
30.	In 1999, the Tories and their supporters in England 's partisan press seldom missed the chance to pillory Tony Blair for linking arms with U.S. President Bill Clinton to support **genetically modified food**. (BL14E.s319)	En 1999, los Tories y sus partidarios en la prensa partisana británica no perdieron una sola ocasión de ridiculizar a Tony Blair por aliarse con el presidente Bill Clinton para apoyar los **alimentos modificados genéticamente**. (BL14S.s316)	Favorable
31.	Blair and **genetic modified food** proved to be a dependable combo for politicians and reporters alike, as did Monsanto. (BL14E.s320)	Blair y la **comida transgénica** demostraron ser una combinación fiable para políticos y periodistas por un igual, como antes lo fuera Monsanto. (BL14S.s317)	Favorable
32.	We know the fate of Frankenstein 's monster ; the fate of **genetically modified food** remains uncertain. (BL14E.s355)	Conocemos el final del monstruo de Frankenstein el destino de los **alimentos modificados genéticamente** sigue siendo incierto. (BL14S.s353)	Concern (-)
33.	A phalanx of the marchers turns into the field and commences what will become the biggest and most brazen farm sabotage in the short but tempestuous history of **genetically modified food**. (BL14E.s433)	Una falange de los caminantes se mete en el campo e inicia lo que será el mayor y más osado sabotaje de la corta pero tempestuosa historia de los **alimentos modificados genéticamente**. (BL14S.s430)	Unfavorable
34.	In February 2001, the European Union voted in favor of new and toughened rules for **genetically modified food**, a step toward ending the de facto moratorium that had prevented the technology from taking root in Europe. (BL15E.s22)	En febrero de 2001, la Unión Europea votó a favor de una normativa nueva y más severa aplicable a la **comida transgénica**, lo cual fue un paso hacia la moratoria de ipso que había evitado que esa tecnología arraigase en Europa. (BL15S.s22)	Concern (-)
35.	But in his many travels, never has Greenberg seen an issue roil the waters like **genetically modified food**. (BL15E.s209)	Pero, en ninguno de sus muchos viajes ha sido testigo de un tema que haya sido tan polémico como el de los **alimentos modificados genéticamente**. (BL15S.s204)	Concern (-)
36.	I had asked Shapiro how he might be viewed when others look back on the turbulent times when **genetically modified food** was introduced to the world. (BL15E.s309)	Yo le había preguntado cómo creía que le verían los demás cuando, mirando al pasado, analizaran esa época turbulenta en que los **alimentos transgénicos** se introdujeron en el mundo. (BL15S.s300)	Concern (-)
37.	The issue mobilizing environmental and consumer activists in the mid-1990s was **genetically modified food**, and the Internet brought them together, empowering communications on any budget. (BL16E.s59)	La cuestión que movilizaba a los activistas ecologistas y a los consumidores a mediados de los noventa era la de los **alimentos alterados genéticamente**, e Internet los puso a todos en contacto, porque posibilitaba la comunicación con un presupuesto reducido. (BL16S.s61)	Unfavorable

38.	Calculating risk and benefit is what the global debate over **genetically modified food** is about. (BL17E.s78)	El cálculo del riesgo y de los beneficios es el tema central del debate mundial sobre los **alimentos transgénicos**. (BL17S.s78)	Concern
39.	But when it comes to human health and the environment, the risk of **genetically modified food** seems, to an outsider, dwarfed by the risks in the water, on land, and in the air. (BL17E.s80)	Pero, en lo tocante a la salud humana y el medio ambiente, a los ojos de un foráneo el riesgo de los **alimentos modificados genéticamente** parece una nimiedad comparado con los riesgos presentes en el agua, la tierra y el aire. (BL17S.s80)	Concern
40.	The poor farmer in West Africa does n't have any time for philosophical arguments as to whether it should be organic farming or fertilizers or **genetically modified food**. (BL18E.s247)	La pobre campesina de África occidental no tiene tiempo para argumentos filosóficos sobre si debería emplear sistemas orgánicos, fertilizantes o **alimentos transgénicos**. (BL18S.s244)	Concern
41.	In 1999, 258 years later, the first global treaty proposed to regulate **genetically modified food** is suffering a similar fate near the spot where Blas de Lezo succumbed. (BL19E.s11)	En 1999, 258 años después, el primer tratado mundial que proponía regular los **alimentos modificados genéticamente** está padeciendo un destino similar al de Blas de Lezo, cerca del lugar donde éste perdió la vida. (BL19S.s11)	Concern (-)
42.	Stan Greenberg, Monsanto 's pollster, had been prescient four months earlier in his interpretation of a poll: " The latest survey shows an ongoing collapse of public support for biotechnology and **genetically modified food**, " he had written. (BL19E.s41)	Stan Greenberg, el encuestador de Monsanto, habla resultado profético en su interpretación de una encuesta cuatro meses antes: " El último estudio demuestra un constante colapso del respaldo público hacia la biotecnología y los **alimentos modificados genéticamente** ", escribió. (BL19S.s41)	Concern (-)
43.	The WTO was the Big Stick they would use to force the world to accept **genetically modified food**. (BL19E.s66)	La OMC sería el Gran Palo que usarían para forzar al mundo a aceptar los **alimentos transgénicos**. (BL19S.s65)	Concern (-)
44.	Juan Mayr was accustomed to dealing with sensibilities in the extreme, which - given the deepening chasm dividing nations on **genetically modified food** - seemed the appropriate résumé. (BL19E.s225)	Juan Mayr estaba acostumbrado a enfrentarse a unas sensibilidades exacerbadas, lo cual, teniendo en cuenta el cada vez más profundo abismo que dividía a los países sobre el tema de los **alimentos transgénicos**, parecía un currículo pertinente. (BL19S.s222)	Concern
45.	By the time I flew back to Washington, I had concluded that the road to a treaty on **genetically modified food** twisted through Seattle, where the World Trade Organization was laying plans for a gathering that would be memorable indeed. (BL19E.s254)	Mientras regresaba a Washington, había llegado a la conclusión de que el camino hacia un tratado sobre **alimentos transgénicos** tenía que pasar por Seattle, donde la Organización Mundial del Comercio estaba planificando una reunión que, sin duda alguna, iba a ser memorable. (BL19S.s250)	Concern
46.	When I had arrived at a glass palace along Puget Sound for the forum on **genetically modified food**, police had kept us standing outside in the rain for fifteen minutes. (BL20E.s8)	Cuando llegué a un palacio de cristal junto a Puget Sound, para asistir al foro sobre **alimentos modificados genéticamente**, la policía nos había obligado a permanecer un cuarto de hora en la calle, bajo la lluvia. (BL20S.s7)	Concern
47.	Resistance to **genetically modified food**, the world saw in Seattle, was a unifier in this new world politics. (BL20E.s114)	Con lo sucedido en Seattle el mundo entendió que la resistencia a los **alimentos modificados genéticamente** era un factor unificador en la política del nuevo mundo. (BL20S.s112)	Concern (-)
48.	And the WTO is, most certainly, the future battleground for the world 's colliding	Y la OMC es, ciertamente, el futuro campo de batalla para las políticas mundiales	Concern

	policies on **genetically modified food**. (BL20E.s128)	contrapuestas respecto al uso de los **alimentos modificados genéticamente**. (BL20S.s125)	
49.	In Seattle, the mission of the trade ministers was not to issue rulings about **genetically modified food** or to adjudicate complaints about Europe 's biotech policies. (BL20E.s130)	En Seattle, la misión de los ministros de comercio no era la de emitir normativas sobre **alimentos transgénicos** o arbitrar quejas sobre las políticas europeas respecto a la biotecnología. (BL20S.s127)	Neutral
50.	And it was stunning news, barely reported amid coverage of the street clashes, when the European trade ministers signaled that they might agree to the working group on **genetically modified food**. (BL20E.s148)	La noticia más sorprendente, que apenas salió en los periódicos oculta entre artículos sobre los disturbios callejeros, era que los ministros de comercio europeos anunciaron que podrían estar de acuerdo con la creación del grupo de trabajo sobre los **alimentos transgénicos**. (BL20S.s145)	Concern
51.	Amid his incendiary words about labor and his own criticisms of the WTO structure as closed and inaccessible, Clinton took time to deliver the highest level defense to date of **genetically modified food**. (BL20E.s160)	En medio de sus incendiarias palabras sobre el trabajo y sus propias críticas de la estructura de la OMC, como algo cerrado e inaccesible, Clinton se tomó el tiempo para proceder a la defensa más importante hasta la fecha de los **alimentos modificados**. (BL20S.s156)	Favorable
52.	" Empty your pockets, " he said to breakfasting industry representatives, admonishing them to fight the critics of **genetically modified food**. (BL20E.s173)	" Vacíense los bolsillos ", dijo a los representantes de la industria durante el desayuno, incitándoles a luchar con los críticos de los **alimentos modificados genéticamente**. (BL20S.s169)	Concern
53.	In Seattle, the place of **genetically modified food** in the modern environmental movement crystallized. (BL20E.s196)	En Seattle cristalizó el lugar que ocupan los **alimentos transgénicos** en el movimiento ecologista moderno. (BL20S.s192)	Concern (-)
54.	In **genetically modified food**, many skeptics see not just the threat of the unknown but an invasion of the culture of their countries. (BL20E.s251)	Al considerar los **alimentos modificados genéticamente**, muchos escépticos no sólo perciben la amenaza de lo desconocido, sino también una invasión de la cultura de sus países. (BL20S.s245)	Concern (-)
55.	What we saw in Seattle was a backlash against the broader forces of globalization, of which **genetically modified food** is a symptom. (BL20E.s252)	Lo que vimos en Seattle fue una reacción contra las fuerzas más amplias de la globalización, de la que la **comida transgénica** es un síntoma. (BL20S.s246)	Unfavorable
56.	The lesson from Seattle is the arrival of a new politics in which **genetically modified food** is at once a crucible for change and a singularly potent issue. (BL20E.s264)	La lección que transmite Seattle es el advenimiento de una nueva política, en la que los **alimentos transgénicos** son al mismo tiempo un crisol para el cambio y una cuestión de una potencia singular. (BL20S.s258)	Favorable
57.	**Genetically modified food** is challenging the structure of the European Community, established by the 1957 Treaty of Rome. (BL20E.s266)	Los **alimentos modificados genéticamente** están desafiando la estructura de la Comunidad Europea, fundada en 1957 mediante el Tratado de Roma. (BL20S.s260)	Concern
58.	In Italy, columnist Vittorio Zucconi wrote in La Repubblica of the " strange but formidable alliance between environmentalist agitators and European ambassadors, between bluejeans and double-breasted suits, of mothers against Frankenfood - **genetically modified food** -	En Italia, el columnista Vittorio Zucconi escribía en La Republica acerca de " la extraña pero formidable alianza entre los agitadores ecologistas y los embajadores europeos, entre los tejanos y los trajes cruzados, entre las madres opuestas a la Frankencomida (**alimentos transgénicos**) y los intereses agrícolas europeos	Unfavorable

	and agricultural interests of Europe. " (BL20E.s280)	". (BL20S.s273)	
59.	After the collapse, the forum for global decisions on **genetically modified food** shifted to Montreal as policy makers played a fumbling game of hot potato with this powerful new technology. (BL20E.s294)	Tras el colapso, el foro para tomar decisiones mundiales sobre los **alimentos transgénicos** se trasladó a Montreal, mientras los creadores de políticas jugaban al candente juego de pasarse la patata caliente unos a otros, pero usando esta nueva y poderosa tecnología. (BL20S.s288)	Concern (-)
60.	" You ca n't come along and say ' here it is, our **genetically modified food**, put it in your lunch today and like it. " (BL21E.s96)	- Uno no puede presentarse por las buenas y decir: " ¡Hala! (BL21S.s96) ¡Ahí tenéis nuestros **alimentos transgénicos**! (BL21S.s97) Incluidlos en vuestro menú de hoy y que os aprovechen ". (BL21S.s98)	Concern
61.	In the case of **genetically modified food**, that means preventing products from reaching the market. (BL21E.s264)	En el caso de los **alimentos modificados genéticamente**, esto conlleva impedir que los productos lleguen al mercado. (BL21S.s267)	Concern (-)
62.	I knew, too, that he had served a spell as chairman of the Environmental Defense Fund, a New York-based advocacy group that had registered skepticism in the debate over **genetically modified food**. (BL21E.s302)	Yo también sabía que había trabajado como presidente de la Environmental Defense Fund (Fundación para la Defensa del Medio Ambiente), un grupo de defensa con sede en Nueva York que había hecho constar su escepticismo en el debate sobre los **alimentos modificados genéticamente**. (BL21S.s305)	Concern (-)
63.	Suspicions about **genetically modified food** would be reinforced and, rightly or wrongly, the halting advance of a new technology might cease, its promise never to be tested. (BL21E.s430)	Se reforzarían las sospechas sobre los **alimentos modificados genéticamente** y, correcta o incorrectamente, cesaría el vacilante progreso de una nueva tecnología, sin que sus promesas pudieran demostrarse jamás. (BL21S.s433)	Concern (-)
64.	According to the law, food manufacturers had to label all products containing any **genetically modified food**. (IB12E.s244)	Según la ley, las empresas productoras de alimentos estaban obligadas a etiquetar todos los productos que contuviesen cualquier **alimento genéticamente modificado**. (IB12S.s241)	Concern
65.	I actually believe that this technology can be made to work for us. (JS1E.s242) And if **genetically modified food** will be shown to be safe then we have really done a great service to all our fellow citizens. (JS1E.s243)	Realmente creo que esta tecnología nos puede ser de gran utilidad, y si se demuestra que los **alimentos genéticamente modificados** son seguros, entonces les habremos hecho un gran favor a nuestros ciudadanos. (JS1S.s239)	Favorable
66.	All those who see **genetically modified food** as a scary prospect - ' Frankenstein foods ' - are pitted against the defenders. " (JS1E.s434)	Todos aquellos que ven en los **productos GM** perspectivas funestas - alimentos Frankenstein- se están enfrentando a los que los defienden ". (JS1S.s412)	Unfavorable
67.	The editorial also said, " it is astounding that the U.S. Food and Drug Administration has not changed their stance on **genetically modified food** adopted in 1992, " which states that they do not believe it is " necessary to conduct comprehensive scientific reviews of foods derived from bioengineered plants. " (JS1E.s521)	El editorial también decía: " Es sorprendente que la Food and Drug Administration de Estados Unidos no haya cambiado su actitud hacia los **alimentos genéticamente modificados** desde 1992 ", prueba de que no creen que sea " necesario llevar a cabo una revisión científica completa de los alimentos producidos por especies biotecnológicas ". (JS1S.s498)	Concern (-)
68.	Likewise, a March 2003 statement by Speaker of the House Hastert declared, "	De igual forma, en marzo del 2003, Hastert, el portavoz de la Casa Blanca, hizo una	Favorable

	There is general consensus among the scientific community that **genetically modified food** is no different from conventional food. " (JS5E.s137)	declaración afirmando: " Existe el consenso generalizado entre la comunidad científica de que los **alimentos genéticamente modificados** no se diferencian de los alimentos convencionales ". (JS5S.s127)	
69.	And in a speech at the Press Club in Washington, " Glickman advised biotechnology companies to consider labeling **genetically modified food** to help prevent consumer fears from spreading to the United States. " (JS5E.s390)	En otro discurso, en el Press Club de Washington, " Glickman aconsejó a las empresas biotecnológicas que consideraran la posibilidad de etiquetar los **alimentos genéticamente modificados** para prevenir que los temores de los consumidores se extendiesen a toda la sociedad estadounidense ". (JS5S.s363)	Concern
70.	It revealed that " thirteen of the largest newspapers and magazines in the United States have all but shut out criticism of **genetically modified (GM) food** and crops from their opinion pages. " (JS7E.s256)	En él se decía que " trece de los más importantes periódicos y revistas de Estados Unidos han silenciado las críticas dirigidas a los **alimentos** y cultivos **genéticamente modificados** en sus páginas de opinión ". (JS7S.s236)	Unfavorable
71.	In his New York Times Magazine article, " The Great Yellow Hype, " Michael Pollan says that golden rice impales Americans on the horns of a moral dilemma: " If we do n't get over our queasiness about eating **genetically modified food**, kids in the third world will go blind. " (JS7E.s455)	En su artículo del New York Times Magazine, " The Great Yellow Hype " (La gran parafernalia amarilla) Michael Pollan afirma que el arroz dorado deja a los estadounidenses en una encrucijada moral: " Si no superamos la aversión a comer **alimentos genéticamente modificados**, los niños del tercer mundo se quedarán ciegos ". (JS7S.s417)	Unfavorable
72.	This book has focused on the issue of **genetically modified food**. (JS9E.s204)	Este libro se ha centrado en los **alimentos genéticamente modificados**. (JS9S.s178)	Neutral
73.	By then, also with little fanfare, the government had given companies the go-ahead to sell nearly thirty **genetically modified foods**, beginning with Calgene 's Flavr Savr tomato in 1994. (BL1E.s54)	En aquella época, y también con poco bombo y platillo, el gobierno había concedido a las empresas luz verde para vender cerca de una treintena de **alimentos transgénicos**, empezando en 1994 con el tomate Flavr Savr de Calgene. (BL1S.s53)	Favorable
74.	North Americans are eating **genetically modified foods** regularly, but they do n't know which ones because, unlike Europe, Japan, and Australia, the governments of the United States and Canada do n't require labeling that provides this information on food packaging. (BL1E.s144)	Los norteamericanos están consumiendo regularmente **alimentos modificados genéticamente**, pero no saben cuáles son, porque, a diferencia de Europa, Japón y Australia, los gobiernos estadounidense y canadiense no exigen que en las etiquetas de los productos alterados figure esta información. (BL1S.s141)	Concern (-)
75.	After the industry worked for most of a decade to persuade people that GMOs are the path to better health and a cleaner environment, the U.S. government was about to announce that **genetically modified foods** would be prohibited from proudly bearing the certified organic label. (BL8E.s68)	Después de haber trabajado más de una década para convencer a la gente de que los OMG son el camino hacia una mejor salud y un entorno más limpio, el gobierno de los Estados Unidos estaba a punto de anunciar que los **alimentos modificados genéticamente** no podrían ostentar con orgullo la etiqueta certificada de alimento orgánico. (BL8S.s67)	Concern (-)
76.	Two years before, Glickman had emerged as a voice of moderation in a government that promoted **genetically modified foods** in word and deed. (BL8E.s101)	Dos años antes, Glickman había surgido como una voz moderada en un gobierno que promovía la **comida genéticamente modificada** tanto en sus palabras como en sus obras. (BL8S.s98)	Favorable

77.	Willard told me he believed that there would be an effort to reopen the rules to allow **genetically modified foods** to be classified as organic. (BL8E.s117)	Willard me dijo que creía que habría un esfuerzo para modificar las reglas, permitiendo que los **alimentos genéticamente modificados** pudieran clasificarse como orgánicos. (BL8S.s115)	Concern (-)
78.	In one of his responses during questions from reporters, Glickman displayed his willingness to depart from what has been the script, in Democratic and Republican administrations alike, of insisting that its regulations governing **genetically modified foods** were unassailable. (BL8E.s120)	En una de sus respuestas a las preguntas de los reporteros, Glickman manifestó su disposición para distanciarse del guión, escrito tanto por las administraciones demócratas como por las republicanas, de insistir que sus reglamentos relativos a los **alimentos transgénicos** eran inatacables. (BL8S.s118)	Favorable
79.	Gilmore: " Was the Minister not pre-empting the entire consultative process over **genetically modified foods** by voting in line with the lobbying which had taken place the day before between Mr. Berger of the United States and the Taoiseach? " (BL12E.s355)	Gilmore: ¿Acaso no estaba el Ministro eludiendo todo el proceso de consultoría sobre los **alimentos transgénicos** al votar en línea con la presión a la que fue sometido el día anterior por parte del señor Berger, de los Estados Unidos, y el Taoiseach? (BL12S.s347)	Unfavorable
80.	Orchestrating Big Green was then State Senator Tom Hayden who, ten years later, would lead the drive in the California Assembly to require labeling of **genetically modified foods**. (BL13E.s197)	Orquestando la propuesta Big Green estaba el que entonces fuera senador estatal Tom Hayden, quien, diez años después, sería el encargado de solicitar a la Asamblea de California que exigiese el etiquetado de los **alimentos modificados genéticamente**. (BL13S.s194)	Concern
81.	By early 1999, the debate over **genetically modified foods** was as much a part of British culture as royalty and rock " n " roll. (BL14E.s184)	A principios de 1999, el debate sobre los **alimentos transgénicos** formaba tanta parte de la cultura británica como la monarquía y el rock'n'roll. (BL14S.s182)	Neutral
82.	By the end of 1998, nineteen of Britain 's top twenty-three restaurants as rated in The Good Food Guide 1999 had signed on to a Friends of the Earth initiative that called for a five-year ban on **genetically modified foods**. (BL14E.s220)	A finales de 1998, 19 de los 23 restaurantes de alta categoría (según establece The Good Food Cuide 1999) de Gran Bretaña se habían adherido a una iniciativa de Amigos de la Tierra que hacía un llamamiento a imponer una prohibición de cinco años contra todos los **alimentos transgénicos**. (BL14S.s217)	Unfavorable
83.	At a kids ' parliament in the city of Birmingham in the spring, children ten and eleven had debated this loaded proposition: " Genetic engineering, which includes animal cloning and **genetically modified foods**, is the biggest threat to mankind since the advent of nuclear weapons. " (BL14E.s239)	En primavera, en el Parlamento Infantil de la ciudad de Birmingham, los niños y niñas de diez y once años habían debatido la siguiente propuesta: " La ingeniería genética, que incluye la clonación de animales y los **alimentos modificados genéticamente**, es la mayor amenaza para la humanidad desde la aparición de las armas nucleares ". (BL14S.s236)	Unfavorable
84.	The report, written during the depths of the technology 's European collapse, concluded that the future of **genetically modified foods** was, at that moment, grim. (BL16E.s6)	El informe, escrito durante el momento más crudo del colapso europeo de la tecnología, llegaba a la conclusión de que el futuro de los **alimentos transgénicos** era, en aquel momento, bastante lúgubre. (BL16S.s6)	Unfavorable
85.	**Genetically modified foods** stalled on the way to the global marketplace for many reasons. (BL16E.s17)	Los **alimentos transgénicos** se estancaron en el camino hacia el mercado mundial por muchas razones. (BL16S.s17)	Concern (-)
86.	The debate over **genetically modified foods** began in earnest just as	El debate sobre los **alimentos modificados genéticamente** empezó en serio cuando se	Concern

	the number of people going on-line around the world skyrocketed. (BL16E.s21)	disparó el número de personas que navegaban por la red. (BL16S.s21)	
87.	After the breakdown in Cartagena, the United States, Canada, and their allies in the Miami Group had pulled farther from the rest of the world, which was demanding caution - and labeling - of **genetically modified foods**. (BL20E.s136)	Tras los problemas en Cartagena, los Estados Unidos, Canadá y sus aliados en el Grupo de Miami se habían distanciado aún más del resto del mundo, que exigía precaución frente a los **alimentos transgénicos** (y su etiquetado). (BL20S.s133)	Concern (-)
88.	The anti-GM movement that coalesced in Seattle had separate components: environmental advocates challenging an unproved technology ; left-leaning trade groups condemning the patenting of genetic technologies as exploiting the world 's poor ; consumer advocates pressing demands for mandatory labeling of **genetically modified foods** ; and farmers concerned about multinationals controlling what they grow. (BL20E.s201)	El movimiento anti-OMG que se conglomeró en Seattle constaba de diversos componentes: abogados ambientalistas que se oponían a una tecnología que no estaba bien probada ; grupos comerciales de tendencia izquierdista que condenaban el patentado de las tecnologías genéticas como un intento de explotar a los pobres de este mundo ; los defensores del consumidor que exigían con firmeza el etiquetado obligatorio de **alimentos modificados genéticamente**, y granjeros preocupados por el hecho de que las multinacionales controlen lo que cultivan. (BL20S.s197)	Unfavorable
89.	**Genetically modified foods** were also rejected by a laypeople 's consultation in Norway and, according to an activist group survey, by ninety-five percent of consumers in Germany. (IB12E.s161)	Los **alimentos genéticamente modificados** también fueron rechazados en una consulta popular celebrada en Noruega y, según una encuesta realizada por un grupo de activistas, por el noventa y cinco por ciento de los consumidores alemanes. (IB12S.s158)	Unfavorable
90.	The British supermarket chains ASDA and Iceland announced they would ban unlabeled, **genetically modified foods** despite a European Union agreement to allow their import. (IB12E.s172)	La cadenas de supermercados británicas ASDA y Iceland anunciaron que prohibirían la venta de **alimentos transgénicos** no etiquetados pese a un acuerdo suscrito por la Unión Europea por el que autorizaba la importación de los mismos. (IB12S.s169)	Unfavorable
91.	For example, in fall of 1997, Agriculture Secretary Dan Glickman appeared before the forty-four-nation International Grains Council meeting in London to launch a hard-nosed assault on countries that dared to restrict the sale of **genetically modified foods**. (IB12E.s267) " As long as these products prove safe, we will not tolerate their segregation, " he said. (IB12E.s268)	A fines de 1997, por ejemplo, el secretario de Agricultura Dan Glickman se presentó en la asamblea que celebraban en Londres cuarenta y cuatro naciones pertenecientes al Consejo Internacional de Cereales para lanzar un ataque cerril contra los países que osaban restringir la venta de **alimentos modificados genéticamente**, diciendo, entre otras cosas: " Mientras se siga demostrando que esos productos son inocuos, no toleraremos su segregación. (IB12S.s263)	Favorable
92.	The U.S. saw European efforts to label **genetically modified foods** as equivalent to a non-trace tariff barrier. (IB12E.s272)	Estados Unidos consideró el empeño europeo en etiquetar los **alimentos transgénicos** como el equivalente a la imposición de barreras fiscales para impedir el libre comercio. (IB12S.s267)	Unfavorable
93.	On May 23, 2003, President Bush proposed an Initiative to End Hunger in Africa using **genetically modified (GM) foods**. (JS1E.s29)	El 23 de mayo de 2003, el presidente estadounidense George Bush presentó una propuesta para la erradicación del hambre en África por medio de la utilización de **alimentos genéticamente modificados (GM)**. (JS1S.s28)	Favorable

94.	The story of Arpad Pusztai made headlines throughout Europe for months, alerting readers to some of the serious health risks of **genetically modified (GM) foods.** (JS1E.s95)	La historia de Arpad Pusztai ocupó los titulares de los periódicos europeos durante meses, poniendo de manifiesto entre los lectores algunos de los serios riesgos para la salud debidos a los **alimentos genéticamente modificados (GM).** (JS1S.s93)	Unfavorable
95.	Selected over twenty-seven other contenders, this consortium of scientists, with Arpad Pusztai as their coordinator, was chosen to create a model for testing **genetically modified (GM) foods,** verifying that they were safe to eat. (JS1E.s111)	Seleccionado entre otros veintisiete contendientes, aquel consorcio de científicos, con Arpad Pusztai como coordinador, resultó el elegido para crear un modelo de análisis aplicable a los **alimentos modificados genéticamente** con el objeto de verificar si su ingesta entrañaba o no riesgos. (JS1S.s109)	Concern
96.	The research presented was in no way adequate to demonstrate that the **genetically modified foods** described were safe for human or animal consumption. (JS1E.s146)	La investigación presentada no era, bajo ningún concepto, adecuada para probar que los **alimentos modificados genéticamente** descritos no entrañaban riesgo para el consumo humano o animal. (JS1S.s144)	Unfavorable
97.	FDA policy was based on the assumption that **genetically modified foods** were stable. (JS1E.s194)	La política de la FDA se basaba en el supuesto de que los **alimentos genéticamente modificados** eran estables. (JS1S.s192)	Favorable
98.	They were anxious to air a scientist 's opinion on the safety of **genetically modified foods** and were particularly keen to hear from Pusztai. (JS1E.s225)	Los periodistas estaban deseando emitir la opinión de un científico acerca de la seguridad de los **alimentos modificados genéticamente** y más que dispuestos a escuchar lo que Pusztai tenía que decirles. (JS1S.s224)	Concern
3) *Genetically engineered* food/s (76)			
1.	Our **genetically engineered food** is new, so new that on September 6, 1995, the day that Ripken surpassed Lou Gehrig 's " Iron Man " record of 2,130 consecutive games, gene-altered corn and soybeans had not yet been planted commercially. (BL1E.s154)	Nuestra **comida alterada genéticamente** es nueva, tan nueva que el 6 de septiembre de 1995, el día en que Ripken superó el récord de Lou Gehrig (Iron Man), de 2130 partidos consecutivos, el maíz y la soja transgénicos aún no se habían plantado con miras a su comercialización. (BL1S.s151)	Concern
2.	Gene Grabowski 's hope is that American consumers wo n't demand that **genetically engineered food** be labeled. (BL1E.s240)	Gene Grabowski tiene la esperanza de que los consumidores norteamericanos no exigirán que en la etiqueta de los **productos transgénicos** se especifique que lo son. (BL1S.s236)	Concern
3.	Stung both by the costly recall and the publicity it had generated, Kraft called on the government to tighten its rules for **genetically engineered food**. (BL3E.s168)	Molestos por el proceso de retirada del producto, muy oneroso, y por la publicidad que éste había generado, Kraft incitó al gobierno a endurecer sus leyes sobre los **alimentos genéticamente modificados**. (BL3S.s167)	Concern (-)
4.	" Is biotechnology and its derivative, **genetically engineered food**, the solution to solving world hunger? (BL18E.s113)	" La biotecnología y su derivado, los **alimentos transgénicos**, ¿son la solución para el hambre del mundo? (BL18S.s111)	Concern
5.	Even if **genetically engineered food** has some yet-to-be-discovered intrinsic benefit, this benefit certainly does not override the people 's right to know and the necessary assurance that the food is safe. (BL18E.s127)	Incluso si los **alimentos modificados genéticamente** poseen un beneficio intrínseco, aún por descubrir, éste ciertamente no es superior al derecho que tienen las personas a la información, ni a la garantía necesaria de que los alimentos sean inocuos. (BL18S.s125)	Concern
6.	We must answer many questions before we can safely assume that the wonderful	Debemos responder muchas preguntas antes de asumir con total seguridad que el maravilloso	Concern

	instinct that we have to feed the hungry is a true fulfillment of a spiritual mission when we feed the hungry **genetically engineered food**. " (BL18E.s131)	instinto que tenemos de alimentar al hambriento es un verdadero cumplimiento de una misión espiritual, cuando demos de comer a quien tiene hambre unos **alimentos modificados genéticamente**. " (BL18S.s129)	
7.	She does the talking, and in her words I hear sentiments echoed across Europe, where outraged citizens are confronting multinational companies to stop **genetically engineered food** while they still can. (BL14E.s463)	Ella es la que habla, y en sus palabras detecto sentimientos que son un eco de los que resuenan por Europa, donde unos ciudadanos enfurecidos se enfrentan a las compañías multinacionales exigiendo que detengan los **alimentos transgénicos** mientras aún sea posible. (BL14S.s459)	Unfavorable
8.	But when it comes to **genetically engineered food**, the benefits, beyond those to shareholders, are ephemeral. (IB1E.s114)	Pero cuando se trata de **alimentos producidos por la ingeniería genética**, los beneficios, dejando a un lado los que puedan tener los accionistas, son francamente efímeros. (IB1S.s114)	Concern
9.	His Pure Food Campaign does not declare globally that **genetically engineered food** is hazardous to human health. (IB5E.s106)	Su Campaña para la Alimentación Pura no declara en forma global que los **alimentos obtenidos mediante la ingeniería genética** sean perjudiciales para la salud humana. (IB5S.s107)	Concern
10.	Even full-scale safety testing cannot guarantee one hundred percent certainty that a **genetically engineered food** is safe. (IB5E.s219)	Incluso las más minuciosas pruebas de seguridad no nos pueden garantizar en un ciento por ciento que los **alimentos producidos por la ingeniería genética** sean seguros. (IB5S.s221)	Concern
11.	Modern nutritionists accept the biotech gospel that there is no need to label **genetically engineered food**, that gene splicing is no different from the breeding that has developed agriculture over thousands of years. (IB9E.s21)	Los modernos expertos de la nutrición aceptan el evangelio biotecnológico y comparten la opinión de que no hay ninguna necesidad de etiquetar los **alimentos transgénicos**, ya que éstos no se diferencian en nada de los cultivos que ha ido desarrollando la agricultura durante miles de años. (IB9S.s22)	Favorable
12.	Consumers wanted to be able to trust their governments to stop any **genetically engineered food** from delivering the same kind of harm. (IB11E.s240)	Los consumidores querían poder confiar en que sus gobiernos impedirían que un **alimento transgénico** fuese a ocasionar la misma clase de daños. (IB11S.s236)	Unfavorable
13.	And in a soft but authoritative voice, she offers grim advice to consumers about those who produce and regulate **genetically engineering food**: " Do n't trust them. (IB11E.s255)	Y con su dulce pero autoritaria voz, ofrece una contundente señal de alarma a los consumidores acerca de aquellos que producen y legislan los **alimentos transgénicos**: " No confiéis en ellos. (IB11S.s251)	Unfavorable
14.	Participants were asked if they thought they could trust their governments to deliver safe **genetically engineered food**. (IB12E.s115)	Se les preguntó a los encuestados si creían poder confiar en que sus gobiernos les suministrarían **alimentos transgénicos** seguros. (IB12S.s112)	Concern
15.	In 1994, Norman Bradsick, then president of the Asgrow Seed company, told the Kansas City Star, " If you put a label on a **genetically engineered food**, you might as we put a skull and crossbones on it. " (IB14E.s138)	En 1994, Norman Bradsick, para entonces presidente de la compañía Asgrow Seed, declaró al Kansas City Star: " Si usted coloca una etiqueta sobre un **alimento producido mediante ingeniería genética** es como si le pusiese una calavera con dos tibias cruzadas ". (IB14S.s138)	Favorable
16.	In their paper, which was published in the	En el informe, publicado en el International	Concern (-)

	International Journal of Food Science and Technology, the authors admitted that their results " may raise some questions regarding the safety and acceptability of **genetically engineered food**, and give some credence to the many consumers who are not yet prepared to accept food produced using gene engineering techniques. " (JS2E.s22)	Journal of Food Science and Technology (Revista internacional de ciencia y tecnología alimentaria), los autores reconocieron que sus resultados " pueden levantar sospechas en cuanto a la seguridad y aceptabilidad de los **alimentos genéticamente modificados**, y dan crédito a los muchos consumidores que todavía no están preparados para aceptar alimentos en los que se han utilizado técnicas de ingeniería genética ". (JS2S.s19)	
17.	The task of overseeing the expansion of **genetically engineered food** was given to the enthusiastic Robert Shapiro. (JS5E.s44) He " shelved the go-slow strategy of consultation and review, " and brought the GM campaign up to ramming speed. (JS5E.s45)	La tarea de supervisar la expansión de los **alimentos genéticamente modificados** recayó en Robert Shapiro, quien " desbarató la descafeinada estrategia de consultas y evaluaciones " e imprimió a la campaña por la modificación genética una velocidad fulgurante. (JS5S.s40)	Favorable
18.	There, Vice President Dan Quayle announced the Bush administration 's new policy on **genetically engineered food**: " The reforms we announce today will speed up and simplify the process of bringing better agricultural products, developed through biotech, to consumers, food processors and farmers. (JS5E.s57)	Allí, el vicepresidente Dan Quayle anunció la nueva política de la administración Bush sobre **alimentos genéticamente modificados**: " Las reformas que hoy anunciamos habrán de acelerar y facilitar el proceso de llevar a consumidores, productores alimentarios y agricultores, mejores productos agrarios desarrollados por medio de la biotecnología. (JS5S.s52)	Favorable
19.	Pribyl was one of many FDA scientists asked to provide input during the formulation of the FDA 's policy on **genetically engineered food**. (JS5E.s89)	Pribyl era uno de los muchos científicos de la FDA a los que se les pidió contribuir a la elaboración de la política que seguir en **alimentos genéticamente modificados**. (JS5S.s83)	Favorable
20.	**Genetically engineered food** may, for example, contain unexpected new molecules that could be toxic or cause allergic reactions. (LA1E.s108)	Los **alimentos modificados genéticamente** pueden, por ejemplo, contener nuevas moléculas inesperadas que podrían ser tóxicas o causar reacciones alérgicas. (LA1S.s115)	Concern (-)
21.	The companies developing these crops are increasing their production capacity for the herbicides, and also requesting permits for higher residues of these chemicals in **genetically engineered food**. (LA2E.s6)	Las empresas que desarrollan estas semillas transgénicas están aumentando su capacidad de producción de herbicidas, y también han solicitado autorización para que se permitan residuos más altos de estos productos químicos tóxicos en los **alimentos modificados genéticamente**. (LA2S.s6)	Unfavorable
22.	When compared to a total of $ 310 billion for pharmaceuticals, $ 31 billion for agrochemicals, $ 23 billion for trade in seeds, and $ 17 billion for animal health, one can see why the development of **genetically engineered food** is so attractive to the life science industry. (LA5E.s28)	Cuando se compara esta cantidad con los 310.000 millones de los productos farmacéuticos, los 31.000 millones de los agroquímicos, los 23.000 millones del comercio de semillas, y los 17.000 millones de los productos sanitarios para animales, uno puede entender por qué el desarrollo de los **alimentos modificados genéticamente** es tan atractivo para la industria de la ciencia de la vida. (LA5s.s34)	Favorable
23.	With few exceptions, governments in industrialised countries have been keen to promote **genetically engineered food**.	Con pocas excepciones, los gobiernos en los países industrializados han promovido los **alimentos modificados genéticamente**.	Concern (-)

	(LA5E.s30)	(LA5s.s36)	
24.	A Time magazine poll published in January 1999 found that 81 % of American consumers believe **genetically engineered food** should be labelled. (LA5E.s37)	§ Una encuesta publicada en la revista Time en enero de 1999 mostró que el 81 % de los consumidores estadounidenses cree que los **alimentos modificados genéticamente** deben ser etiquetados. (LA5s.s43)	Concern
25.	This issue was highlighted in spring 1998, when the US Department of Agriculture put forward legislation proposing that **genetically engineered food** could be labelled as " organic ". (LA5E.s59)	Este problema pasó a un primer plano en la primavera de 1998, cuando el Departamento de Agricultura de EE UU propuso una nueva legislación en la que los **alimentos transgénicos** podían ser etiquetados como " ecológicos ". (LA5s.s65)	Concern
26.	When people began to realise they were eating **genetically engineered food** without their knowledge or consent, there were immediate calls for segregation and labelling. (LA5E.s141)	Cuando la población comenzó a ser consciente de que estaban comiendo **alimentos modificados genéticamente** sin su conocimiento o autorización, comenzaron inmediatamente a pedir la segregación y el etiquetado. (LA5s.s147)	Concern (-)
27.	The concept of " substantial equivalence " was used to argue that **genetically engineered food** was " equivalent " food produced by any other means, and that labelling would therefore be discriminatory and constitute an illegal trade barrier. (LA5E.s146)	El concepto de " equivalencia sustancial " fue empleado para defender que los **alimentos transgénicos** son " equivalentes " a los alimentos producidos por cualquier otro medio, y ese etiquetado sería por consiguiente discriminatorio y constituiría una barrera de comercio ilegal. (LA5s.s152)	Favorable
28.	US Trade Representative Charlene Barshevsky estimated that the EU proposal for segregating and labelling **genetically engineered food** could disrupt $ 4-5 billion in annual US agricultural exports. (LA5E.s154)	La Representante de Comercio de EE UU Charlene Barshevsky estimó que la propuesta de la Unión Europea de segregar y etiquetar los **alimentos modificados genéticamente** podría suponer una caída de las exportaciones agrícolas anuales de EE UU por valor de 4.000 a 5.000 millones de dólares. (LA5s.s160)	Favorable
29.	She warned him that that any plans to label **genetically engineered food** were unacceptable and could jeopardise trade relations between Japan and the United States. (LA5E.s163)	Ella le advirtió que cualquier plan para etiquetar los **alimentos modificados genéticamente** era inaceptable y podría amenazar las relaciones comerciales entre Japón y Estados Unidos. (LA5s.s169)	Favorable
30.	GE enzymesare not covered by the labelling or regulatory requirements that apply to other **genetically engineered food**, and are used widely by the processing industry in foods as diverse as fish, egg and meat products, beverages, biscuits, cakes and bread. (LA5E.s173)	Las enzimas modificadas genéticamente no están etiquetadas ni se ven afectadas por los requisitos reguladores que se aplican a otros **alimentos transgénicos**, y se usan ampliamente en la industria alimentaria en alimentos tan diversos como pescados, huevos y productos cárnicos, bebidas, bizcochos, pasteles y pan. (LA5s.s180)	Concern
31.	Another of the ways in which individuals and communities have been opposing the introduction of **genetically engineered food** and crops Gas been the establishment of " GE-free zones ". (LA7E.s29)	Otra de las maneras en las que las personas y las comunidades se han opuesto a la introducción de **alimentos** y cultivos **modificados genéticamente** ha sido la creación de " zonas libres de transgénicos ". (LA7S.s30)	Unfavorable
32.	Although it is advisory rather than legally binding, by the time the LGA made their recommendation many councils in England and Wales had already started to	Aunque es una recomendación y no una imposición, cuando la Asociación de Municipios y Gobiernos Locales la hizo muchos ayuntamientos de Inglaterra y Gales	Unfavorable

	remove **genetically engineered food** from school menus, and with sustained pressure from the public, many more plan to follow suit. (LA7E.s36)	comenzaron a eliminar los **alimentos modificados genéticamente** de los menús escolares, y debido a la presión sostenida de la opinión pública, muchos más piensan seguirla. (LA7S.s37)	
33.	At stake in the coming years is the freedom of companies to move **genetically engineered foods** around the world absent restrictions never before applied in the commerce of commodity foods. (BL1E.s261)	Lo que está en juego, en los próximos años, es la libertad de las empresas para distribuir por el mundo **alimentos transgénicos** sin unas restricciones que nunca antes se han aplicado en el comercio de los artículos de consumo. (BL1S.s257)	Favorable
34.	And, individually, will we have a choice to refuse **genetically engineered foods** - without paying higher prices at whole-foods markets? (BL1E.s357)	Y, desde el punto de vista individual, ¿tendremos opción a rechazar el consumo de **alimentos transgénicos**, sin tener que pagar por ello unos precios más elevados en los mercados de alimentos naturales? (BL1S.s352)	Concern (-)
35.	The United States - unlike Europe, Japan, and Australia - does not require labeling of **genetically engineered foods**. (BL3E.s52)	Los Estados Unidos, a diferencia de Europa, Japón y Australia, no exigen que en las etiquetas de los **alimentos figure su procedencia transgénica**. (BL3S.s51)	Concern
36.	" What concerns me, " Allen says, " is that so many **genetically engineered foods** are in the foods we eat. (BL12E.s266)	- Lo que me preocupa - añade-, es que halla tantos **ingredientes transgénicos** en los alimentos que ingerimos. (BL12S.s259)	Concern (-)
37.	The first wave of **genetically engineered foods** and crops began to quietly appear on the international market in 1996 hundreds of products are now in the pipeline for development and approval. (IB1E.s64)	La primera oleada de **alimentos** y cultivos **creados por la ingeniería genética** comenzó a aparecer calladamente en los mercados internacionales en el año 1996 ; ahora centenares de productos se agolpan ante las puertas que les abrirán el camino hacia su desarrollo y autorización. (IB1S.s64)	Concern
38.	In the spring of 1998, representatives of several faiths - Hindu, Buddhist, Christian, and Jewish- joined forces in a suit aimed at compelling the U.S. Food and Drug Administration to label **genetically engineered foods**. (IB1E.s314)	En la primavera de 1998 los representantes de diversas confesiones (hindú, budista, cristiana y judía) unieron sus fuerzas en una demanda judicial destinada a convencer a la Dirección General de Alimentos y Drogas de Estados Unidos de que tendrían que ser etiquetados los **alimentos obtenidos por procedimientos de ingeniería genética**. (IB1S.s314)	Concern (-)
39.	In their submission, they said: " A considerable portion of the population is religiously motivated to avoid all **genetically engineered foods** as they view the production of these foods to be incompatible with proper stewardship of the integrity of God 's creation ". (IB1E.s316)	En su alegato decían: " Una parte considerable de la población se inclina por motivos religiosos a evitar todos los **alimentos obtenidos mediante ingeniería genética**, ya que considera que la producción de los mismos es incompatible con la correcta administración de la integridad de la creación divina ". (IB1S.s316)	Unfavorable
40.	The Japanese Consumers Co-Operative Union also reflected what appeared to be growing public concern when it announced it would begin testing for the presence of **genetically engineered foods** in early 1998, starting with identification of modified soybeans. (IB2E.s70)	La Unión Japonesa de Cooperativas de Consumo expresaba también lo que parece ser una preocupación pública creciente, al anunciar que a principios de 1998 empezaría a realizar pruebas para detectar la presencia de **alimentos producidos por la ingeniería genética**, comenzando con la identificación de las semillas de soja modificadas. (IB2S.s70)	Concern (-)
41.	By late 1998, its complicated regulatory	A finales de 1998, gracias a su complejo	Concern

	procedure had approved only nine **genetically engineered foods** for import, and no manipulated crops at all were cultivated in European countries. (IB2E.s72)	procedimiento regulador, dio permiso de importación tan sólo a nueve **alimentos transgénicos**, al mismo tiempo que en todos los países europeos únicamente se cultivaron plantas no manipuladas. (IB2S.s72)	
42.	About three thousand **genetically engineered foods** are said to be lined up for approval in the next few years. (IB2E.s243)	Se dice que unos tres mil **alimentos transgénicos** están esperando su aprobación para los próximos años. (IB2S.s242)	Neutral
43.	And in addition to lengthy product development there were also regulatory delays as a host of government agencies wrestled with how to ensure that **genetically engineered foods** were safe. (IB3E.s29)	Y al mucho tiempo que se necesitaba para el desarrollo de los productos se sumaban también los retrasos burocráticos que ocasionaba un ejército de instituciones gubernamentales preocupadas por garantizar la inocuidad de los **alimentos obtenidos mediante ingeniería genética**. (IB3S.s29)	Concern
44.	Unless there are new stringent requirements for human testing of all **genetically engineered foods**, there are no assurances that history will not repeat itself. (IB5E.s98)	Pese a que actualmente hay normas más estrictas sobre los análisis a los que han de ser sometidos todos los **alimentos producidos mediante ingeniería genética** antes de que pasen al consumo humano, no tenemos la certeza de que la historia no se repetirá. (IB5S.s99)	Concern (-)
45.	Most critics of biotechnology tread gingerly around the question of whether **genetically engineered foods** are safe for human consumption. (IB5E.s104)	La mayoría de quienes critican a la biotecnología ponen mucho cuidado en centrarse sobre la pregunta de si los **alimentos producidos mediante la ingeniería genética** son fiables para el consumo humano. (IB5S.s105)	Concern (-)
46.	Critics of biotechnology say the Brazil nut findings confirm some of their worst fears: since gene jockeys mix genes from such a wide array of species, there is no way to predict which **genetically engineered foods** may cause an allergic reaction. (IB5E.s130)	Quienes critican a la biotecnología dicen que lo descubierto con la nuez del Brasil confirma algunos de sus peores temores: desde que los genes galopantes se ensamblan con genes de una gran variedad de especies, no hay forma humana de predecir cuáles serán los **alimentos surgidos de la ingeniería genética** que podrán ocasionar reacciones alérgicas. (IB5S.s131)	Concern (-)
47.	Although **genetically engineered foods** like canola, soybeans, and potatoes are already in the marketplace, none of the new test-tube foods involve manipulated animals. (IB7E.s116)	Aun cuando ya se encuentran en los mercados **alimentos transgénicos** como la colza, la soja y las patatas, ninguno de esos productos de tubo de ensayo es un animal manipulado. (IB7S.s116)	Unfavorable
48.	Although she did not work with the unit that considered **genetically engineered foods**, she said the tone in the department is the same throughout. (IB11E.s96)	Aun cuando ella no trabajaba en la unidad que se ocupaba de los **alimentos producidos por la ingeniería genética**, afirma que lo mismo ocurre en todo departamento. (IB11S.s95)	Neutral
49.	None of these **genetically engineered foods** or seeds were produced by the Canadian industry but rather by multinational giants like Monsanto, AgrEvo, and Novartis. (IB11E.s117)	Ninguno de aquellos **alimentos** y ninguna de aquellas semillas **de la ingeniería genética** habían sido producidos por la industria canadiense, sino por los gigantes multinacionales como Monsanto, AgrEvo y Novartis. (IB11S.s116)	Neutral
50.	As **genetically engineered foods** began	Cuando los **alimentos producidos por la**	Concern (-)

	appearing on grocery store shelves and manipulated plants began sprouting in farmers ' fields, Canada 's biotechnology " industry " largely remained an expensive dream, far from delivering much-touted jobs and economic benefits. (IB11E.s235)	**ingeniería genética** empezaron a aparecer en los estantes de las tiendas de ultramarinos y las plantas manipuladas empezaron a brotar en los campos de labrantío, la " industria " biotecnológica de Canadá seguía siendo sólo un costoso sueño, lejos de crear los tan pregonados puestos de trabajo y de dar beneficios económicos. (IB11S.s231)	
51.	Japanese retailers collected one million signatures in 1997 demanding labeling of **genetically engineeredfoods**. (IB12E.s19)	En Japón, los vendedores al por menor recogieron en 1997 un millón de firmas, exigiendo el etiquetado de los **alimentos producidos por la ingeniería genética**. (IB12S.s18)	Concern (-)
52.	Much to the laughter of observers, no **genetically engineered foods** were served in the U.K. House of Commons - a decision made by the catering manager, not the politicians. (IB12E.s176)	Para gran regocijo de los observadores, en la Cámara de los Comunes del Reino Unido no se servían **alimentos transgénicos**, una decisión que no fue tomada por los políticos, sino por el encargado del servicio de comida. (IB12S.s173)	Concern (-)
53.	In theory, all **genetically engineered foods** or food ingredients must be assessed by the same Europe wide standards. (IB12E.s187)	En teoría, todos los **alimentos** o aditivos alimentarios **que hayan sido producidos mediante la ingeniería genética** tendrían que estar regulados por criterios válidos para toda Europa. (IB12S.s184)	Concern (-)
54.	Friends of the Earth campaigner Adrian Bebb told The Guardian: " Shoppers are being conned by politicians into believe that this labelling will help them avoid **genetically engineered foods**. (IB12E.s249)	Adrian Bebb, un activista de Amigos de la Tierra, declaró a The Guardian: " Los políticos han engañado a los consumidores y les han hecho creer que ese sistema de etiquetado les ayudará a evitar los **alimentos creados por la ingeniería genética**. (IB12S.s246)	Unfavorable
55.	He called on fellow researchers to endorse a fifty-year moratorium on the most dangerous applications of genetic engineering and to demand full, comprehensive testing of all **genetically engineered foods**. (IB13E.s24)	Hizo un llamamiento a sus colegas de investigación para que aplicasen una moratoria de cincuenta años en las aplicaciones más peligrosas de la ingeniería genética y para que exigiesen una comprobación exhaustiva y global de todos los **alimentos que ha creado la ingeniería genética**. (IB13S.s24)	Unfavorable
56.	Fagan 's Natural Law Party has put energy and money from its members into its " Campaign to Ban **Genetically Engineered Foods**, " but its broader political objectives unfortunately undermine its credibility. (IB13E.s69)	El Partido de la Ley Natural ha invertido energías y dinero de sus miembros para lanzar su " Campaña por la Prohibición de los **Alimentos Creados por la Ingeniería Genética** ", pero sus amplios objetivos políticos han socavado desgraciadamente su credibilidad. (IB13S.s68)	Unfavorable
57.	Whether or not to label **genetically engineered foods** would become an issue for the future. (IB14E.s156)	Que se etiqueten o no los **alimentos genéticamente manipulados** será un asunto del futuro. (IB14S.s155)	Concern
58.	The FDA announced in 1992 that special labeling for **genetically engineered foods** would not be required, touching off protests among food professionals, including the nations leading chefs and many wholesalers and retailers. (JR3E.s510)	La Administración de Alimentos y Fármacos anunció en 1992 que no se requeriría un etiquetado especial para los **alimentos que hubiesen sufrido ingeniería genética**. (JR3S.s506) Muchos profesionales de la alimentación protestaron, entre ellos los cocineros más destacados de la nación y muchos mayoristas y minoristas. (JR3S.s507)	Concern (-)
59.	Although the FDA said it would label any	Aunque la Administración de Alimentos y	Concern (-)

	genetically engineered foods containing genes from common allergenic organisms, the agency fell well short of requiring across-the-board labeling, leaving the Journal editors to ask what protection consumers would have against novel genes from organisms that have never before been part of the human diet and that might be potential allergens. (JR3E.s522)	Fármacos dijo que etiquetaría todos los **alimentos sometidos a la ingeniería genética** que contuviesen genes de organismos alérgenos conocidos, no llegaba a imponer lo mismo en todos los casos, y los consejeros de redacción del Journal se preguntaban qué protección tendrían los consumidores contra los genes de organismos que nunca antes habían formado parte de la dieta humana y que quizá fueran alérgenos. (JR3S.s519)	
60.	He had all but given up hope. (JS1E.s93) Now he finally had the chance to share what he knew about the dangers of **genetically engineered foods**. (JS1E.s94)	Jamás había llegado a perder la esperanza y, al fin, tenía la oportunidad de compartir sus conocimientos acerca de los peligros inherentes a **los alimentos genéticamente modificados**. (JS1S.s92)	Unfavorable
61.	He told the Pusztais that ministers from throughout Europe were about to meet in Brussels to cast their votes regarding regulation of **genetically engineered foods**. (JS1E.s117)	Le dijo a los Pusztai que los ministros de toda Europa iban a reunirse en Bruselas para votar una normativa conducente a regular los **alimentos genéticamente modificados**. (JS1S.s115)	Concern
62.	The British Medical Association mentioned this serious risk as one of the reasons why they called for an immediate moratorium on **genetically engineered foods**. (JS2E.s234)	La British Medical Association señaló este riesgo como una de las razones por las que solicitaban una retirada preventiva de los **alimentos genéticamente modificados**. (JS2S.s225)	Unfavorable
63.	Although the top biotech companies own 23 percent of the commercial seed market and total GM acreage far exceeds the size of the UK, many observers agree that Monsanto 's push of **genetically engineered foods** has been a failure. (JS5E.s435)	Y, pese a que las compañías biotecnológicas más importantes dominan el 23 por ciento del mercado de semillas y que la extensión de cultivos GM excede con mucho las dimensiones del Reino Unido, muchos observadores están de acuerdo en que el lanzamiento de los **alimentos genéticamente modificados** que efectuó Monsanto, ha resultado ser un fracaso. (JS5S.s403)	Unfavorable
64.	This would be in keeping with the agency 's history of subservience to the biotech and food industries with respect to **genetically engineered foods**. " (JS6E.s288)	Y ello redundaría en la historia de la agencia de sumisión a las industrias biotecnológicas y alimentarias con respecto a los **alimentos genéticamente modificados** ". (JS6S.s277)	Unfavorable
65.	According to Druker, " The court determined that the FDA is not regulating **GE [genetically engineered] foods** at all... (JS7E.s564)	Druker sostiene que " El tribunal determinó que la FDA no regula en absoluto los **alimentos GM...** (JS7S.s523)	Unfavorable
66.	Laura Ticciati, founder of Mothers for Natural Law and co-author of **Genetically Engineered Foods**: Are They Safe? (JS7E.s588)	Laura Ticciati, fundadora de Mothers for Natural Law (Madres a favor de la ley natural) y coautora de **Genetically Engineered Foods**: Are They Safe? (JS7S.s547)	Unfavorable
67.	According to Craig Winters, Director of the Campaign to Label **Genetically Engineered Foods**, they used fear and distortion. (JS7E.s606)	Según Craig Winters, director de la campaña para etiquetar los **alimentos genéticamente modificados**, utilizaron el miedo y la distorsión. (JS7S.s565)	Unfavorable
68.	The letter, which was reproduced in the industry 's brochure to voters, said, " FDA is not aware of any information or data that would suggest that any **genetically**	La carta, reproducida en el folleto que la industria hizo llegar a los votantes, decía: " La FDA no tiene constancia de ninguna información o datos que sugieran que los	Favorable

	engineered foods that have been allowed for human use are not as safe as conventional foods. " (JS7E.s623)	**alimentos genéticamente modificados** y que han sido aprobados para el consumo humano no son igual de sanos que los alimentos naturales ". (JS7S.s581)	
69.	Although Stitt was not focused on removing **genetically engineered foods** per se, by taking out the vending machines, preparing most foods from scratch, and using olive oil instead of vegetable oils, her program eliminated almost all the GM sources on the menu. (JS8E.s65)	Aunque el propósito en sí de Stitt no era el de eliminar los **alimentos genéticamente modificados**, cuando retiró las maquinas expendedoras, cambió de alimentos y utilizó aceite de oliva en lugar de aceites vegetales, lo cierto es que su programa acabó con casi todos los productos GM del menú. (JS8S.s63)	Concern (-)
Genetically engineering foods (1)			
70.	" Clearly, " she said, " the FDA does n't have a taste for regulating **genetically engineering foods**. " (BL3E.s155)	Como ella misma decía: " Está claro que a la FDA no le apetece nada regular los **alimentos alterados genéticamente** ". (BL3S.s154)	Unfavorable
Engineered food/s (2)			
71.	He concedes that not every **engineered food** may be harmful, but asserts that more comprehensive testing is required. (IB13E.s33)	Reconoce que no todos los **alimentos transgénicos** tienen que ser necesariamente dañinos, pero insiste en que es necesario someterlos a análisis más exhaustivos. (IB13S.s33)	Concern (-)
72.	According to the article, this study was " one of the very few studies ever to look directly for any harm from an **engineered food** or crop. " (JS6E.s61)	El artículo sostenía que el estudio fue " uno de los pocos estudios diseñados para descubrir el daño potencial que pueden llegar a causar los **alimentos** o cultivos **GM** ". (JS6S.s61)	Concern (-)
Bioengineered food/s (4)			
73.	Is n't the labeling of **bioengineered food** just a question of our right to choice? (IB14E.s176)	¿No es acaso el etiquetado de los **alimentos genéticamente manipulados** una simple cuestión del derecho que nos asiste a poder elegir? (IB14S.s175)	Concern
74.	According to Druker, the FDA " claimed that all relevant safety issues had been satisfactorily resolved and said that because the FlavrSavr had performed so well, it would be unnecessary for any subsequent **bioengineered food** to be subjected to the same rigorous standard of testing. (JS5E.s194)	Según Druker, la FDA " aseguró que se habían resuelto satisfactoriamente todos los asuntos de seguridad relevantes y dijo que como los resultados obtenidos por los FlavrSavr habían sido tan buenos, sería innecesario que nuevos **productos genéticamente modificados** tuvieran que someterse a las mismas pruebas, demasiado rigurosas. (JS5S.s180)	Favorable
75.	" FDA 's scientific review continues to show that all **bioengineered foods** sold here in the United States today are as safe as their non-bioengineered counterparts, " Dr. Jane Henney, the government 's commissioner of food and drugs, declared. (BL3E.s147)	La Dra. Jane Henney, comisaria gubernamental sobre alimentos y medicinas, anunció: " La investigación científica de la FDA sigue evidenciando que todos los **alimentos derivados de la ingeniería genética** vendidos en los Estados Unidos son tan seguros como su contrapartida natural ". (BL3S.s146)	Favorable
76.	Drulzer also wrote, " Dr. Crawford 's letter further misrepresents the facts by stating: ' FDA 's scientific evaluation of **bioengineered foods** continues to show that these foods.... are as safe as their conventional counterparts. " (JS7E.s625)	Druker también escribió: " La carta del doctor Crawford insiste en tergiversar los hechos al afirmar: " La evaluación científica de los **alimentos biomanipulados** realizada por la FDA sigue poniendo de manifiesto que esos alimentos... son tan sanos como sus relativos convencionales ". (JS7S.s583)	Favorable

4) *Modified* food/s (43)			
1.	By the spring of 2001, the American debate had widened to legislatures across the country, with more than forty bills introduced to regulate engineered crops or the labeling of **modified food**. (BL1E.s81)	En la primavera de 2001, el debate norteamericano se había extendido por las legislaturas de todo el país, donde se introdujeron más de cuarenta leyes para regular las plantaciones transgénicas o el etiquetado de los **alimentos modificados**. (BL1S.s79)	Neutral
2.	Around the world, a debate has exploded about genetic engineering in farming and the wisdom of eating **modified food**. (BL1E.s422)	Por todo el mundo ha estallado un debate sobre la ingeniería genética aplicada a la agricultura y sobre la conveniencia o no de consumir **alimentos modificados**. (BL1S.s417)	Concern
3.	Preserving that system of grain mixing along the production trail is one reason food producers and many farmers themselves are fighting against a global campaign to label **modified food**. (BL3E.s30)	La intención de preservar ese sistema de mezcla de granos, una fase del proceso de producción, es uno de los motivos por los que los productores de alimentos y muchos agricultores luchan contra la campaña mundial para etiquetar los **alimentos modificados genéticamente.** (BL3S.s30)	Favorable
4.	And instead of mandatory pre-market testing, the FDA prescribed a consultation process in which companies intending to sell **modified food** would need only to tell the government about it four months in advance. (BL3E.s150)	En lugar de someter a los productos a unas pruebas previas y obligatorias antes de introducirlos en el mercado, la FDA ordenaba un proceso de consulta en que las compañías deseosas de vender **alimentos modificados** sólo tenían que comunicárselo al gobierno con cuatro meses de antelación. (BL3S.s149)	Unfavorable
5.	Companies would eagerly label these products as a pathway to health even if the Food and Drug Administration is n't compelled to order labeling of **modified food** with medicinal properties. (BL4E.s228)	Las compañías etiquetarían tranquilamente esos productos tachándolos de vía hacia la salud, incluso si la Food and Drug Administration no se viese forzada a ordenar el etiquetado de los **alimentos modificados** que poseen propiedades medicinales. (BL4S.s223)	Favorable
6.	6. IN ILLINOIS, AN APOSTLE OF **MODIFIED FOOD**. (BL6E.s3)	6. ILLINOIS, UN APÓSTOL DE LOS **ALIMENTOS TRANSGÉNICOS**. (BL6S.s3)	Favorable
7.	The Organic Trade Association, of which she is executive director, will demand a seat at every table where the rules for **modified food** and seeds are drawn, she said. (BL8E.s64)	Me dijo que la Organic Trade Association, de la que ella es directora ejecutiva, tendrá que ocupar un asiento en todos los lugares donde se redacten las normas sobre **alimentos** y semillas **modificadas.** (BL8S.s63)	Unfavorable
8.	A few months later, he ruffled more feathers when he asserted in a speech at the National Press Club in Washington that companies ought to consider labeling **modified food**. (BL8E.s144)	Pocos meses después, Glickman puso unos cuantos pelos más de punta cuando afirmó, en un discurso ante el National Press Club de Washington, que las empresas deberían plantearse la transmisión de información en el etiquetado de los **alimentos transgénicos.** (BL8S.s142)	Concern (-)
9.	But many farmers began to worry about their exports after the emergence of a global resistance to **modified food**. (BL8E.s232)/**T**	Pero muchos agricultores empezaron a preocuparse por sus exportaciones tras la emergencia de una resistencia mundial a los **alimentos modificados**. (BL8S.s229)	Concern (-)
10.	But there 's not much understanding of this new business of **modified food** or whether it 's a good or bad thing. (BL9E.s165)	Pero la gente no sabe mucho sobre esta nueva industria de los **alimentos modificados**, ni si es algo bueno o malo. (BL9S.s160)	Concern
11.	Now Europeans would not only be importing **modified food** but also growing	Ahora los europeos no sólo importarían **alimentos modificados genéticamente**, sino	Concern

	it. (BL12E.s76)	que los cultivarían. (BL12S.s76)	
12.	Then Guy Riba, who works at a French government research agency, complains that **modified food** is being forced on his nation. (BL13E.s50)	Entonces Guy Riba, que trabaja en una agencia investigadora del gobierno francés, se queja de que los **alimentos transgénicos** se quieran imponer a su nación. (BL13S.s50)	Unfavorable
13.	By allowing concessions on one front - voluntary regime of labeling **modified food** - GMO retailers contained their nascent European opposition. (BL14E.s39)	Al ceder en un frente (el régimen voluntario del etiquetado de los **alimentos transgénicos**), los distribuidores de OMG contenían la incipiente oposición europea. (BL14S.s39)	Unfavorable
14.	How, I ask her, can British journalists, especially food writers, discard their objectivity when it comes to **modified food**. (BL14E.s119)	Le pregunto cómo es posible que los periodistas británicos, en especial los que tocan temas de alimentación, dejen a un lado su objetividad cuando tocan la cuestión de los **alimentos modificados**. (BL14S.s117)	Unfavorable
15.	But just weeks before the protesters gathered in Oxfordshire, Blair had conceded in a widely publicized interview that " the jury is out " on the safety of **modified food**. (BL14E.s323)	Pero, justo unas semanas antes de que los manifestantes se reuniesen en Oxfordshire, Blair había admitido, en una entrevista muy difundida, que respecto a la seguridad de los **alimentos modificados**, " el jurado aún no tiene una opinión clara ". (BL14S.s320)	Concern (-)
16.	" We are assured that this [**modified food**] is absolutely safe and that no harm can come to us from eating it. (BL14E.s399)	- Estamos seguros de que éstos [los **alimentos modificados**] son perfectamente inocuos y que no puede perjudicarnos el hecho de consumirlos. (BL14S.s396)	Favorable
17.	Pusztai 's findings were regarded briefly as a milestone in scientific efforts to gauge the safety of **modified food**, and they triggered a new outbreak of condemnation. (BL14E.s402)	Los hallazgos de Pusztai se consideraron escuetamente como un hito en los esfuerzos científicos para evaluar la inocuidad de los **alimentos modificados**, y dieron pie a un nuevo estallido de condenas. (BL14S.s399)	Unfavorable
18.	Might the campaign to bring **modified food** to the market have been terribly flawed? (BL15E.s32)	¿Acaso la campaña para introducir en el mercado **alimentos modificados** había adolecido de un craso punto débil? (BL15S.s32)	Concern (-)
19.	I have no doubt that attitudes toward the press accelerated both the company 's slide and Europe 's rejection of **modified food**. (BL15E.s261)	No me cabe duda de que la actitud hacia la prensa aceleró el patinazo de la empresa y el rechazo europeo de los **alimentos modificados**. (BL15S.s256)	Unfavorable
20.	The biotech industry thinks their critics have succeeded through distortion: distorting the facts about safety and creating the false impression that consumers, not just activists, worry about **modified food**. (BL16E.s87)	La industria biotecnológica cree que sus críticos han tenido éxito usando la distorsión: han tergiversado los datos sobre la seguridad y han creado la falsa impresión de que los consumidores, y no sólo los activistas, se preocupan por la **comida transgénica**. (BL16S.s88)	Concern
21.	It is the trump card slapped on the table by creators of the technology, played to shame any who would suggest that the risks of **modified food** remain unknown. (BL18E.s34)	Es el comodín que lanzan sobre la mesa los creadores de la tecnología, avergonzando a todo aquel que sugiera que seguimos sin conocer los riesgos de los **alimentos modificados**. (BL18S.s34)	Concern
22.	Veit Koester 's chance to be recalled as the man who forged the first global agreement on **modified food** had disappeared, and he looked crestfallen. (BL19E.s216)	La oportunidad que tuvo Veit Koester de que le recordasen como el hombre que logró el primer consenso mundial sobre los **alimentos transgénicos** se había evaporado, y tenía un aspecto abatido. (BL19S.s213)	Concern

23.	That device, proposed by the United States and Canada, was a special WTO working group set up to analyze how WTO policies affect **modified food** and, ostensibly, head off trade disputes. (BL20E.s139)	Este sistema, propuesto por los Estados Unidos y Canadá, consistía en un grupo especial de la OMC creado para analizar cómo la política de ésta afecta a los **alimentos transgénicos** y, presuntamente, para interceptar las disputas comerciales. (BL20S.s136)	Concern
24.	For two years, as activists and European consumers built their anti-GMO movement, I 'd watched European governments build a wall to keep out **modified food**. (BL20E.s149)	Durante dos años, a medida que los activistas y los consumidores europeos iban construyendo su movimiento anti-OMG, yo había visto cómo los gobiernos europeos erigían un muro para mantener al otro lado los **alimentos transgénicos**. (BL20S.s146)	Unfavorable
25.	In front of them, he unveiled a placard with the names of three hundred scientists who had signed a letter to trade ministers decrying the opponents of **modified food**. (BL20E.s177)	Delante de ellos, reveló una placa donde se leían los nombres de los 300 científicos que habían firmado una carta destinada a los ministros de comercio censurando a quienes se oponían a los **alimentos modificados**. (BL20S.s173)	Unfavorable
26.	In Koester 's eyes, the stakes were even higher now because of the widening over **modified food**. (BL21E.s146)	Según su punto de vista, ahora lo que estaba en juego era más importante, debido al creciente abismo ante los **alimentos transgénicos**. (BL21S.s147)	Concern
27.	In the London School of Economics and Science Museum poll, about seventy-four percent of respondents said they wanted labeling of **modified food**. (IB12E.s235)	En el sondeo de opinión realizado por la Escuela Superior de Economía de Londres y el Museo de las Ciencias, cerca del setenta y cuatro por ciento de los entrevistados dijeron que querían que los **alimentos modificados** estuviesen señalados en las etiquetas. (IB12S.s232)	Concern
28.	Just as there are questions about the safety of **modified foods**, there are profound hopes. (BL1E.s87)	Del mismo modo que existen muchas preguntas sobre si los **alimentos transgénicos** son o no seguros, éstos también alientan unas profundas esperanzas. (BL1S.s85)	Concern
29.	The seed catalogue of **modified foods** tested in the United States is thick indeed. (BL1E.s176)	El catálogo de semillas para los **alimentos modificados** que se analizan en los Estados Unidos es francamente voluminoso. (BL1S.s172)	Neutral
30.	Companies bringing these genetic technologies tell us that **modified foods** are simply a natural progression of a science, classical breeding, begun when a shy, portly Austrian monk, Gregor Mendel, all the while smoking cigars and feverishly writing notes, crossed round peas with wrinkled peas, tall plants with dwarfs. (BL1E.s334)	Las empresas que aportan estas tecnologías genéticas nos dicen que los **alimentos modificados** son, simplemente, una progresión natural de la ciencia, de aquel cultivo clásico que empezó cuando un tímido y rechoncho monje austriaco, Gregor Mendel, mientras fumaba puros y garrapateaba cuartillas febrilmente, cruzó guisantes redondos con guisantes de piel rugosa, las plantas largas con las enanas. (BL1S.s329)	Favorable
31.	In his view, we will have a general system of **modified foods**, or we wo n't. (BL1E.s377)	Según Gene, o bien todo el mundo dispondrá de un sistema general de **alimentos modificados**, o nadie lo tendrá. (BL1S.s372)	Neutral
32.	At a news conference in Washington declaring the Cry9C discovery, Genetically Engineered Food Alert demanded a recall of the taco shells and condemned what they regarded as a permissive, largely voluntary method of	En una conferencia de prensa celebrada en Washington, donde se expuso el descubrimiento del Cry9C, Genetically Engineered Food Alert exigió la retirada de las tiendas de los tacos, condenando lo que ellos consideraban un método permisivo y bastante voluntario de	Unfavorable

	regulating **modified foods** in the United States. (BL3E.s42)	regular los **alimentos modificados** en los Estados Unidos. (BL3S.s41)	
33.	With concerns mounting in the new century, the FDA held public hearings, then announced in May of 2000 that it intended to strengthen its rules somewhat by requiring manufacturers to notify them and provide more documentation before sending **modified foods** to the market. (BL3E.s145)	A medida que la inquietud popular aumentaba en el nuevo siglo, la FDA celebró reuniones públicas, y luego anunció, en mayo de 2000, que planeaba endurecer su normativa hasta cierto punto, exigiendo a los manufactureros que les notificasen la puesta en circulación de **alimentos modificados** y les ofrecieran una documentación adicional al respecto. (BL3S.s144)	Concern
34.	Nonetheless, the furor had cost the industry hundreds of millions of dollars, disclosed gaps in the regulation of **modified foods**, and demonstrated anew that the government does n't know what people are eating. (BL3E.s203)	No obstante, el furor había costado a la industria cientos de millones de dólares, había puesto de manifiesto agujeros en la regulación de los **alimentos modificados**, y había vuelto a demostrar que el gobierno no sabía qué come la gente. (BL3S.s202)	Unfavorable
35.	What he said that day was anything but sterile, for he declared that the food industry ought to consider labeling their **modified foods**. (BL8E.s199)	Lo que dijo aquel día fue todo menos estéril, porque declaró que, según pensaba él, la industria alimentaria tendría que plantearse etiquetar los **alimentos modificados**. (BL8S.s195)	Concern
36.	I asked Mairie if she believes that consumers can continue to block the wholesale plantings of **modified foods**. (BL12E.s404)	Pregunté a Mairie si cree que los consumidores pueden seguir bloqueando la plantación de **cultivos modificados**. (BL12S.s395)	Unfavorable
37.	In both countries, the advertising endorsed labeling **modified foods**. (BL15E.s145)	En ambos países, esta publicidad respaldaba el etiquetado de los **alimentos transgénicos**. (BL15S.s142)	Concern
38.	But as people had told me across France - where opposition to GMOs did not, in my view, run deep - their support for **modified foods** hinged on knowing their ingredients. (BL15E.s150)	Pero, como me dijeron personas por toda Francia, donde, bajo mi punto de vista, la oposición a los OMG no era demasiado intensa, su respaldo a los **alimentos modificados** dependía de conocer sus ingredientes. (BL15S.s147)	Concern
39.	Robert Shapiro, Monsanto 's chief executive officer and the modern architect of genetically **modified foods**, never would sit with me for an interview. (BL15E.s253)	Robert Shapiro, el director ejecutivo principal de Monsanto y arquitecto moderno de los **alimentos alterados genéticamente**, se negaba a reunirse conmigo para entrevistarle. (BL15S.s248)	Concern (-)
40.	Monsanto, too, was stunned, and in a letter to Glickman, the company backed off making a public fight out of its demand that **modified foods** fit into organic labels. (BL16E.s51)	En Monsanto también se quedaron de piedra y, en una carta enviada a Glickman, la compañía se echó atrás respecto a su decisión de montar una guerra pública sobre la exigencia de que los **alimentos transgénicos** llevasen etiquetas que los definieran como orgánicos. (BL16S.s52)	Concern
41.	But then they argue that it 's identical, or substantially equivalent, " Shiva said, mocking the insistence by the biotechnology industry and the United States government that **modified foods** need not be so labeled. (BL20E.s219)	Pero luego argumentan que es idéntico o sustancialmente equivalente a algo que ya existe ", decía Shiva, burlándose de la insistencia con que la industria biotecnológica y el gobierno estadounidense aseveran que no hace falta etiquetar los **alimentos transgénicos** identificándolos como tales. (BL20S.s215)	Unfavorable
42.	The final demand reached to the core of	La exigencia última llegaba hasta el corazón	Concern

	the global debate over **modified foods**: labeling. (BL21E.s308)	mismo del debate mundial sobre los **alimentos transgénicos**: el etiquetado. (BL21S.s311)	
43.	Although no **modified foods** were then commercially available, thousands of restaurant entrances began displaying next to the Visa and MasterCard symbols a decal showing the DNA helix slashed by a red bar. (IB2E.s107)	Pese a que para entonces no había en los comercios **alimentos modificados**, miles de restaurantes comenzaron a exhibir en sus entradas, junto a los símbolos de Visa y Master Card, una calcomanía que mostraba la hélice del ADN cruzada por una barra roja. (IB2S.s107)	Unfavorable
5) *Test-tube* food/s (25)			
1.	As BST would not make milk more nutritious or tasty, consumers wondered who other than Monsanto and large dairy producers would benefit from the **new test-tube food.** (IB4E.s84)	Como quiera que la BST no hacía a la leche ni más nutritiva ni más sabrosa, los consumidores se preguntaban quién más, aparte de Monsanto y de los grandes productores de lácteos, se beneficiaría del nuevo **alimento salido del tubo de ensayo**. (IB4S.s83)	Concern (-)
2.	The advisers also recommended that, in future, all companies proposing a **test-tube food** with an antibiotic-resistant marker gene " demonstrate the safety " of the genes and the " scientific need for their retention ". (IB5E.s202)	Los miembros del comité recomendaban también que todas las compañías que propusiesen en el futuro la comercialización de **alimentos salidos de los tubos de ensayo** y con genes marcadores, resistentes a los antibióticos, tuviesen que " demostrar la seguridad " de los genes y la " necesidad científica de su introducción ". (IB5S.s203)	Concern (-)
3.	Whenever a **test-tube food** is presented there for consideration, scientists once again reopen the old debate about marker genes increasing antibiotic resistance. (IB5E.s206)	Siempre que allí se presenta para su consideración un **alimento salido del tubo de ensayo**, los científicos reabren una vez más el viejo debate sobre los genes marcadores, que pueden incrementar la resistencia a los antibióticos. (IB5S.s208)	Concern (-)
4.	Shafer says every new **test-tube food** has to be assessed according to a risks/benefit analysis. (IB14E.s179)	Shafer dice que todo nuevo **alimento de tubo de ensayo** ha de ser ponderado conforme a un análisis de riesgos y beneficios. (IB14S.s178)	Concern
5.	New **test-tube foods** are arriving on store shelves now thanks to the acquiescence of government regulators, particularly in North America, who see biotechnology as a valuable growth industry. (IB1E.s81)	Los nuevos **alimentos salidos de los tubos de ensayo** ya han hecho su aparición en los estantes de las tiendas de comestibles gracias a la aquiescencia de los reguladores gubernamentales, particularmente en Norteamérica, que ve en la biotecnología una espléndida industria en crecimiento. (IB1S.s81)	Favorable
6.	These **test-tube foods** are generally indistinguishable from what we consider the products of nature. (IB1E.s94)	Esos **alimentos salidos de los tubos de ensayo** no se pueden distinguir por regla general de lo que consideramos como productos de la naturaleza. (IB1S.s94)	Neutral
7.	Most **test-tube foods** are absorbed invisibly into edible products that appear on grocery shelves. (IB2E.s58)	La mayoría de los **alimentos que salen de los tubos de ensayo** son absorbidos de un modo invisible en productos comestibles que luego aparecen en los estantes de las tiendas de ultramarinos. (IB2S.s58)	Concern
8.	And as one Canadian critic wryly remarked, Health Canada essentially says to the developers of new **test-tube foods**, " if your novel food kills people, let us know ". (IB5E.s218)	Y como señaló amargamente un crítico canadiense, Sanidad Nacional se limita a decir a los creadores de nuevos **alimentos salidos del tubo de ensayo**: " Si vuestros nuevos alimentos matan a la gente, hacédnoslo saber ". (IB5S.s220)	Concern (-)

9.	She is an activist prepared to speak out against **test-tube foods**. (IB5E.s231)	Es una activista preparada para pronunciar conferencias contra los **alimentos salidos del tubo de ensayo**. (IB5S.s232)	Unfavorable
10.	Although genetically engineered foods like canola, soybeans, and potatoes are already in the marketplace, none of the new **test-tube foods** involve manipulated animals. (IB7E.s116)	Aun cuando ya se encuentran en los mercados **alimentos transgénicos** como la colza, la soja y las patatas, ninguno de esos productos de tubo de ensayo es un animal manipulado. (IB7S.s117)	Unfavorable
11.	Biotechnology proponents, like the U.S., protested that **test-tube foods** were safe and already overregulated. (IB8E.s174)	Los defensores de la biotecnología, como Estados Unidos, protestaron, asegurando que los **alimentos salidos del tubo de ensayo** son seguros y ya están más que regulados. (IB8S.s174)	Favorable
12.	The Animal and Plant Health Inspection Service (APHIS), a division of the Department of Agriculture, is the lead agency in the U.S., although both the Environmental Protection Agency and the Food and Drug Agency also have roles to play in the consideration of **test-tube foods**. (IB11E.s29)	El Servicio de Inspección Sanitaria de Animales y Plantas (APHIS, Animal and Plant Health Inspection Service), una división del Departamento de Agricultura, es el organismo principal en Estados Unidos, aun cuando tanto la Agencia de Protección Medioambiental como la Agencia de Alimentos y Drogas (FDA) desempeñan también su papel en el enjuiciamiento de los **alimentos salidos de un tubo de ensayo**. (IB11S.s28)	Neutral
13.	That was the year genetically engineered crops were first made available to farmers, and **test-tube foods** first appeared on grocery store shelves. (IB11E.s115)	Fue el año en que por primera vez estuvieron a disposición de los campesinos algunos cultivos obtenidos mediante la ingeniería genética y cuando aparecieron en los estantes de los supermercados los primeros **alimentos salidos de los tubos de ensayo**. (IB11S.s114)	Neutral
14.	**Test-tube foods** - according to Greenpeace and what seems to be the majority of European consumers- have no place in the food supply. (IB12E.s17)	**Los alimentos salidos de los tubos de ensayo** - según la opinión de Greenpeace, que parece ser compartida por la mayoría de los consumidores europeos- no tienen cabida en los aditivos alimentarios. (IB12S.s16)	Unfavorable
15.	But the huge explosion of opposition **to test-tube foods** was likely set off by a single event: the biggest food scare ever to strike the continent, a scare that undermined the foundation of the British diet - toxic beef. (IB12E.s46)	Pero el mayor estallido de oposición a los **alimentos de tubo de ensayo** fue seguramente el que desencadenó un acontecimiento único: el mayor pánico alimentario que jamás conmoviera al continente, un pánico que socavó las bases de la dieta británica: la carne de vaca tóxica. (IB12S.s45)	Unfavorable
16.	In Austria, a record 1.2 million citizens, representing twenty percent of the electorate, signed a people 's petition to ban **test-tube foods**, as well as the deliberate release of genetically engineered organisms and the patenting of life. (IB12E.s160)	En Austria, un millón doscientos mil ciudadanos, representantes del veinticinco por ciento del electorado, firmaron una solicitud, exigiendo al gobierno que prohibiese los **alimentos de tubo de ensayo**, la venta de organismos genéticamente manipulados y las patentes sobre la vida. (IB12S.s157)	Unfavorable
17.	The opposition to **test-tube foods** created a vibrant alternative business sector. (IB12E.s169)	La oposición a los **alimentos de tubo de ensayo** dio origen a un pujante sector comercial alternativo. (IB12S.s166)	Unfavorable
18.	The anxiety over **test-tube foods** continued to generate stories for the nightly news. (IB12E.s174)	La preocupación por los **alimentos transgénicos** siguió generando historias para los telediarios. (IB12S.s171)	Concern (-)

19.	Several inmates at U.K. penal institutions argued they were entitled to a diet free of **test-tube foods**. (IB12E.s177)	Diversos reclusos de las instituciones penales del Reino Unido declararon que tenían derecho a una dieta que estuviese libre de **alimentos transgénicos**. (IB12S.s174)	Unfavorable
20.	How a number of potential political pitfalls are negotiated will determine the future of international trace in **test-tube foods**. (IB12E.s303)	De cómo sea negociado un gran número de posibles escollos políticos dependerá el futuro del mercado internacional de los **alimentos de tubo de ensayo**. (IB12S.s297)	Concern
21.	The language British consumers heard from scientists and government representatives trying to quell public fears about the outbreak sounded identical to what is being said today about **test-tube foods**. (IB12E.s307)	El lenguaje que los consumidores británicos escucharon de boca de los científicos y de los representantes del gobierno cuando trataron de disipar sus miedos ante el estallido de la epidemia del mal de las vacas locas suena exactamente igual al que se utiliza en nuestros días para referirse a los **alimentos de tubo de ensayo**. (IB12S.s301)	Unfavorable
22.	Its legal actions and boycotts have not managed to stop the release of any **test-tube foods**. (IB13E.s76)	Sus acciones legales y sus boicoteos no han logrado impedir la comercialización de ningún **alimento de tubo de ensayo**. (IB13S.s75)	Unfavorable
23.	In Europe, Greenpeace, with its zealous, in your-face brand of activism, has led the charge against genetically engineered soybeans and other **test-tube foods**. (IB13E.s110)	En Europa, Greenpeace, con su aureola de activismo ferviente y franco, ha dirigido la lucha contra la soja transgénica y otros **alimentos de tubo de ensayo**. (IB13S.s109)	Unfavorable
24.	There, **test-tube foods** were supposed to arrive in the supermarket stealthily and unannounced. (IB14E.s151)	En él, se supone que los **alimentos de tubo de ensayo** se infiltran en los supermercados furtivamente y sin previo aviso. (IB14S.s150)	Unfavorable
25.	Bioethicist Arthur Schafer acknowledges it is difficult for society to make a decision on **test-tube foods**- particularly if scientific information is incomplete. (IB14E.s168)	El bioético Arthur Shafer reconoce que a la sociedad le resulta muy difícil tomar decisiones sobre los **alimentos de tubo de ensayo**, debido especialmente a que la información científica es incompleta. (IB14S.s167)	Concern
6) *Functional* food/s (14)			
1.	For starters, the term **" functional food "** has no legal statue in the U.S. or Canada. (IB9E.s74)	Para empezar, el término de **" alimento funcional "** no tiene categoría legal en Estados Unidos y en Canadá. (IB9S.s74)	Concern
2.	Science will take foods from folklore to the lab to the grocery store as **" functional foods. "** (IB9E.s38)	La ciencia cogerá alimentos tradicionales, los llevará al laboratorio y luego los enviará a las tiendas de ultramarinos en forma de **" alimentos funcionales ".** (IB9S.s39)	Neutral
3.	For now, genetically engineered **functional foods** remain only wishful thinking, but agribusiness has recognized their market potential. (IB9E.s42)	De momento, los **alimentos funcionales** producidos por la ingeniería genética siguen siendo únicamente un deseo, pero el agronegocio ha reconocido su mercado potencial. (IB9S.s43)	Favorable
4.	Although **functional foods** are not yet ready for the field, there is all kinds of optimism in the farming community about lucrative new crops. (IB9E.s56)	Pese a que los **alimentos funcionales** aún no están listos para ser sembrados, el optimismo se ha extendido entre los productores, que ya están viendo nuevos cultivos altamente lucrativos. (IB9S.s57)	Favorable
5.	The future farm will be a " pharm, " producing **functional foods** and biopharmaceuticals on agricultural land.	La granja agrícola del futuro, la farm en inglés, será una " farma " (pharm), que producirá **alimentos funcionales** y biomedicamentos en	Favorable

	(IB9E.s58)	los campos de labrantío. (IB9S.s59)	
6.	The biggest challenge for **functional foods** is establishing a well-balanced legislative structure that will encourage the development of foods with legitimate value and discourage the faddish foods that may win attention through unsubstantiated claims. (IB9E.s63)	El mayor reto al que se enfrentan los **alimentos funcionales** es el establecimiento de una estructura legislativa bien equilibrada que fomente el desarrollo de alimentos de un valor real y disuada a quienes pretendan producir alimentos engañosos con los que se quiera llamar la atención con una propaganda insubstancial. (IB9S.s63)	Neutral
7.	Japan is leading the way in legislating health claims by recognizing **functional foods** as an alternative to drugs. (IB9E.s68)	Japón se ha puesto a la cabeza de ese tipo de legislación al reconocer los **alimentos funcionales** como una alternativa a las drogas. (IB9S.s68)	Neutral
8.	However, by the late 1990s, dozens of **functional foods** had appeared on Japanese supermarket shelves. (IB9E.s71)	Sin embargo, hacia finales de la década de los noventa, docenas de **alimentos funcionales** habían aparecido ya en los estantes de los supermercados japoneses. (IB9S.s71)	Neutral
9.	**Functional foods** have the potential to be of enormous benefit to health-conscious consumers, but only if they are advertised honestly and regulated carefully. (IB9E.s85)	Los **alimentos funcionales** son una fuente en potencia de beneficios inmensos para los consumidores conscientes de la salud, pero solamente si son anunciados con honestidad y si están claramente legislados. (IB9S.s85)	Favorable
10.	The hype behind alternative remedies offers an uncomfortable look into a future in which genetically engineered **functional foods** are not adequately legislated. (IB9E.s86)	El gran bombo propagandístico que respalda a los remedios alternativos ofrece una imagen desagradable de lo que puede ser un futuro en que los **alimentos funcionales** creados por la ingeniería genética no estén adecuadamente legislados. (IB9S.s86)	Unfavorable
11.	How the government decides to regulate -or deregulate- dietary supplements may offer an indication for the future of **functional foods** in Canada. (IB9E.s109)	Cómo decida el gobierno legislar - o deslegislar- los suplementos dietéticos es algo que nos dará un indicio de cómo será el futuro de los **alimentos funcionales** en Canadá. (IB9S.s109)	Concern
12.	In the European Union, a program known as the Project of Technological Priority allocated millions of dollars to laboratory teams to research **functional foods**. (IB9E.s50)	En la Unión Europea, en el marco de un programa conocido como Proyecto de Prioridad Tecnológica, se están invirtiendo millones de dólares para que los científicos investiguen en sus laboratorios la forma de crear **alimentos funcionales**. (IB9S.s51)	Favorable
13.	However, all the research efforts were aimed at producing **functional foods**, like tomatoes with boosted beta-carotene. (IB12E.s147)	No obstante, todas las investigaciones estuvieron orientadas hacia la producción de **alimentos funcionales**, como los tomates enriquecidos con beta-caroteno. (IB12S.s144)	Favorable
14.	There 's **" functional foods**, **"** which, besides conjuring up spoons of castor oil, applies these days to a slew of supermarket wonder eats that make promises bordering on quackery. (BL4E.s114)	Otra expresión es la de **" alimentos funcionales "**, que, aparte de hacernos pensar en cucharadas de aceite de ricino, actualmente se aplica a una serie de alimentos maravillosos del supermercado que hacen promesas que rozan la extravagancia. (BL4S.s109)	Concern (-)
		7) *GE* food/s (13)	
1.	Many people became aware of **GE food** for the first time in 1996, when soybeans grown in the US were genetically engineered by Monsanto to be resistant to their best-selling herbicide	Muchas personas se dieron cuenta por primera vez de la existencia de los **alimentos transgénicos** en 1996, cuando comenzó a cultivarse en EE UU la soja modificada genéticamente por Monsanto para ser resistente	Neutral

	Round-up. (LA1E.s98)	a su herbicida de mayor venta, el Round-up (glifosato). (LA1S.s104)	
2.	The theory of " substantial equivalence " has been at the root of the international safety assessment and testing of **GE food**. (LA1E.s101)	La teoría de la equivalencia sustancial ha estado en la raíz del análisis internacional para valorar la seguridad de los **alimentos transgénicos**. (LA1S.s107)	Favorable
3.	Some people could develop a sensitivity to a **GE food** gradually after being exposed to it over time, whereas others might have an acute allergic reaction after eating a minute amount. (LA1E.s143)	Algunas personas podrían desarrollar una sensibilidad gradualmente a un **alimento transgénico** tras ser expuestas a éste durante un tiempo, mientras que otros podrían provocar una reacción alérgica aguda tras ser ingeridos en cantidades mínimas. (LA1S.s151)	Concern
4.	Some scientists believe that eating **GE food** containing these marker genes could encourage gut bacteria to develop antibiotic resistance. (LA1E.s155)	Algunos científicos creen que comiendo **alimentos transgénicos** que contienen éstos genes marcadores se acelerará la aparición de resistencia a los antibióticos en las bacterias del intestino. (LA1S.s163)	Concern
5.	61 % said they did not want to eat **GE food**, 73 % were concerned that GE crops could interbreed with wild plants and cause genetic pollution, and 77 % wanted a ban on growing until the impacts of GE crops had been more fully assessed. (LA5E.s35)	El 61 % afirmaban que no querían comer **alimentos transgénicos,** el 73 % estaban preocupados porque los cultivos modificados genéticamente pudieran cruzarse con las plantas silvestres y ocasionar una contaminación genética, y el 77 % querían una prohibición hasta que los impactos de los cultivos transgénicos fueran analizados de forma más exhaustivas. (LA5s.s41)	Unfavorable
6.	Survey after survey showed that the vast majority of people wanted comprehensive labelling of **GE food**, even they did not mind eating it. (LA5E.s142)	Encuesta tras encuesta, mostraron que la inmensa mayoría de las personas querían el etiquetado de los **alimentos transgénicos**, aun cuando no les importara consumirlos. (LA5s.s148)	Concern
7.	When she was asked whether she felt that people should be given the choice of eating **GE food** or not, Janet Bainbridge (chair of the UK Advisory Committee on Novel Foods and Processes) replied that they should not because " most people do n't even know what a gene is. " (LA5E.s175)	Cuando se le preguntó a Janet Bainbridge (presidenta del Comité Asesor de Nuevos Alimentos y Procesos del Reino Unido) si pensaba que a la población se le debería dar la oportunidad de comer o no **alimentos transgénicos**, ella replicó que no porque " la mayoría de las personas ni siquiera saben lo que es un gen ". (LA5s.s182)	Concern
8.	This has been very successful, and in February 1999 the sixty voting members of the Local Government Association made a unanimous decision to recommend councils across the country to remove **GE food** from all their outlets - schools, town halls, and residential homes for the elderly. (LA7E.s34)	Esta iniciativa tuvo mucho éxito, y en febrero de 1999 los sesenta miembros con derecho a voto de la Asociación de Municipios y Gobiernos Locales tomaron la decisión unánime de recomendar a los ayuntamientos de todo el país que eliminasen los **alimentos transgénicos** de todas sus dependencias, escuelas, ayuntamientos y residencias de ancianos. (LA7S.s35)	Concern (-)
9.	Support for these initiatives has also come from the UK 's leading chefs and food writers, more than a hundred of whom pledged to oppose the use of **GE food**, and to encourage other chefs and restaurants to do the same. (LA7E.s37)	Los chefs y escritores de recetas más famosos del Reino Unido también han apoyado estas iniciativas, y más de un centenar prometieron oponerse al consumo de **alimentos transgénicos**, animando a otros a hacer lo mismo. (LA7S.s38)	Unfavorable
10.	Druker said the court acknowledged that " The FDA 's politically appointed	Druker dijo que el tribunal reconoció que " Los burócratas designados políticamente por la FDA	Unfavorable

	bureaucrats did not follow the advice and warnings of the agency 's scientific staff regarding **GE foods** but disregarded them, [and] there is currently significant disagreement among scientific experts about the safety of GE foods. " (JS7E.s567)	no hicieron caso de las advertencias de los científicos de la agencia en relación a los **alimentos GM** ; los ignoraron y es evidente que existen importantes desacuerdos entre los expertos sobre la seguridad de los alimentos GM ". (JS7S.s526)	
11.	Druker said the court acknowledged that " The FDA 's politically appointed bureaucrats did not follow the advice and warnings of the agency 's scientific staff regarding GE foods but disregarded them, [and] there is currently significant disagreement among scientific experts about the safety of **GE foods. "** (JS7E.s567)	Druker dijo que el tribunal reconoció que " Los burócratas designados políticamente por la FDA no hicieron caso de las advertencias de los científicos de la agencia en relación a los alimentos GM ; los ignoraron y es evidente que existen importantes desacuerdos entre los expertos sobre la seguridad de los **alimentos GM** ". (JS7S.s526)	Unfavorable
12.	Since the FDA requires no testing of **GE foods**, acknowledges it does not conduct comprehensive reviews of them, and does not make formal empirical findings that particular GE foods are safe, it 's amazing the agency would now claim its evaluation process shows they are as safe as other foods. " (JS7E.s627)	Puesto que la FDA no requiere el examen de los **alimentos GM**, que reconoce que no los somete a evaluaciones exhaustivas, y que no llega a conclusiones empíricas formales que establezcan su salubridad, resulta sorprendente que ahora la agencia afirme que, según se sigue de sus procesos de evaluación, los alimentos GM son tan sanos como cualesquiera otros ". (JS7S.s585)	Unfavorable
13.	Since the FDA requires no testing of GE foods, acknowledges it does not conduct comprehensive reviews of them, and does not make formal empirical findings that particular **GE foods** are safe, it 's amazing the agency would now claim its evaluation process shows they are as safe as other foods. " (JS7E.s627)	Puesto que la FDA no requiere el examen de los alimentos GM, que reconoce que no los somete a evaluaciones exhaustivas, y que no llega a conclusiones empíricas formales que establezcan su salubridad, resulta sorprendente que ahora la agencia afirme que, según se sigue de sus procesos de evaluación, los **alimentos GM** son tan sanos como cualesquiera otros ". (JS7S.s585)	Unfavorable
8) *New / novel* food/s (13)			
New food/s (10)			
1.	Is the **new food** safe for humans? (BL1E.s349)	Esos **nuevos alimentos**, ¿son seguros para el consumo humano? (BL1S.s344)	Concern
2.	A growing number of scientists and observers are becoming worried that the loss of genetic diversity on Earth is narrowing the prospects for providing **new food**, pharmaceuticals, and fiber for the human race and are beginning to urge governments to protect and preserve the " green gold. " (JR3E.s582)	A un número cada vez mayor de científicos y observadores les preocupa que la pérdida de diversidad genética en la Tierra esté reduciendo las posibilidades de ofrecerle a la humanidad **nuevos alimentos**, productos farmacéuticos y fibras, y empiezan a urgir a los gobiernos a que protejan y preserven el " oro verde ". (JR3S.s579)	Concern (-)
3.	American food emporiums boasted even more edible innovations-in 1989 alone, twelve thousand **new foods** were introduced to the U.S. market. (IB1E.s36)	El emporio alimenticio de Estados Unidos alardeaba de tener incluso más innovaciones comestibles ; tan sólo en 1989, doce mil **alimentos nuevos** fueron introducidos en el mercado estadounidense. (IB1S.s36)	Favorable
4.	Gene splicers talked of creating **new foods**, improving the taste and nutrition of staples and fighting world hunger. (IB3E.s13)	Los ensambladores de genes hablaron de crear **alimentos nuevos**, de mejorar el sabor y el valor nutritivo de los productos y de combatir el hambre en el mundo. (IB3S.s13)	Favorable

5.	What remained - the agricultural products, food ingredients, and pharmaceutical divisions worth around $ 6 billion a year in sales- would become a new " life sciences " company called Monsanto, which would use biotechnology to develop **new foods**, drugs, and foods enriched with pharmaceuticals. (IB3E.s112)	Lo que quedaba - los productos agrícolas, los ingredientes alimenticios y los departamentos farmacéuticos, con un valor de unos seis mil millones de dólares en ventas anuales- se convertiría en una nueva compañía, de las " ciencias de la vida ", llamada Monsanto, que utilizaría la biotecnología para desarrollar **nuevos alimentos**, nuevos medicamentos y productos alimenticios enriquecidos con productos farmacéuticos. (IB3S.s109)	Favorable
6.	Some of the richest of these run the biotech industry, which continues to insist that its purpose is feeding the world and creating valuable **new foods**. (IB3E.s372)	Algunas de las más ricas de esas corporaciones se dedican a la industria biotecnológica y siguen insistiendo en que su propósito consiste en alimentar al mundo y crear **nuevos alimentos** de gran valor. (IB3S.s368)	Favorable
7.	The only way to tell if those **new foods** might be allergenic or toxic is to test them vigorously. (IB5E.s211)	La única forma de saber si esos **alimentos nuevos** pueden ser alérgenos o tóxicos consiste en analizarlos a fondo. (IB5S.s213)	Concern
8.	With no formal guidelines in place, it 's largely up to the industry to decide whether and how to test for the allergy potential of **new food** not already on the FDA 's " must test " list. " (JS6E.s83)	Sin más pautas a seguir, está en manos de la industria decidir si quiere comprobar la posibilidad de que un **nuevo alimento** que no aparece en la lista obligatoria produzca alergia y cómo hacerlo ". (JS6S.s83)	Concern
9.	Druker says that this preferential treatment violates the FDA 's own regulations, which state that tests on **new foods** (such as those produced through genetic engineering) " require the same quantity and quality of scientific evidence as is required to obtain approval of the substance as a food additive. " (JS5E.s198)	Druker sostiene que este trato preferencial viola la normativa de la FDA, que establece que las pruebas realizadas en **nuevos alimentos** (como los producidos genéticamente) " requieren la misma calidad y cantidad de pruebas científicas necesarias para obtener la aprobación de una sustancia utilizada como aditivo alimentario ". (JS5S.s184)	Concern (-)
10.	**New foods** are very difficult to test for allergenicity. (JS6E.s92) People aren't usually allergic to a food until they have eaten it several times. (JS6E.s93)	Es muy difícil llevar a cabo pruebas de alergenicidad sobre **alimentos nuevos**, puesto que normalmente la gente no desarrolla alergia hacia un alimento hasta haberlo ingerido en varias ocasiones. (JS6S.s92)	Concern
		Novel food/s (3)	
11.	And as one Canadian critic wryly remarked, Health Canada essentially says to the developers of new test-tube foods, " if your **novel food** kills people, let us know ". (IB5E.s218)	Y como señaló amargamente un crítico canadiense, Sanidad Nacional se limita a decir a los creadores de nuevos **alimentos salidos del tubo de ensayo**: " Si vuestros nuevos alimentos matan a la gente, hacédnoslo saber ". (IB5S.s220)	Concern (-)
12.	There are no pre-market human tests required of **" novel " foods** in Canada as there would be for the introduction of a new drug. (IB5E.s213)	En Canadá no se le exige a un **alimento " nuevo "** que venga precedido, antes de su comercialización, de ensayos hechos en seres humanos, tal como se exigiría para la introducción de una nueva droga. (IB5S.s215)	Concern
13.	In 1997, the European Commission changed its mind twice and finally adopted guidelines making labeling compulsory for all **novel foods**. (IB12E.s236)	En 1997, la Comisión Europea cambió por dos veces de opinión y finalmente aprobó unas normas que imponían el etiquetado obligatorio para todos los **alimentos nuevos**. (IB12S.s233)	Concern

9) *Gene- food/s (11)**			
Gene-altered food/s (5)			
1.	The incident proved a point argued by both sides in the food biotechnology debate: For the critics, it demonstrated that a **gene-altered food** might cause unexpected, even fatal problems. (BL3E.s65)	Este incidente demostró algo que sostienen las dos partes inmersas en el debate sobre alimentos biotecnológicos: para los críticos, demostró que un **alimento con genes alterados** puede causar unos problemas inesperados e incluso letales. (BL3S.s64)	Concern (-)
2.	As well as strife over **gene-altered food**, class warfare has flared in Oxfordshire. (BL14E.s170)	Aparte de la lucha en torno a los **alimentos transgénicos**, en Oxfordshire ha estallado la lucha de clases. (BL14S.s168)	Unfavorable
3.	**Gene-altered food** was a key issue at WTO but just one of the issues sending people into the streets. (BL20E.s187)	Los **alimentos con genes alterados** constituyeron un tema clave en la OMC, pero sólo fueron uno de los motivos que llevaron a la gente a tomar las calles. (BL20S.s183)	Unfavorable
4.	It said, " Last summer, two consumer groups sued the Food and Drug Administration, claiming that the agency 's failure to institute a labeling regimen for **gene-altered food** is in violation of the Food, Drug and Cosmetic Act. (JS7E.s533)	Decía: " El verano pasado, dos grupos de consumidores demandaron a la Food and Drug Administration alegando que la agencia no cumplía con el régimen de etiquetado de **alimentos genéticamente modificados** y que ello infringía la Food, Drug and Cosmetic Act. (JS7S.s494)	Concern (-)
5.	Because I live in the United States, where labeling of **gene-altered foods** is not required, it does not tell me if my oil comes from the tens of thousands of acres in Canada sown with genetically engineered Roundup Ready canola seeds. (BL14E.s274)	Dado que vivo en los Estados Unidos, donde no es obligatorio que la etiqueta de los **productos transgénicos** indique que lo son, la botella no me dice si mi aceite proviene de las decenas de miles de acres canadienses sembrados con semillas de colza Roundup Ready, alteradas genéticamente. (BL14S.s271)	Concern (-)
Gene-spliced food/s (6)			
6.	There was little question of public support for a valuable new drug, but consumers were much more wary of **gene-spliced food**. (IB3E.s28)	Resultaba muy fácil ganarse el favor del público para una nueva droga valiosa, pero los consumidores estaban muchísimo más preocupados por los **alimentos obtenidos mediante el ensamblaje de genes**. (IB3S.s28)	Concern (-)
7.	European consumers had made their feelings clear about **gene-spliced food**, so efforts in the agricultural area lagged well behind the established and supported industry in the United States. (IB12E.s145)	Los consumidores europeos han manifestado claramente sus sentimientos con respecto a los **alimentos transgénicos**, así que los esfuerzos en esa dirección en el campo de la agricultura están muy por detrás de la bien establecida y subvencionada industria de Estados Unidos. (IB12S.s142)	Concern (-)
8.	Indeed, with no labeling of **gene-spliced foods**, vegetarians and followers of religious dietary restrictions do not know if they are eating genetic material from animals or even from humans. (IB1E.s317)	Efectivamente, al no etiquetar los **alimentos genéticamente manipulados**, los vegetarianos y quienes respetan restricciones dietéticas religiosas no saben si están comiendo material genético de animales o incluso de seres humanos. (IB1S.s317)	Concern (-)
9.	In much the same way, we may not know definitively if the **gene-spliced foods** on the supermarket shelves are safe. (IB5E.s97)	Y exactamente del mismo modo no podemos tener la certeza absoluta de que los **alimentos transgénicos** que nos ofrecen en los supermercados no sean perjudiciales para la salud. (IB5S.s98)	Concern

10.	The ultimate insult for Europeans was that **gene-spliced foods** - Roundup Ready soybeans, for example- were not labeled. (IB12E.s162)	El insulto supremo para los europeos fue enterarse de que los **alimentos transgénicos** - la soja Roundup Ready, por ejemplo- no estaban etiquetados. (IB12S.s159)	Unfavorable
11.	With 2 percent of adults and 8 percent of children having allergic responses to commonly eaten foods, consumer advocates argue that all **gene-spliced foods** need to be properly labeled so that consumers can avoid health risks. (JR3E.s512)	Un 2 por 100 de los adultos y un 8 de los niños tienen reacciones alérgicas a las comidas usuales ; los defensores de los consumidores arguyen que habría que etiquetar adecuadamente todos los **alimentos obtenidos mediante empalme génico** para que los consumidores puedan prevenir los riesgos para su salud. (JR3S.s509)	Concern (-)
	10) *Biotech* food/s (9)		
1.	" We at Monsanto should not have to vouchsafe the safety of **biotech food**. (BL4E.s78)	- En Monsanto no tenemos por qué garantizar la seguridad de los **alimentos biotecnológicos**. (BL4S.s76)	Unfavorable
2.	Or even, Should **biotech food** be specially labeled? (IB1E.s85)	O aún más: ¿no tendrían que ser etiquetados específicamente los **alimentos biotecnológicos**? (IB1S.s85)	Concern
3.	Companies with a new **biotech food** decide for themselves whether they need to consult with the FDA by following a series of " decision trees " that pose yes or no questions like this one: ' Does... the introduced protein raise any safety concern? " (JS5E.s265)	Las compañías que producen un nuevo **alimento biotecnológico** deciden por ellas mismas si deben consultar con la FDA y seguir una serie de " árboles de decisión " que plantean preguntas sí/no como ésta: " La proteína que ha sido introducida, ¿causa algún tipo de preocupación?"*. (JS5S.s246)	Concern
4.	The man said his company " should not have to vouchsafe the safety of **biotech food**. (JS5E.s267)	El hombre le dijo que su compañía " no debería ser la que garantizara que los **alimentos biotecnológicos** son seguros. (JS5S.s248)	Concern (-)
5.	He said, " millions of North Americans have been eating **biotech food** every day for years and not a single adverse health consequence has been documented. " (JS9E.s231)	Añadió: " millones de estadounidenses llevan comiendo **productos biotecnológicos** a diario durante años y su salud no ha experimentado ni una sola reacción adversa ". (JS9S.s202)	Concern
6.	Before new **biotech foods** are grown, manufactured, or imported to either Canada or the U.S., they have to be approved by a patchwork of government departments. (IB11E.s28)	Antes de que los nuevos **alimentos biotecnológicos** hayan crecido en el campo o hayan sido manufacturados o hayan sido importados bien por Canadá o por Estados Unidos, tienen que pasar, para su autorización, por todo un mosaico de departamentos gubernamentales. (IB11S.s27)	Neutral
7.	Not one Canadian firm working to develop **biotech foods** and crops was publicly, traded on the country 's stock exchanges in the late 1990s. (IB11E.s213)	Ni una sola de las firmas canadienses que trabajan en el desarrollo de **alimentos** y cultivos **biotecnológicos** cotizaba en la bolsa de valores de Canadá a finales de los noventa. (IB11S.s209)	Concern
8.	On the day the challenge was filed, U.S. Trade Representative Robert Zoellick declared, " Overwhelming scientific research shows that **biotech foods** are safe and healthy. " (JS1E.s57)	En la misma fecha del recurso, Robert Zoellick, representante del US Trade (la agencia estadounidense para el comercio exterior), declaró: " Incontestables investigaciones científicas demuestran que los **alimentos biotecnológicos** son seguros y sanos ". (JS1S.s56)	Favorable
9.	At least for the purposes of labeling, my	Al menos a efectos de etiquetado, las New Leaf	Favorable

	New Leafs have morphed pet again, back into a food: the Food, Drug and Cosmetic Act gives the FDA sole jurisdiction over the labeling of plant foods, and the FDA has ruled that **biotech foods** need be labeled only if they contain known allergens or have otherwise been " materially " changed. " (JS5E.s258)	han vuelto a mutar, a convertirse de nuevo en alimento. (JS5S.s238) La Food, Drug and Cosmetic Act, la ley sobre alimentación, fármacos y cosméticos, otorga a la FDA la jurisdicción en exclusiva sobre el etiquetado de alimentos vegetales y la FDA ha decidido que los **alimentos biotecnológicos** deben ser etiquetados sólo si contienen alérgenos conocidos o si han sido objeto de modificaciones " materiales ". (JS5S.s239)	
11) *Frankenstein* food/s (8)			
1.	A Daily Mail article on February 6 kept pace: " Disturbing questions about the government 's policy on so-called **Frankenstein food** were raised last night when it emerged that a producer of genetically modified crops has given money to the Labor Party. " (BL14E.s308)	Un artículo del Daily Mail del 6 de febrero seguía la misma tónica: " Ayer por la noche se formularon unas inquietantes preguntas sobre la política gubernamental en relación a la llamada **Frankencomida**, al descubrirse que un productor de cultivos modificados genéticamente había dado dinero al partido laborista ". (BL14S.s305)	Unfavorable
2.	Decked beneath were the words " Fury as Blair says: ' I eat **Frankenstein food** and it 's safe. " " (BL14E.s326)	Más abajo se leían las palabras: " Blair despierta la ira popular al declarar: " Yo consumo **Frankencomida**, y es inocua ". (BL14S.s323)	Concern (-)
3.	**" Frankenstein food "** and " Frankenfood " have, in a few short years, come to represent all that is unknown, frightening, and, indeed, monstrous about a technology that manipulates life. (BL14E.s334)	Las expresiones **" comida Frankenstein "** y " Frankencomida " han llegado a simbolizar, en unos pocos años, todo aquello que es desconocido, inquietante y, ciertamente, monstruoso acerca de una tecnología que manipula la vida. (BL14S.s332)	Unfavorable
4.	BLAIR MONSTERED ON **FRANKENSTEIN FOODS**. (BL14E.s296)	BLAIR APLASTADO POR EL **MONSTRUO DE LA COMIDA**. (BL14S.s293)	Unfavorable
5.	A February 17 story in the Guardian business section opened with this question that parodied the overheated prose: " Will **Frankenstein foods** cause two-headed rabbits to sprout in fields otherwise denuded of life except for pant tomatoes? " (BL14E.s302)	Un artículo del 17 de este mes, en la sección de economía del Guardian se iniciaba con una pregunta que parodiaba esa prosa tan recalentada: " La **Frankencomida**, ¿hará que medren los conejos bicéfalos en campos que carecerían sino de otra forma de vida, exceptuando a los tomates gigantes? ". (BL14S.s299)	Concern
6.	On January 30, a Daily Mail article with the headline " Can **Frankenstein Foods** Harm Your Unborn Baby " opened with this paragraph: " Health experts investigating the impact of so-called Frankenstein foods have suggested examining abortion records. " (BL14E.s304)	El 30 de enero, un artículo del Daily Mail titulado " La **Frankencomida**, ¿puede perjudicar a su hijo nonato? " empezaba con las siguientes palabras: " Los expertos en salud que investigan el impacto de las así llamadas Frankencomidas han sugerido que se examinen los informes sobre el aborto en nuestro país ". (BL14S.s301)	Concern
7.	On January 30, a Daily Mail article with the headline " Can Frankenstein Foods Harm Your Unborn Baby " opened with this paragraph: " Health experts investigating the impact of so-called **Frankensteinfoods** have suggested examining abortion records. " (BL14E.s304)	El 30 de enero, un artículo del Daily Mail titulado " La **Frankencomida**, ¿puede perjudicar a su hijo nonato? " empezaba con las siguientes palabras: " Los expertos en salud que investigan el impacto de las así llamadas Frankencomidas han sugerido que se examinen los informes sobre el aborto en nuestro país ". (BL14S.s301)	Concern

8.	All those who see genetically modified food as a scary prospect - ' **Frankenstein foods** ' - are pitted against the defenders. " (JS1E.s434)	Todos aquellos que ven en los productos GM perspectivas funestas - **alimentos Frankenstein**- se están enfrentando a los que los defienden ". (JS1S.s412)	Concern (-)
12) *Transgenic* food/s (6)			
1.	Researchers anticipate the nutritionally boosted tomatoes will be " more acceptable to Europeans frightened by the idea of **transgenic food**. " (IB9E.s52)	Los investigadores predijeron que esos tomates nutritivamente potenciados serán " más aceptables para unos europeos que se asustan ante la idea de consumir **alimentos transgénicos** ". (IB9S.s53)	Unfavorable
2.	Researchers hoped the souped-up vegetables would be acceptable to Europeans otherwise frightened by the idea of **transgenic food**. (IB12E.s148)	Los investigadores confiaron en que esos alimentos retocados serían aceptados por los europeos, a quienes aterra, por lo común, la idea de un **alimento transgénico**. (IB12S.s145)	Unfavorable
3.	" I had facts that indicated to me there were serious problems with **transgenic food**, " said Pusztai. (JS1E.s221)	" Tenía pruebas que me indicaban que **los transgénicos** causaban graves problemas " afirmó Pusztai. (JS1S.s219)	Unfavorable
4.	Similarly, a New Zealand cabinet document from February 1998 showed that the US had threatened to pull out of a potential free-trade agreement with the New Zealand government because of its plans to test and label **transgenic food**. (LA5E.s164)	Igualmente, un documento ministerial de Nueva Zelanda de febrero de 1998 mostró que EE UU había amenazado con congelar un posible acuerdo de libre comercio entre ambos países debido a sus planes de analizar y etiquetar los **alimentos transgénicos**. (LA5s.s170)	Concern
5.	The biotechnology industry insists there is virtually no risk in **transgenic foods**. (IB5E.s101)	La industria biotecnológica insiste en que no existe prácticamente riesgo alguno en los **alimentos transgénicos**. (IB5S.s102)	Favorable
6.	It is puzzling that Canadian and U.S. governments have, in essence, given the biotechnology industry carte blanche. (IB5E.s224) It is using its regulatory freedom to roll out **transgenic foods** in what has to be seen as a giant nutritional experiment. (IB5E.s225)	Resulta desconcertante el hecho de que los gobiernos de Canadá y Estados Unidos, en lo que resulta esencial, hayan dado carta blanca a la industria de la biotecnología, que ahora está utilizando su libertad frente a la ley para desplegar sus **alimentos transgénicos** en lo que puede ser visto como un gigantesco experimento nutricional. (IB5S.s226)	Concern (-)
13) *(Genetically) Altered* food/s (6)			
1.	In the United States there is no testing by the government of **genetically altered food**. (BL3E.s55)	En los Estados Unidos el gobierno no somete a examen alguno los **alimentos transgénicos**. (BL3S.s54)	Unfavorable
2.	In her community, at her post office and in church groups, abortion has given way to **genetically altered food** as the hot topic. (BL12E.s57)	En su comunidad, en la oficina de Correos y en los grupos eclesiales, el aborto ya no es el tema candente: ahora se habla de los **alimentos modificados genéticamente**. (BL12S.s57)	Concern
3.	If they allowed all these seeds to sprout, **genetically altered food** would take root on European soil once and for all. (BL12E.s89)	Si permitían que germinasen todas aquellas semillas, los **alimentos modificados genéticamente** enraizarían en tierras europeas de una vez y para siempre. (BL12S.s89)	Concern
4.	Results of a survey that ran under the headline " Canadians Wary of **Genetically Altered Foods** " showed that two-thirds of people surveyed in Canada, the United States, and leading industrial nations	Los resultados de una encuesta bajo el encabezado: " Los canadienses se muestran precavidos frente a los **alimentos transgénicos** ", demostraban que dos tercios de las personas encuestadas en Canadá, los Estados Unidos y	Concern (-)

	would be less likely to purchase a food product if they knew that it had been genetically modified or contained gene-altered ingredients. (BL21E.s92)	las principales naciones industrializadas mostraban una menor disposición a comprar un producto si sabían que había sido modificado genéticamente, o que contenía ingredientes transgénicos. (BL21S.s92)	
5.	In the early days of a new technology, the Monsanto ads aimed to fill a critical void: persuading people that **altered foods** contain benefits. (BL15E.s162)	En los primeros días de una nueva tecnología, los anuncios de Monsanto pretendían llenar un vacío crítico: convencer a las personas de que los **alimentos modificados** contienen beneficios. (BL15S.s159)	Concern
6.	Foudin sees this research as a precursor to developing a broad range of **altered foods** for humans. (BL4E.s272)	Foudin interpreta esta investigación como precursora del desarrollo de una amplia gama de **alimentos transgénicos** para el ser humano. (BL4S.s268)	Neutral
14) **-Enhanced* food (2)			
1.	The goal was a set of far-reaching rules to govern trade in " living modified organisms, " which has a different ring to it than what we hear in the United States - " **biotechnology-enhanced food**. " (BL19E.s71)	El objetivo era el de establecer unas normas trascendentales para gobernar el comercio de " organismos vivos modificados ", una expresión que tiene unas connotaciones distintas a las de la que se oye más en los Estados Unidos, " **alimentos potenciados mediante la biotecnología** ". (BL19S.s70)	Neutral
2.	Kishore has sprinkled his new word in technical articles describing the coming array of **nutritionally enhanced food** that would revolutionize what we eat. (BL4E.s108)	Kishore ha utilizado su nueva palabra en artículos técnicos que describen la batería inminente de **alimentos mejorados genéticamente** y que revolucionarán el mundo de la alimentación. (BL4S.s103)	Favorable
15) *Others* (5)			
1.	" If I were making a bet, " Rifkin said, " I 'd say that **genetic foods** will be looked back on as one of the great failures in the introduction of a new commercial technology. " (BL4E.s342)	- Si tuviera que hacer una apuesta - me dijo Rifkin -, diría que en el futuro, al echar la vista atrás, veremos que los **alimentos transgénicos** fueron uno de los mayores errores de la introducción de una nueva tecnología comercial. (BL4S.s333)	Unfavorable
2.	The accounts seemed to confirm fears that in some modern-day take on Mary Shelley, scientists were quietly mixing up **monster foods** in the lab. (IB1E.s176)	Esos informes parecían confirmar los miedos, ya expresados en tiempos modernos por Mary Shelley, a que los científicos estuviesen preparando calladamente en sus laboratorios **alimentos monstruosos**. (IB1S.s176)	Unfavorable
3.	The new **lab-created foods** being introduced to the American marketplace were essentially all products of private sector development - except for one entry, which was so unusual it attracted special note from the Animal and Plant Health Inspection Service. (IB10E.s127)	Los nuevos **alimentos creados en el laboratorio** que fueron introducidos en los mercados estadounidenses fueron esencialmente productos desarrollados exclusivamente por el sector privado, exceptuando una entrada, que fue tan poco usual, que atrajo particularmente la atención del Servicio de Inspección de la Salud de las Plantas. (IB10S.s125)	Concern
4.	The principle of " substantial equivalence " means that **manipulated foods** are examined according to an inspection of the final product, not the process that created it. (IB11E.s57)	El principio de " equivalencia substancial " significa que los **alimentos manipulados** son examinados de acuerdo a una inspección que se realiza del producto final, no del proceso seguido para crearlo. (IB11S.s56)	Concern
5.	Besides giving consumers something tangible, some of these	Aparte de ofrecer a los consumidores algo tangible, algunos de esos **productos ampliados**	Concern

	boosted foods would enable companies to avoid a roiling debate about food labeling and choice. (BL4E.s227)	permitirían a las empresas evitar un irritante debate sobre el etiquetado de los alimentos y la elección entre los naturales y los modificados. (BL4S.s222)	

Table 8.18: *ST-TT pairs of denominative variants for 'Adj + N (food/s)' (soc corpus).*

EXCLUDED		
1.	The Mothers for Natural Law presented Washington with half a million names on a petition demanding labeling for **GM foods**. (IB14E.s229)	
2.	In September 1999, Ottawa helped bankroll a project by the Canadian Council of Grocery Distributors and the Canadian General Standards Board to develop standards for the voluntary labeling of **GM foods**. (IB14E.s298)	
3.	As Pusztai continued his research, his concerns about **GM food** intensified. (JS1E.s171)	Pusztai vio como crecían sus preocupaciones a medida que continuaba su investigación. (JS1S.s169)
4.	Gore asked if any other farmers noticed a difference in the way their animals responded to **GM food**. (JS2E.s544)	Gore quiso saber si otros granjeros habían notado respuestas semejantes en sus animales. (JS2S.s515)
5.	With York 's research in hand, British scientists now urged their government to impose an immediate ban on **GM foods** until further testing evaluated their safety. (JS6E.s35)	Con la investigación del York Laboratory en mano, los científicos británicos pidieron al Gobierno que impusiera una orden de prohibición inmediata hasta que se hicieran más pruebas de evaluación de seguridad. (JS6S.s37)
6.	Irish doctors also demanded that **GM foods** be banned, when increased soy allergies were also reported in that country. (JS6E.s36)	Cuando el número de alergias a la soja aumentó también en Irlanda, los médicos del país abogaron por la misma prohibición. (JS6S.s38)
7.	Virtually everyone said they wanted the food to be labeled. (JS7E.s578) They were concerned about long-term health effects and wanted to have the choice whether to eat **GM foods**. (JS7E.s579)	Casi todos dijeron que querían que llevaran etiquetas identificativas, pues les preocupaban los efectos a largo plazo sobre su salud y querían poder decidir si comprar o no estos alimentos. (JS7S.s537)
8.	Every independent poll has confirmed that citizens around the world want **GM foods** labeled. (JS7E.s581)	Todas las encuestas realizadas han confirmado que los ciudadanos de todo el mundo así lo quieren. (JS7S.s539)
9.	In fact, a Time magazine poll confirmed that 58 percent of Americans said that if **GM foods** were labeled, they would avoid purchasing them. (JS7E.s585)	De hecho, una encuestada realizada por la revista Time confirmó que el 58 por ciento de los estadounidenses dijo que si estos productos pudieran identificarse los evitarían. (JS7S.s544)
10.	How to avoid **GM foods**. (JS8E.s96)	
11.	Some choose to avoid certain types of **GM foods** and are less vigilant about others. (JS8E.s105)	
12.	In the United States and Canada, **GM foods** are not labeled. (JS8E.s123) Avoiding them, therefore, is both a science and an art.	Evitar estos alimentos en el Reino Unido resulta mucho más sencillo que en Estados Unidos. (JS8S.s110)

	(JS8E.s124)	
13.	Brochures denouncing **GM foods** were handed out at his chain of stores. (JS9E.s104)	
14.	When the U.S. announced on May 13, 2003, that it would challenge the European Union 's policy on GM foods through the World Trade Organization, U.S. Trade Representative Robert Zoellick blamed fears of **GM foods** on " special interests that hype hysteria. " (JS9E.s230)	Cuando, el 13 de mayo de 2003, Estados Unidos anunció que estaba dispuesto a retar la política de la Unión Europea en lo concerniente a los alimentos GM a través de la Organización Mundial del Comercio, el representante de Comercio de Estados Unidos, Robert Zoellick, dijo que la culpa de los temores que suscitan <u>estos alimentos</u> se debe a " intereses determinados para extender la histeria ". (JS9S.s201)
15.	Soon, my conversation with the foremost critic of **genetically modified food** had run full circle. (BL4E.s341)	
16.	By the spring of 1998, the Agriculture Department had received 275,603 public comments on the proposed organic rules, most of them condemning the prospect of **genetically modified food** wearing the organic label. (BL8E.s98)	
17.	They consider the commercial transfer, handling, and use not just of seed, but of any **genetically modified food** or feed to be subject to their regulatory scrutiny. (IB8E.s164)	Éstas consideran que la transferencia comercial, la manipulación y la utilización no únicamente de semillas, sino también de <u>todo alimento</u>, sea para humanos o animales, han de ser objeto de su escrutinio regulador. (IB8S.s164)
18.	And the United States and Canada found themselves outnumbered at the 1999 G-8 meetings, when the world 's most powerful leaders agreed to an inquiry into **genetically modified food**. (IB14E.s269)	
19.	And North American governments continued to press for international rules under the World Trade Organization and the biosafety protocol that would force countries to accept **genetically modified foods**, even if their consumers did not want them. (IB14E.s227)	
20.	As there had been virtually no tests on the effects of **genetically modified foods** on mammals and humans clone anywhere, Pusztai 's television appearance sent shock waves around the world. (IB14E.s236)	
21.	No human safety threats from **modified food** had been strongly implied, let alone proved. (BL7E.s110)	
22.	Japan, South Korea, Australia, and New Zealand all announced they would join Europe in its policy requiring the labeling of **modified food**. (IB14E.s271)	
23.	The most disturbing information came when an expert on plant toxins declared on British television that he would not eat **modified foods** and that " it was very, very unfair to use our fellow citizens as guinea pigs. " (IB14E.s233)	
24.	In North America, labeling of **genetically**	En Norteamérica el etiquetado de <u>los alimentos</u> solamente es

	engineered food is required only if the nutritional value or toxic lever is significantly altered or if the food contains genetic material from a known allergen. (IB14E.s135)	obligatorio si son alterados de un modo significativo el valor nutritivo o el nivel de toxicidad, o en caso de que los alimentos contengan material genético proveniente de un alérgeno conocido. (IB14S.s135)
25.	In May 1999, the 115,000-member British Medical Association issued a report that called for a moratorium on **genetically engineered food** and declared that more independent research was needed to study its safety. (IB14E.s217)	
26.	Gordon Conway, the president of the Rockefeller Foundation, which had helped to bankroll the development of biotechnology, warned Monsanto 's board of directors that it could not " force-feed " consumers **genetically engineered foods**. (IB14E.s268)	
27.	SEEDS OF DECEPTION: Exposing Industry and Government Lies about the Safety of the **Genetically Engineered Foods** You 're Eating. (JS1E.s2)	SEMILLAS PELIGROSAS. (JS1S.s2) Las mentiras de la industria y los gobiernos sobre lo que comemos. (JS1S.s3)
28.	On February 28, 2000, he told the OECD Conference on GM Food Safety in Edinburgh, Scotland that the FDA scientists had merely been asking questions about the various issues involved in **bioengineered food**. (JS5E.s139)	El 28 de febrero de 2000 comunicó en la conferencia de la OECD (Organisation for Economic Co-operation and Development ; Organización para la cooperación económica y el desarrollo) sobre la seguridad de los alimentos GM celebrada en Edimburgo que los científicos tan sólo habían estado haciendo preguntas sobre varios temas relacionados con la ingeniería genética. (JS5S.s129)
29.	For a long time, corporate biotechnology insisted allergens would not be transferred to **test-tube foods** along with spliced genes. (IB5E.s115)	Durante mucho tiempo los representantes de la biotecnología empresarial han insistido en que los alérgenos no pasarían a los tubos de ensayo junto con los genes ensamblados. (IB5S.s116)
30.	It declared that the FDA 's policy on **GE foods** is essentially one of " inaction " and does " not impose any... obligations " on the biotech industry. " (JS7E.s565)	Declaró que la política de la agencia acerca de <u>estos alimentos</u> es, en esencia, la " inacción " y que " no impone... ninguna obligación " sobre la industria biotecnológica ". (JS7S.s524)
31.	Druker continued, " Further, the court avoided the issue of whether adequate safety testing has been done and failed to make a determination that **GE foods** have been demonstrated to be safe - even though such a determination is legally required in order for these foods to be on the market. " (JS7E.s568)	Druker prosiguió: " Aún más, el tribunal evitó el tema de si se habían llevado o no a cabo las pruebas de seguridad pertinentes y no se pronunció acerca de si <u>estos alimentos</u> son o no seguros, pese a que, para que lleguen al mercado, la ley requiere que se demuestre su seguridad ". (JS7S.s527)
32.	In May 1997, the commission approved a set of " **novel food** " guidelines that were to complement directive 90/220. (IB12E.s196)	En mayo de 1997, la comisión aprobó una serie de pautas que venían a complementar la directriz 90/220. (IB12S.s193)
33.	As for the subjects of industry manipulation, incompetent science, and government collusion, how else can one explain why these **dangerous foods** are on the market? (JS9E.s224)	Y en cuanto a la manipulación por parte de la industria, la incompetencia de la ciencia y la connivencia gubernamental ¿de qué otro modo se puede explicar que <u>estos productos</u> estén en el mercado? (JS9S.s196)

Table 8.19: *Excluded ST-TT pairs of denominative variants for 'Adj + N (food/s)' in the soc corpus.*

Denominative variants of *Adj + N (Crop/s)* in the *sci corpus*			
#	*English*	*Spanish*	**SP**
1) *Transgenic* crop/s (207)			
1.	Soybean was the dominant **transgenic crop** grown commercially in 2000, followed by maize. (SN1E.s24)	En 2000, la soja destacó por ser **el** principal **transgénico** comercializado, seguido del maíz. (SN1S.s24)	Neutral
2.	Golden RiceTM has emerged as a flagship **transgenic crop**. (SN1E.s159)	Golden RiceTM se ha erigido en punta de lanza de **los transgenicos**. (SN1S.s154)	Neutral
3.	Only a few varieties of **transgenic crop** (e.g. maize, soybean and oilseed rape) and a handful of GM products (e.g. chymosin) were approved for commercial release in the EU before a de facto moratorium on the sale and use of further GM food products was established in 1998. (SN1E.s306)	Únicamente se aprobó el lanzamiento comercial de unas cuantas variedades de **cereales transgénicos** (maíz, soja y colza) y unos pocos productos MG (quimosina) antes de que, en 1998, se estableciera de facto una moratoria que impedía la venta y uso de más productos alimentarios MG. (SN1S.s294)	Unfavorable
4.	The big increase in **transgenic crop** uptake worldwide reflects farmer confidence and satisfaction. (SN1E.s378)	El gran aumento del consumo de **transgénicos** en todo el mundo es un reflejo de la confianza y la satisfacción de los agricultores. (SN1S.s365)	Favorable
5.	Ciba-Geigy/Novartis ' MaximizerTM maize was the first commercial **transgenic crop** to incorporate both insect and herbicide resistance characteristics. (SN5E.s51)	El maíz MaximizerTM, de Ciba-Geigy-Novartis, destacó por ser el primer **cultivo transgénico** que incorporaba resistencia tanto a los insectos como a los herbicidas. (SN5S.s52)	Favorable
6.	In the UK a research group was established at Silwood Park, Imperial College, London, to study the invasiveness of a **transgenic crop**, oilseed rape (Brassica napus). (SN7E.s114)	En el Reino Unido, se creó un grupo de investigación en Silwood Park, en el Imperial College (Londres), para estudiar la invasividad de un **cultivo transgénico**: la colza (Brassica napus). (SN7S.s114)	Neutral
7.	Royalties are payable for use of **transgenic crop** seed, for example, and on all seed subsequently produced from these transgenic plants, for the duration of the patent. (SN10E.s12)	Por ejemplo, se pueden pagar royalties por el uso de semillas de **cultivos transgénicos** y por todas las semillas obtenidas posteriormente de esas plantas transgénicas, durante el periodo de vigencia de la patente. (SN10S.s12)	Neutral
8.	The EC approved these soybeans for the European market in 1996, despite a growing wave of concern about this **transgenic crop**. (SN12E.s42)	La CE aprobó estas sojas para el mercado europeo en 1996, a pesar de una creciente ola de preocupación por este **cultivo transgénico**. (SN12S.s40)	Concern (-)
9.	Since 1986 there have been over 2,000 field trials of trials of **transgenic crops** around the world, exposing natural ecosystems to the introduction of engineered genes. (EG4E.s140)	Desde 1986 ha habido más de dos mil pruebas sobre el terreno de **cultivos transgénicos** en todo el mundo, con la consiguiente exposición de los ecosistemas naturales a la introducción de genes manipulados. (EG4S.s141)	Neutral
10.	And every year, there are more and more **transgenic crops** to regulate. (EG4E.s151)	Cada año aumenta el número de **cultivos transgénicos** que hay que regular. (EG4S.s152)	Neutral
11.	Britain is among the seven European countries now operating bans on **transgenic crops** or a moratorium. (MH1E.s49)	Gran Bretaña se encuentra entre los siete países europeos que pusieron en vigor prohibiciones de **cultivos transgénicos** o una moratoria antes de continuar. (MH1S.s47)	Unfavorable
12.	I also met great campaigners all over the world: Farhad Mazhar of Naya Krishi Andolan and Farida Akhtar of UBINIG from Bangladesh, who successfully fought the	También conocí a grandes activistas de todo el mundo: Farhad Mazhar, de Naya Krishi Andolan, y Farida Akhtar, de UBINIG, de Bangladesh, quien luchó exitosamente contra el intento de Monsanto de	Unfavorable

	attempt by Monsanto to use the microcredit scheme to introduce transgenic agriculture into their country ; Étienne Vernet of Ecoropa, France, who mobilised French scientists to openly question the safety of transgenic agriculture, and French farmers to revolt against the introduction of Novartis 's transgenic maize ; Florianne Koechlin and Pierre Lehmann, who campaigned for the Swiss referendum on banning transgenic agriculture and ' patents on life ' ; Isabel Bermejo, who first alerted the Spanish NGOs to the hazards of genetic-engineering biotechnology ; Clare Watson and Quentin Gargan of Genetic Concern in Ireland, who mounted the first legal challenge against the Irish Government for approving field trials of **transgenic crops** ; and in Britain, Malcolm Walker of Iceland Foods, the first retailer to reject transgenic produce, Patrick Holden of the Soil Association, who put organic agriculture firmly into the biotechnology debate, and Peter Melchett of Greenpeace UK, who organised, among other things, the boycott of genetically engineered foods by hundreds of food and wine writers. (MH1E.s69)	utilizar los planes de microcrédito para introducir la agricultura transgénica en su país ; Etienne Vernet, de Ecoropa, Francia, quien movilizó a los científicos franceses para que cuestionasen abiertamente la seguridad de la agricultura transgénica, y a los granjeros franceses para que se rebelasen en contra de la introducción del maíz transgénico de N ovartis ; Florianne Koechlin y Pierre Lehmann, quienes hicieron campaña en favor del referendo suizo sobre la prohibición de la agricultura transgénica y las " patentes sobre la vida " ; Isabel Bermejo, quien alertó por primera vez a las ONG españolas sobre los peligros de la biotecnología de ingeniería genética ; Clare Watson y Quentin Gargan, de Genetic Concern, en Irlanda, quienes realizaron el primer cuestionamiento legal en contra del gobierno irlandés por aprobar pruebas de campo de cultivos transgénicos ; y en Gran Bretaña, Malcolm Walker, de Iceland Foods, el primer minorista que rechazó los productos transgénicos ; Patrick Holden, de la Soil Association, quien introdujo la agricultura orgánica firmemente en el debate sobre la biotecnología, y Peter Melchett, de Greenpeace, Reino Unido, quien organizó, entre otras cosas, el boicot a los **alimentos modificados por ingeniería genética** realizado por cientos de comentaristas sobre alimentos y vinos. (MH1S.s67)	
13.	For those hankering after sustainable agriculture it promised to develop greener, more environmentally responsible **transgenic crops**, which would reduce the use of pesticides, herbicides, and fertilisers. (MH1E.s125)	A los que anhelaban una agricultura sostenible, les prometía desarrollar **cultivos transgénicos** más vigorosos y ambientalmente amistosos que reducirían el uso de pesticidas, herbicidas y fertilizantes. (MH1S.s124)	Unfavorable
14.	Norway is banning the import of a range of **transgenic crops** and transgenic vaccines, and has legislated to reject the planting of transgenic crops unless it is proved to be safe and beneficial. (MH1E.s180)	Noruega prohíbe la importación de una variedad de **cultivos** y vacunas **transgénicas**, y ha legislado para rechazar la siembra de especies transgénicas, a no ser que se demuestre que son seguras y beneficiosas. (MH1S.s181)	Unfavorable
15.	Norway is banning the import of a range of transgenic crops and transgenic vaccines, and has legislated to reject the planting of **transgenic crops** unless it is proved to be safe and beneficial. (MH1E.s180)	Noruega prohíbe la importación de una variedad de cultivos y vacunas transgénicas, y ha legislado para rechazar la siembra de **especies transgénicas**, a no ser que se demuestre que son seguras y beneficiosas. (MH1S.s181)	Unfavorable
16.	Opposition to **transgenic crops** has risen sharply in Britain within the past eighteen months and is now spreading like a shock wave across the world. (MH1E.s182)	La oposición a los **cultivos transgénicos** dentro del Reino Unido creció marcadamente durante los últimos dieciocho meses, y en este momento se difunde como una onda expansiva a través del mundo. (MH1S.s183)	Unfavorable
17.	Field trials of **transgenic crops** were destroyed in open civil disobedience actions all over Britain and Ireland, where professionals such as university lecturers, lawyers and journalists participated along with young protesters. (MH1E.s186)	Las pruebas de campo de **cultivos transgénicos** fueron destruidas en acciones de abierta desobediencia civil en toda Inglaterra e Irlanda, donde profesionales como profesores universitarios, abogados y periodistas participaron en el hecho junto con jóvenes manifestantes. (MH1S.s187)	Unfavorable
18.	Nevertheless, Britain is among the seven European countries that are imposing a	No obstante, Inglaterra se encuentra entre los siete países europeos que imponen una moratoria o	Unfavorable

	moratorium or selective ban on **transgenic crops** ; the others are Austria, Luxembourg, France, Denmark, Norway, and Greece (which has called for a moratorium throughout Europe). (MH1E.s201)	prohibición selectiva a los **cultivos transgénicos** ; los otros son Austria, Luxemburgo, Francia, Dinamarca, Noruega y Grecia (que exigió una moratoria en toda Europa). (MH1S.s201)	
19.	A series of legal actions has been taken by private citizens against their governments for approving legal action against field trials of **transgenic crops**, beginning in Ireland, then in the Netherlands, Germany, and Britain. (MH1E.s203)	Diversas acciones legales fueron iniciadas por ciudadanos particulares en contra de sus gobiernos con el fin de obtener la aprobación de demandas en contra de los ensayos de campo de **cultivos transgénicos**, comenzando en Irlanda, luego en Holanda, Alemania e Inglaterra. (MH1S.s203)	Unfavorable
20.	Organic farmers in particular are concerned about genetic pollution of organic produce by **transgenic crops**. (MH1E.s204)	Los granjeros orgánicos en particular están preocupados por la contaminación genética de los productos orgánicos por parte de los **cultivos transgénicos**. (MH1S.s204)	Concern (-)
21.	I met angry farmers in India in March calling for an outright ban on **transgenic crops**. (MH1E.s210)	En marzo, conocí unos granjeros encolerizados en la India que exigían una prohibición absoluta de los **cultivos transgénicos**. (MH1S.s210)	Unfavorable
22.	A coalition of Latin American NGOs has declared that they will not accept **transgenic crops**. (MH1E.s216)	Una coalición de ONG latinoamericanas declaró que no aceptarán los **cultivos transgénicos**. (MH1S.s216)	Unfavorable
23.	The international trace in **transgenic crops** has collapsed, and with it all American agricultural produce, because of the refusal to segregate transgenic from non-transgenic shipments. (MH1E.s220)	El comercio internacional de **cultivos transgénicos** se derrumbó, y con él todos los productos agrícolas estadounidenses, debido a su rechazo a diferenciar las cargas transgénicas de las no transgénicas. (MH1S.s220)	Unfavorable
24.	By 1994 there had already been at least ninety releases of **transgenic crops** in non-OECD countries and Mexico, a third of which were by multinational corporations such as the American companies Monsanto and Calgene (later bought by Monsanto) and the Swiss company Ciba Geigy (now part of Novartis). (MH2E.s132)	Hacia 1994, ya habían ocurrido por lo menos 90 liberaciones de **cultivos transgénicos** en países no pertenecientes a la OECD y en México, un tercio de las cuales fueron hechas por corporaciones multinacionales, tales como las compañías estadounidenses Monsanto y Calgene (luego adquirida por Monsanto), y la compañía suiza Ciba-Geigy (ahora parte de Novartis). (MH2S.s133)	Unfavorable
25.	As portents of the ecological hazards of **transgenic crops**, field trials have shown that herbicide-resistance in transgenic potato and transgenic oil-seed rape have spread to weedy relatives within a single growing season, thereby creating herbicide-resistant " superweeds ". (MH2E.s143)	Como presagios de los peligros ecológicos de los **cultivos transgénicos**, ensayos de campo mostraron que la resistencia a los herbicidas de una patata transgénica y una colza transgénica se difundió en una sola temporada de cultivo a malezas emparentadas, creando así " supermalezas " resistentes a los herbicidas. (MH2S.s144)	Unfavorable
26.	It is on the basis of such inadequate field tests that **transgenic crops** have been approved as safe for human and animal consumption, without any legal requirement for appropriate tests for safety to be carried out. (MH2E.s204)	Sobre la base de tales pruebas inadecuadas de campo los **cultivos transgénicos** fueron aprobados como seguros para el consumo humano y animal, sin ningún requerimiento legal para que se lleven a cabo pruebas de seguridad. (MH2S.s205)	Unfavorable
27.	**Transgenic crops** are created from the same high-input monoculture varieties as the " Green Revolution ", and are even more genetically uniform, because each transgenic line originates ultimately from a single cell. (MH8E.s86)	Los **cultivos transgénicos** se crean a partir de las mismas variedades de monocultivo y elevados insumos de la " Revolución Verde ", e incluso son más uniformes genéticamente, porque cada línea transgénica se origina en última instancia de una sola célula. (MH8S.s85)	Unfavorable

28.	Two main traits account for almost 100 per cent of the **transgenic crops** planted in the world today ; 70 per cent are herbicide-tolerant, with companies engineering tolerance to their own particular herbicide in order to increase the sales of herbicides, while the rest are insect-resistant. (MH8E.s87)	Dos rasgos principales son característicos de casi el 100 % de los **cultivos transgénicos** utilizados actualmente en el mundo. (MH8S.s86) El 70 % es tolerante a los herbicidas. (MH8S.s87) Las compañías producen variedades tolerantes a su propio herbicida particular con el fin de aumentar sus ventas. (MH8S.s88) El 30 por ciento restante es resistente a los insectos. (MH8S.s89)	Neutral
29.	New proteins from bacteria, such as the Bt-toxin engineered into many **transgenic crops** to make them resist insect pests, cannot be tested for allergenicity, because allergic reactions depend on previous exposure. (MH8E.s166)	Nuevas proteínas provenientes de bacterias, como la toxina Bt introducida en muchos **cultivos transgénicos** para hacerlos resistentes a las pestes de insectos, no pueden ser evaluadas en cuanto a su capacidad alergénica porque las reacciones alérgicas dependen de exposiciones previas. (MH8S.s168)	Concern (-)
30.	About 30 per cent of all **transgenic crops** are now engineered with one of several &delta-endotoxin genes from the soil bacterium Bacillus thuringiensis to protect them from insect pests. (MH8E.s210)	En la actualidad, aproximadamente un 30 % de todos los **cultivos transgénicos** son modificados con alguno de varios genes de la (- endotoxina de la bacteria del suelo Bacillus thuringiensis, para protegerlos de las pestes de insectos. (MH8S.s212)	Neutral
31.	The long-term agronomic viability of **transgenic crops** has yet to be proved. (MH8E.s218)	La viabilidad agronómica a largo plazo de los **cultivos transgénicos** aún está por demostrarse. (MH8S.s220)	Concern
32.	The long-term agronomic viability of **transgenic crops** has yet to be proved. (MH8E.s238)	La viabilidad agronómica a largo plazo de los **cultivos transgénicos** aún está por demostrarse. (MH8S.s240)	Concern
33.	A recent survey of 8,200 field trials of glyphosate-tolerant transgenic soya varieties in American universities reveals that **transgenic crops** yield on average 6.7 per cent less and require two to five times more herbicide than non-transgenic soya. (MH8E.s239)	Un análisis reciente de 8200 pruebas de campo de variedades de soja transgénica tolerantes al glifosato realizadas en universidades estadounidenses revela que los **cultivos transgénicos** producen, en promedio, un 6,7 % menos y requieren de dos a cinco veces más cantidad de herbicida que la soja no transgénica. (MH8S.s241)	Concern
34.	**Transgenic crops** with insecticidal genes or herbicide-tolerance genes actually favor the evolution of pesticide-resistance and herbicide-tolerance. (MH8E.s272)	Los **cultivos transgénicos** con genes insecticidas o genes de tolerancia a los herbicidas en realidad favorecen la evolución de la resistencia a los pesticidas y la tolerancia a los herbicidas. (MH8S.s274)	Favorable
35.	As we have seen, **transgenic crops** with Bt-toxin genes are already known to be harmful to beneficial insects. (MH8E.s281)	Como hemos visto, ya se sabe que los **cultivos transgénicos** con genes de toxina Bt son perjudiciales para especies beneficiosas de insectos. (MH8S.s283)	Unfavorable
36.	The other serious problem that has arisen is Bt-resistance among insect pests in the United States, where these **transgenic crops** have been released over the past four years. (MH8E.s282)	Otro serio problema que surgió en los Estados Unidos, donde estos **cultivos transgénicos** fueron empleados durante los últimos cuatro años, es la resistencia al Bt entre las pestes de insectos. (MH8S.s284)	Unfavorable
37.	The researchers seem to be completely unaware of the health hazards posed by many **transgenic crops** that are made with vectors derived from the tumour-inducing plasmid. (MH8E.s332)	Los investigadores parecen ser completamente ignorantes de los peligros para la salud que plantean muchos de los **cultivos transgénicos** producidos mediante vectores derivados del plásmido inductor de tumores. (MH8S.s334)	Unfavorable
38.	Some molecular geneticists have expressed concern that these **transgenic crops** might generate new diseases, by several known	Algunos genetistas moleculares expresaron su preocupación de que estos **cultivos transgénicos** genéticamente modificados pudiesen generar nuevas	Concern (-)

	processes. (MH8E.s346)	enfermedades, por medio de varios procesos conocidos. (MH8S.s348)	
39.	A later report, however, recommends **transgenic crops** for the Third World. (MH8E.s431)	Un informe posterior, sin embargo, recomienda los **cultivos transgénicos** para el Tercer Mundo. (MH8S.s433)	Concern
40.	In this chapter have presented the reasons why **transgenic crops** cannot alleviate the food crisis. (MH8E.s432)	En este capítulo, presenté las razones por las que los **cultivos transgénicos** no pueden aliviar la crisis de alimentos. (MH8S.s434)	Favorable
41.	These include transgenic DNA from **transgenic crops** and genetically engineered micro-organisms ; the artificial vectors for gene transfer, including human gene ; therapy vectors and other naked DNA constructs for somatic gene therapy ; naked DNA vaccines (see chapter 12) ; DNA sequences amplified by laboratory procedures ; and synthetic anti-sense RNA and ribozymes (RNAs that act as enzymes). (MH9E.s405)	Esta clase incluye el ADN transgénico de **cultivos transgénicos** y microorganismos genéticamente modificados ; los vectores artificiales de la transferencia genética, incluyendo los vectores de la terapia genética humana y otras construcciones de ADN desnudo de la terapia genética somática ; las vacunas de ADN desnudo (véase el capítulo 12) ; las secuencias de ADN amplificadas por procedimientos de laboratorio ; y el ARN antisentido sintético y las ribozimas (ARN que actúa como enzima). (MH9S.s405)	Neutral
42.	At the same time some of the British government 's own commissioned scientific reports are warning of the dangers of horizontal gene transfer from **transgenic crops** and products, and DNA is found not to be readily degraded by most commercial processing procedures. (MH9E.s434)	Al mismo tiempo, algunos de los informes científicos comisionados por el propio gobierno inglés advierten de los peligros de la transferencia genética horizontal en los **cultivos** y productos **transgénicos**, y manifiestan que se descubrió que el ADN no se degrada fácilmente en la mayoría de los procedimientos de procesamiento comercial. (MH9S.s434)	Unfavorable
43.	I have already mentioned the transgenic DNA present in **transgenic crops**, all of which contain the cauliflower mosaic viral promoter. (MH12E.s243)	Ya mencioné el ADN transgénico presente en los **cultivos transgénicos**, todo el cual contiene el promotor viral del mosaico de la coliflor. (MH12S.s243)	Neutral
44.	**Transgenic** commodity **crops**, chiefly soybean (Glycine max) and maize (Zea mays), were mixed with conventional crops for transport and marketing. (SN1E.s7)	Los **cultivos transgénicos** de consumo, principalmente soja (Glycine wax) y maíz (Zea mays), se mezclaron con cultivos convencionales durante el transporte y la comercialización. (SN1S.s8)	Concern
45.	In North America, and other regions of the world, the amount of GM food ingredients in the diet has risen as the area devoted to **transgenic crops** has increased. (SN1E.s10)	En Norteamérica y otras partes del mundo se ha ido incrementando la cantidad de ingredientes alimentarios MG en la dieta, a medida que han ido aumentando las zonas dedicadas a los **cultivos transgénicos**. (SN1S.s11)	Favorable
46.	Meanwhile, environmental pressure groups and independent scientists drew attention to the range of environmental impacts of **transgenic crops** and the implications of awarding patents on the use of plant genes. (SN1E.s13)	Entretanto, grupos de ecologistas de presión y científicos independientes llamaron la atención sobre la variedad de consecuencias medioambientales que tenían los **cultivos transgénicos** y las implicaciones de autorizar las patentes de genes de plantas. (SN1S.s14)	Unfavorable
47.	The conflicts surrounding **transgenic crops** and GM food have intensified as we have entered the twenty-first century. (SN1E.s16)	Los conflictos que rodean a los **cultivos transgénicos** y los alimentos MG se han intensificado al entrar en el siglo XX. (SN1S.s17)	Unfavorable
48.	There was a 25-fold increase in the global area of **transgenic crops** between 1996 and 2000, to 44.2 million hectares. (SN1E.s20) This is equivalent to an area twice the size	Entre 1996 y 2000, la superficie global dedicada a **transgénicos** se había multiplicado por veinticinco hasta alcanzar los 44,2 millones de hectáreas, lo que equivale a una extensión que dobla en tamaño al	Concern

	of the United Kingdom. (SN1E.s21)	Reino Unido. (SN1S.s21)	
49.	In 2000, 68 per cent of **transgenic crops** were grown in the USA, with 23 per cent in Argentina, 7 per cent in Canada, and 1 per cent in China. (SN1E.s22)	En 2000, el 68 % de las **cosechas transgénicas** se cultivaba en Estados Unidos ; el 23 %, en Argentina ; el 7 %, en Canadá y el 1 % en China. (SN1S.s22)	Neutral
50.	Over 52 million hectares of **transgenic crops** were grown globally in 2001 and this area is likely to continue expanding. (SN1E.s28)	Globalmente, la superficie dedicada a **transgénicos** superó los 52 millones de hectáreas en 2001 y es probable que la cifra continué aumentando. (SN1S.s28)	Concern
51.	Initially, **transgenic crops** were confined to the developed world, but they are increasingly being grown in developing countries. (SN1E.s30)	En un principio, los **cultivos transgénicos** se circunscribieron a países desarrollados, pero cada vez abundan más en países en desarrollo. (SN1S.s30)	Neutral
52.	The identification of some of its 26,000 genes has already helped in developing disease-resistance in **transgenic crops**. (SN1E.s56)	La identificación de algunos de sus 26.000 genes ya ha supuesto una gran ayuda para desarrollar la resistencia a enfermedades en **cultivos transgénicos**. (SN1S.s55)	Unfavorable
53.	The modifications made to **transgenic crops** are the subject of Chapters 4-6. (SN1E.s77)	Los capítulos 4-6 se centran en las modificaciones que se realizan en los **transgénicos.** (SN1S.s74)	Neutral
54.	Soybeans dominated the global area of **transgenic crops** in 2000. (SN1E.s92)	En 2000, las distintas variedades de soja predominaron en la superficie total de **cultivo destinada a transgénicos**. (SN1S.s88)	Neutral
55.	Chapter 4 examines how herbicide-resistance is achieved in **transgenic crops**. (SN1E.s95) Different modifications make crops resistant to different chemical groups of herbicides. (SN1E.s96)	En el capítulo 4 se examina cómo se consigue desarrollar en **los transgénicos** la resistencia a los herbicidas. (SN1S.s91)	Neutral
56.	Insect resistance is the second most common trait engineered into **transgenic crops**. (SN1E.s116)	La resistencia a los insectos es el segundo rasgo que se introduce con mayor frecuencia en los **cultivos transgénicos** mediante las técnicas de la ingeniería genética. (SN1S.s111)	Neutral
57.	In **transgenic crops**, B.t. toxins are continuously produced in green tissues, and insect pests could rapidly evolve resistance to them. (SN1E.s124)	En los **cultivos transgénicos**, se están produciendo continuamente toxinas B.t. en los tejidos vegetales y las plagas de insectos pueden evolucionar rápidamente para volverse resistentes a su acción. (SN1S.s120)	Neutral
58.	A range of **transgenic crops** that have been engineered for ease of processing and resistance to disease are described in Chapter 6. (SN1E.s148)	En el capítulo 6 se describe la variedad de **cultivos transgénicos** que se ha manipulado aplicando las técnicas de la ingeniería genética para obtener mayor facilidad de procesamiento y mayor resistencia a las enfermedades. (SN1S.s144)	Favorable
59.	A wide range of **transgenic crops** with resistance to fungal and viral disease, nematode attack, frost damage, and drought or salinity stress are being developed. (SN1E.s154)	Se está desarrollando una amplia variedad de **cultivos transgénicos** resistentes a enfermedades víricas y micóticas, ataques de nematodos, daños provocados por heladas y estrés por condiciones de sequía o salinidad. (SN1S.s149)	Favorable
60.	**Transgenic crops** that incorporate vaccines have enormous potential for disease prevention in the developing world. (SN1E.s157)	**Los transgénicos** que incorporan vacunas encierran un enorme potencial para prevenir enfermedades en los países en desarrollo. (SN1S.s152)	Favorable
61.	**Transgenic crops** could play a role in providing important nutritional and medical	Los **cultivos transgénicos** pueden desempeñar un importante papel al aportar importantes beneficios	Favorable

	benefits in developing countries, but they will be far from the complete answer. (SN1E.s173)	nutricionales y médicos a los países en desarrollo, pero están lejos de constituir la respuesta completa. (SN1S.s166)	
62.	A product like this should not be used primarily to improve the image of **transgenic crops** generally, but to provide workable solutions on the ground within a wider (holistic) strategy of improving the health and nutrition of needy people. (SN1E.s175)	Un producto de este tipo no debería usarse principalmente para mejorar la imagen de los **cultivos transgénicos** en general, sino para proporcionar soluciones factibles sobre el terreno, en el marco de una estrategia más amplia (holística) que tenga por objetivo mejorar la salud y la alimentación de los necesitados. (SN1S.s168)	Favorable
63.	The main concern arising from the cultivation of **transgenic crops** has been the spread of transgenes to other crop varieties. (SN1E.s182)	La principal preocupación que suscita el **cultivo de transgénicos** ha sido la propagación de transgenes a otras variedades de cultivos. (SN1S.s175)	Concern (-)
64.	It is now clear that corporations cannot control the gene flow from the **transgenic crops** they produce. (SN1E.s205)	Actualmente, está claro que las corporaciones no pueden controlar el flujo génico procedente de **los transgénicos** que desarrollan. (SN1S.s196)	Concern (-)
65.	**Transgenic crops** can also have an adverse impact on non-target Organisms. (SN1E.s207)	Asimismo, los **cultivos transgénicos** pueden tener consecuencias perjudiciales para los organismos no modificados. (SN1S.s198)	Concern (-)
66.	Beneficial species, such as honeybees or natural enemies of insect pests, may be at risk due to the modifications made to **transgenic crops**. (SN1E.s208)	Especies beneficiosas, como las abejas, o enemigos naturales de los insectos nocivos pueden correr peligro por las manipulaciones que se realicen en los **cultivos transgénicos**. (SN1S.s199)	Concern (-)
67.	However, such non-target impacts had not been picked up during the regulatory process before the commercialization of **transgenic crops**. (SN1E.s212)	A pesar de todo, este tipo de consecuencias imprevistas no se detectaron durante el proceso regulador previo a la comercialización de **los transgénicos.** (SN1S.s203)	Unfavorable
68.	Little attention was paid to these antibiotic-resistance genes when **transgenic crops** were first approved for the market. (SN1E.s221)	Cuando se aprobó por vez primera la introducción de **los transgénicos** en el mercado, no se prestó demasiada atención a los genes de resistencia a los antibioticos. (SN1S.s212)	Concern (-)
69.	However, these genes (used to select modified from unmodified material during the development stage of **transgenic crops**) confer resistance to antibiotics that are in veterinary and medical use. (SN1E.s222)	Sin embargo, estos genes (que se utilizan para diferenciar el material modificado del no modificado durante la fase de desarrollo del **cultivo transgénico**) confieren resistencia a antibióticos utilizados en veterinaria y medicina. (SN1S.s213)	Concern (-)
70.	The major biotech corporations may soon adopt a voluntary ban on growing **transgenic crops** that yield pharmaceutical products in major food-producing areas. (SN1E.s246)	Es posible que las grandes corporaciones biotecnológicas asuman de forma voluntaria la prohibición de desarrollar **transgénicos** que produzcan sustancias farmacéuticas en las principales zonas donde se cultiven alimentos. (SN1S.s236)	Unfavorable
71.	The patenting of plant genes means that all **transgenic crops** are effectively the intellectual property of multinational corporations. (SN1E.s266) These corporations are awarded exclusive rights over plant genetic resources. (SN1E.s267)	Patentar genes de plantas implica que todas las **cosechas transgénicas** son, de hecho, propiedad intelectual de corporaciones multinacionales, a las que se concede derechos exclusivos sobre recursos fitogenéticos. (SN1S.s255)	Unfavorable
72.	However, there have been recent proposals to reinforce the field-testing requirements for **transgenic crops**, and the testing assessments for GM food. (SN1E.s278)	Con todo, se han presentado propuestas recientes para endurecer los requisitos relativos a pruebas de campo con **cultivos transgénicos** y evaluación de las pruebas en el caso de los alimentos MG. (SN1S.s267)	Concern (-)

73.	North Americans therefore consume a diet containing a substantial amount of food derived from **transgenic crops**, although many might not realize it. (SN1E.s323)	Por consiguiente, los norteamericanos consumen una dieta con una importante cantidad de alimentos derivados de **cultivos transgénicos**, aunque muchos no sean conscientes de ello. (SN1S.s311)	Concern
74.	New Zealand, Mexico and several countries in Africa have imposed moratoria on the cultivation of **transgenic crops** (although some of these may soon be overturned), in part because they supply markets in Europe and elsewhere with certified non-GM produce. (SN1E.s332)	Nueva Zelanda, México y varios países africanos han impuesto moratorias que prohíben los **cultivos transgénicos** (aunque es posible que no tarden en anularse), en parte porque suministran productos con certificación de no estar modificados genéticamente a mercados europeos y otros puntos del mundo. (SN1S.s320)	Unfavorable
75.	Once **transgenic crops** are grown in a nation 's territory, transgene spread threatens the integrity of non-GM crops. (SN1E.s333)	Una vez que se desarrollan **cultivos transgénicos** en el territorio de una nación, la propagación de transgenes amenaza la integridad de los cultivos no MG. (SN1S.s321)	Unfavorable
76.	The global impact of **transgenic crops**. (SN1E.s338)	EL IMPACTO GLOBAL DE LOS **CULTIVOS TRANSGÉNICOS**. (SN1S.s326)	Concern
77.	Chapter 14 examines to what extent **transgenic crops** have fulfilled their initial promise, and what impact they are having on the Third World. (SN1E.s339)	En el capítulo 14 se examina hasta qué punto **los transgénicos** han cumplido su promesa inicial y qué consecuencias están teniendo en el Tercer Mundo. (SN1S.s327)	Concern
78.	Multinational companies promoting **transgenic crops** stressed heir importance for increasing crop yields as the world 's population increases. (SN1E.s340)	Las multinacionales que fomentan los **cultivos transgénicos** han destacado su importancia para aumentar el rendimiento de los cultivos a medida que va creciendo la población mundial. (SN1S.s328)	Favorable
79.	In addition, the **transgenic crops** released to date require high inputs of fertilizers, water and pesticides, and are not compatible with many of the current ideas concerning sustainable agriculture. (SN1E.s343)	Asimismo, los **cultivos transgénicos** liberados hasta la fecha requieren grandes aportaciones de fertilizantes, agua y pesticidas, y no son compatibles con muchas de las ideas actuales con respecto a la agricultura sostenible. (SN1S.s331)	Unfavorable
80.	Meanwhile, **transgenic crops** modified to produce food ingredients that have been traditionally grown in the tropics potentially threaten the economies of Third World countries. (SN1E.s344)	Entretanto, los **cultivos transgénicos** modificados para producir ingredientes alimentarios que, tradicionalmente, se han cultivado en el trópico suponen una amenaza potencial para las economías de los países del Tercer Mundo. (SN1S.s332)	Concern (-)
81.	**Transgenic crops** have a great potential to raise yields in the developing world. (SN1E.s345)	**Los transgénicos** encierran un gran potencial para aumentar la producción en los países en desarrollo. (SN1S.s333)	Favorable
82.	The **transgenic crops** cultivated in China and India, for instance, were all initially produced by multinationals for generic conditions worldwide, but some home-produced varieties specifically suited to local conditions are now being grown. (SN1E.s350)	Por ejemplo, todos los **cultivos transgénicos** que crecen en China y la India los producían, en un principio, multinacionales en condiciones genéricas para todo el mundo ; en cambio, ahora se están cultivando algunas variedades del país específicamente adaptadas a condiciones locales. (SN1S.s337)	Neutral
83.	Out of corporate control and in the hands of local plant breeding institutes, **transgenic crops** could increase local food production in a sustainable manner. (SN1E.s352)	Fuera del control de las multinacionales y en manos de institutos locales de mejora vegetal, los **cultivos transgénicos** podrían aumentar la producción local de alimentos de modo sostenible. (SN1S.s339)	Favorable
84.	Pollen from these illegally planted **transgenic crops** subsequently cross-fertilized with traditional varieties. (SN1E.s374)	El polen de esos **cultivos transgénicos** ilegales fecundó las variedades tradicionales por fertilización cruzada. (SN1S.s361)	Unfavorable

85.	The long-term prospects for **transgenic crops** are still far from certain. (SN1E.s384)	Las perspectivas a largo plazo para los **cultivos transgénicos** aún están lejos de saberse con certeza. (SN1S.s370)	Concern
86.	This is because the proposed barrier zones around **transgenic crops** amount to a considerable land area. (SN1E.s396)	Esto se debe a que las zonas de barrera alrededor de los **cultivos transgénicos** que se han propuesto suman un territorio considerable. (SN1S.s382)	Concern
87.	A study that modelled the spread of herbicide-resistant crops in the UK, for instance, concluded that the amount of land available might not be sufficient to allow the co-existence of organic and **transgenic crops** of the same type. (SN1E.s397)	Por ejemplo, un estudio que simulaba la propagación de cultivos resistentes a los herbicidas en el Reino Unido llegó a la conclusión de que tal vez la cantidad de territorio disponible no fuera suficiente para garantizar la coexistencia de **cultivos** orgánicos y **transgénicos** del mismo tipo. (SN1S.s383)	Concern
88.	One solution would be to have zones dedicated to **transgenic crops** and zones where their cultivation was prohibited. (SN1E.s399)	Una solución podría ser tener unas zonas dedicadas a **los transgénicos** y otras donde estuviera prohibido este tipo de cultivos. (SN1S.s385)	Concern
89.	If home-grown non-GM produce is to be encouraged, then the desirability of **transgenic crops** needs to be seriously questioned. (SN1E.s401)	Si debe fomentarse el cultivo local de productos agrícolas no MG, es preciso poner en tela de juicio la conveniencia de los **cultivos transgénicos**. (SN1S.s387)	Concern (-)
90.	This has been accompanied by a voluntary agreement between government and industry that no commercial cultivation of **transgenic crops** will occur until the evaluations are completed in 2003. (SN1E.s403)	Se ha acompañado de un acuerdo voluntario entre el gobierno y la industria para que no se produzca ningún cultivo comercial de **cosechas transgénicas** hasta que finalicen las evaluaciones en 2003. (SN1S.s389)	Concern
91.	Economic rather than environmental factors are, however, likely to predominate when a decision is made regarding the commercial cultivation of **transgenic crops**. (SN1E.s404)	Con todo, es muy probable que los factores económicos acaben imponiéndose sobre los medioambientales en el momento de tomar una decisión relativa al cultivo comercial de **transgénicos.** (SN1S.s390)	Concern
92.	Governments worldwide should have the power to restrict the cultivation of **transgenic crops**, and the sale of GM food, whenever they consider there to be unacceptable risks. (SN1E.s409)	Los gobiernos de todo el mundo deberían tener potestad para restringir el **cultivo de transgénicos** y la venta de alimentos MG, siempre que consideren que suponen un riesgo inaceptable. (SN1S.s396)	Concern
93.	The new generation of **transgenic crops**, produced using genetic engineering in what may become called the " gene revolution ", is perpetuating some of these problems. (SN1E.s506)	La nueva generación de **cultivos transgénicos**, producida mediante las técnicas de la ingeniería genética, en lo que podría llegar a llamarse la " revolución de los genes ", está perpetuando algunos de estos problemas. (SN1S.s491)	Unfavorable
94.	In the twelve years to 1995, however, over sixty plant species had been genetically engineered and nearly three thousand field tests of **transgenic crops** had been conducted worldwide. (SN1E.s533)	Sin embargo, en los doce años transcurridos hasta 1995, se han aplicado técnicas de ingeniería genética a más de sesenta especies vegetales y se han realizado en todo el mundo casi tres mil pruebas de campo con **transgénicos.** (SN1S.s518)	Neutral
95.	The most commonly released **transgenic crops**, during this period throughout Europe, were oilseed rape (96 releases), maize (63), sugar beet (45), potato (44) and tomato (19). (SN1E.s540)	Durante este período, los **cultivos transgénicos** liberados con mayor frecuencia en toda Europa fueron la colza (96 liberaciones), el maíz (63), la remolacha azucarera (45), la patata (44) y el tomate (19). (SN1S.s525)	Neutral
96.	Different **transgenic crops**, released outside Europe, have reflected the importance of various crops in different geographic	Los diferentes **cultivos transgénicos**, liberados fuera de Europa, reflejan la importancia de cultivos diversos en regiones geográficas distintas.	Favorable

	regions. (SN1E.s542)	(SN1S.s527)	
97.	Up to 1993 herbicide resistance trials predominated in every year in every geographic region, except in the Far East, where trials with **transgenic crops** resistant to viruses predominated. (SN1E.s549)	Hasta 1993, las pruebas de resistencia a los herbicidas predominaron todos los años en todas las regiones geográficas, salvo en Extremo Oriente, donde se impusieron las pruebas con **cultivos transgénicos** resistentes a los virus (véase la nota 6). (SN1S.s534)	Concern
98.	Different crops have different natural resistance to antibiotics, for instance cereals to kanamycin, so a range of selectable marker genes have been developed for use in the production of **transgenic crops**. (SN2E.s276)	Los distintos cultivos poseen una resistencia natural distinta a los antibióticos ; por ejemplo, los cereales son resistentes a la kanamicina, de modo que se han desarrollado varios genes marcadores seleccionables para usarlos en la producción de **cultivos transgénicos**. (SN2S.s272)	Neutral
99.	This has teen exploited by genetic engineers, who transfer genes for detoxifying enzymes from soil bacteria into **transgenic crops**. (SN4E.s26)	Esta circunstancia la han aprovechado los ingenieros genéticos para transferir a los **cultivos transgénicos** genes que eliminan la toxicidad de las enzimas de las bacterias que se encuentran en el suelo. (SN4S.s26)	Favorable
100.	Resistance has been obtained to most of the major herbicide groups, although research has concentrated on certain herbicides during the development of **transgenic crops**. (SN4E.s35)	Se ha logrado conseguir resistencia a casi todos los principales grupos de herbicidas, aunque las investigaciones se han centrado en determinados herbicidas durante el desarrollo de **cultivos transgénicos.** (SN4S.s35)	Neutral
101.	Genes from alfalfa (Medicago sativa) and soil bacteria have been used to produce **transgenic crops** resistant to BastaTM and other glufosinate ammonium herbicides. (SN4E.s56)	Se han empleado genes de la alfalfa (Medicago sativa) y bacterias del suelo para desarrollar **cultivos transgénicos** resistentes al BastaTM y otros herbicidas de glufosinato amónico. (SN4S.s56)	Neutral
102.	The triazines are persistent herbicides, which is advantageous in that they could provide effective weed control throughout a rotation of different **triazine-resistant transgenic crops**, but could be disadvantageous in that these herbicides may be highly damaging to the environment if used in this way. (SN4E.s92)	Las triazinas son herbicidas persistentes, con la ventaja de que son capaces de proporcionar un control de malas hierbas efectivo durante una rotación completa de distintos **cultivos transgénicos resistentes a la triazina.** (SN4S.s92) Pero también tienen la desventaja de que este tipo de herbicidas puede resultar muy perjudicial para el medio ambiente si se emplea de esta manera. (SN4S.s93)	Concern (-)
103.	However, herbicide-resistant crops could themselves become weeds in other crops, while related weedy species could acquire resistance through pollen transfer from **transgenic crops**. (SN4E.s124)	A pesar de todo, cabe la posibilidad de que los propios cultivos resistentes a los herbicidas se conviertan en malas hierbas para otros cultivos, al tiempo que otras especies de malas hierbas emparentadas pueden adquirir resistencia por transferencia de polen de **cultivos transgénicos**. (SN4S.s125)	Concern
104.	Any increased herbicide usage may therefore increase the rate of development and spread of herbicide-resistant weeds, cancelling out the initial benefits of **transgenic crops**. (SN4E.s160)	En consecuencia, cualquier incremento en el uso de herbicidas puede aumentar el ritmo de desarrollo y propagación de las malas hierbas resistentes a estas sustancias, anulando los beneficios iniciales de los **cultivos transgénicos**. (SN4S.s161)	Concern (-)
105.	**Transgenic crops** will need to be used carefully if problems of weed resistance to herbicides and ecological damage are to be avoided. (SN4E.s168)**/T**	Será preciso utilizar los **cultivos transgénicos** de forma responsable para evitar los problemas ocasionados por la resistencia de las malas hierbas a los herbicidas y los daños ecológicos. (SN4S.s169)	Concern (-)
106.	Many of the early experiments with **transgenic crops** aimed to enhance plant resistance to insect pests. (SN5E.s2)	Muchos de los primeros experimentos con **cultivos transgénicos** tenían como objetivo mejorar la resistencia de las plantas a las plagas de insectos. (SN5S.s3)	Favorable

107.	This technique might also expand the possibilities for **transgenic crops** grown for food production. (SN5E.s147)	Esta técnica también puede ampliar las posibilidades de **los transgénicos** cultivados para la producción alimentaria. (SN5S.s147)	Favorable
108.	In crops with heavy insecticide applications, **insect-resistant transgenic crops** could bring large economic benefits to growers, with savings made on insecticide expenditures, labour and equipment. (SN5E.s152)	En cultivos que requieran grandes aplicaciones de insecticida, **los transgénicos** resistentes a los insectos pueden proporcionar grandes beneficios económicos a los cultivadores, al reducir los gastos de insecticida, mano de obra y equipo. (SN5S.s152)	Favorable
109.	Less insecticide will be needed on **insect-resistant transgenic crops**, as the insecticidal material is contained in the plant tissue. (SN5E.s156)	Los **cultivos transgénicos** resistentes a los insectos requieren menores dosis de insecticida, ya que el propio tejido vegetal contiene material insecticida. (SN5S.s156)	Favorable
110.	Monitoring for safety for human consumption should be easier with **transgenic crops** compared to those where chemicals are applied. (SN5E.s164)	El control de la inocuidad para el consumo humano también debería resultar más fácil con los **cultivos transgénicos** si los comparamos con aquellos cultivos donde se aplican sustancias químicas. (SN5S.s164)	Concern
111.	The nature of the added materials is known in advance for **transgenic crops**, with the foreign genes being fully characterized. (SN5E.s165) Assessing risks from conventional spray residues, however, involves the use of expensive analysis equipment. (SN5E.s166)	La naturaleza del material añadido se conoce con antelación en el caso de **los transgénicos** y todas las características de los genes ajenos están descritas al detalle (véase la nota 3). (SN5S.s165)	Neutral
112.	The partial failure of **transgenic crops** to control insects may speed up the evolution of insect resistance. (SN5E.s176)	La incapacidad parcial de los **cultivos transgénicos** para controlar los insectos puede acelerar la evolución de resistencia en estos últimos. (SN5S.s175)	Concern (-)
113.	The situation could worsen if **transgenic crops** containing genes coding for B.t. toxins become widespread. (SN5E.s179)	La situación podría empeorar si se generalizan los **cultivos transgénicos** con genes que codifican toxinas B. t. (SN5S.s178)	Concern (-)
114.	Resistance management is therefore a vital, and complex, component in the long-term use of **transgenic crops** modified with genes expressing insect toxins. (SN5E.s194)	Por consiguiente, el control de la resistencia constituye un componente complejo y fundamental en el uso a largo plazo de **cultivos transgénicos** modificados con genes que expresan toxinas insecticidas. (SN5S.s193)	Concern (-)
115.	The ability of insects to develop resistance to the other toxins present in **transgenic crops** may be of less immediate concern. (SN5E.s199)	La capacidad de los insectos para desarrollar resistencia a otras toxinas presentes en los **cultivos transgénicos** puede suscitar una preocupación menos inmediata. (SN5S.s198)	Concern
116.	An argument in favor of moving so quickly to the commercial cultivation of **transgenic crops** was that it was the only way to understand fully how best to manage resistance. (SN5E.s203)	Un argumento a favor de pasar tan rápido al cultivo comercial de **transgénicos** fue que era el único modo de comprender a fondo cómo controlar mejor la resistencia. (SN5S.s202)	Concern
117.	Commercial pressures for moving quickly to large-scale plantings of **transgenic crops** can mean that basic insect-plant interaction studies are often not adequately completed. (SN5E.s207)	Las presiones comerciales para pasar rápidamente a **los transgénicos** a gran escala pueden implicar que, en ocasiones, no se completen de forma adecuada los estudios más básicos sobre interacción entre plantas e insectos. (SN5S.s206)	Concern (-)
118.	Problems with commercially grown **transgenic crops** were reported in both 1996 and 1997, particularly with transgenic cotton. (SN5E.s210)	Tanto en 1996 como en 1997 salieron a la luz problemas con **cultivos transgénicos** comerciales, con el algodón transgénico en particular (véase la nota 25). (SN5S.s209)	Unfavorable

119.	**Transgenic crops** have also been engineered with in-built sweetness. (SN6E.s84)	Los **cultivos transgénicos** también se han modificado genéticamente para incorporarles un sabor dulce. (SN6S.s84)	Neutral
120.	Monsanto is involved in work to produce a sweet potato resistant to feathery mottle virus, and Agrigenetics Advanced Science, Pioneer Hi-Bred, Upjohn and other companies have field-tested a range of other **virus-resistant transgenic crops**, including alfalfa, cucumber, cantaloupe and squash. (SN6E.s145)	Monsanto está participando en investigaciones para producir una batata resistente al virus del moteado plumoso y Agrigenetics Advanced Science, Pioneer Hi-Bred, Upjohn y otras compañías han realizado pruebas de campo con otros **cultivos transgénicos resistentes a virus**, como la alfalfa, el pepino, el melón cantalupo y la calabaza. (SN6S.s143)	Neutral
121.	**Transgenic crops** could be produced to tolerate these conditions - tobacco tolerant of high cadmium levels, for example, has been produced by integrating a gene from a mouse expressing metallothionein-binding protein. (SN6E.s243)	Es posible desarrollar **vegetales transgénicos** resistentes a estas condiciones: por ejemplos, se ha producido tabaco con tolerancia a los niveles elevados de cadmio integrando un gen de un ratón que expresa una proteína que se combina con la metalotioneína. (SN6S.s238)	Neutral
122.	**Transgenic crops** may come to play a role in this area in the future. (SN6E.s245)	Es posible que, en el futuro, los **cultivos transgénicos** desempeñen un papel importante en este ámbito. (SN6S.s240)	Favorable
123.	**Transgenic crops** will soon be used to produce raw materials for industry. (SN6E.s298)	Es posible que, de aquí a poco, los **cultivos transgénicos** se utilicen para producir materias primas destinadas a la industria. (SN6S.s292)	Neutral
124.	Meanwhile, Agracetus has developed transgenic cotton with fibres containing a polyester-like compound, while its parent company Monsanto has patented a number of genes that produce plastic materials in **transgenic crops**. (SN6E.s307)	Entretanto, Agracetus ha estado desarrollando algodón transgénico con fibras que contienen un compuesto similar al poliéster, mientras que su casa matriz, Monsanto, ha patentado varios genes que producen materiales plásticos en **cultivos transgénicos**. (SN6S.s301)	Neutral
125.	To comply with federal US regulations, for example, genetically modified plants have to be transported in sealed containers, and plots of experimental **transgenic crops** are surrounded with moats, fences and vegetation-free areas, while mature plants are stripped of pollen-bearing and other reproductive parts. (SN7E.s12)	Por ejemplo, para cumplir la normativa federal de Estados Unidos, las plantas modificadas genéticamente han de transportarse en contenedores precintados y las parcelas de **cultivos transgénicos** experimentales están rodeadas de un foso, cercas y zonas libres de vegetación, mientras que a las plantas maduras se les extraen las partes portadoras de polen y otras partes reproductivas. (SN7S.s13)	Neutral (Regulation)
126.	The Iowa incident illustrates the difficulty of predicting the ecological risks of releasing **transgenic crops** to the environment. (SN7E.s19)	El accidente de Iowa ilustra la dificultad que entraña predecir los riesgos ecológicos de la liberación de **cultivos transgénicos** en el medio ambiente. (SN7S.s20)	Unfavorable
127.	This technique could draw attention to previously unforeseen ways in which **transgenic crops** could pose ecological risks, but cannot provide factual answers about the probability of events occurring. (SN7E.s28)	Esta técnica podría llamar la atención sobre distintos modos, no previstos anteriormente, en que los **cultivos transgénicos** plantean riesgos ecológicos, pero no proporciona respuestas objetivas sobre la probabilidad de que los acontecimientos acaben sucediendo (véase la nota 2). (SN7S.s29)	Concern (-)
128.	However, carefully monitored small-scale experiments are very different from large-scale commercial releases of **transgenic crops**. (SN7E.s30)	Sin embargo, los experimentos a pequeña escala, controlados con sumo cuidado, son muy distintos de las liberaciones comerciales a gran escala de **cultivos transgénicos**. (SN7S.s31)	Concern (-)
129.	These **transgenic crops** have sequences of viral nucleic acid integrated into the plant genome (see Chapter 6). (SN7E.s83)	Estos **transgénicos** poseen secuencias de ácido nucleico vírico integradas en el genoma vegetal (véase el capítulo 6). (SN7S.s83)	Neutral

130.	Viruses have been shown to pick up genes from **transgenic crops**. (SN7E.s90)	Se ha demostrado que los virus toman genes de los **cultivos transgénicos**. (SN7S.s90)	Neutral
131.	A growing concern that new hybrid viruses could be produced led the United States Department of Agriculture (USDA) in August 1997 to outline proposed restrictions on **transgenic crops** engineered with genetic material from viruses. (SN7E.s95)	En agosto de 1997, una preocupación cada vez mayor por la producción de nuevos virus híbridos indujo al Departamento de Agricultura estadounidense a esbozar una propuesta de restricciones en los **cultivos transgénicos** modificados con material genético vírico. (SN7S.s95)	Unfavorable
132.	Virus-resistant crops will contain viral genes in all their cells for the lifetime of the plants, and given the ability of viruses to acquire, recombine and swap genetic material, the deployment of large areas of these **transgenic crops** may create the ideal conditions for new disease-causing viruses to evolve. (SN7E.s97)	Los cultivos resistentes a los virus contendrán genes víricos en todas sus células mientras vivan las plantas y, si tenemos en cuenta la capacidad de los virus para adquirir, recombinar e intercambiar material genético, la utilización de grandes zonas con estos **cultivos transgénicos** puede crear condiciones idóneas para que evolucionen nuevos virus causantes de enfermedades. (SN7S.s97)	Favorable
133.	Parts of **transgenic crops** could remain in the soil and grow in the following year, within subsequent crops in the same field, where they would be difficult to kill because of their herbicide resistance. (SN7E.s112)	Algunas partes del **cultivo transgénico** podrían permanecer en el suelo y desarrollarse al año siguiente, en el seno de posteriores cultivos plantados en el mismo campo, donde resultarían difíciles de eliminar por su resistencia a los herbicidas. (SN7S.s112)	Concern (-)
134.	The impact of **transgenic crops** on pollinating insects is being studied in a three-year collaborative project in France, Belgium and Britain, which was begun in late 1996. (SN7E.s120)	Se está estudiando el impacto de **los transgénicos** en los insectos polinizadores en el marco de un proyecto de colaboración en Francia, Bélgica y Gran Bretaña, de tres años de duración, que se inició a finales de 1996. (SN7S.s120)	Neutral
135.	**Transgenic crops** commonly contain antibiotic marker genes. (SN7E.s152)	Los **cultivos transgénicos** suelen contener genes marcadores de antibióticos. (SN7S.s152)	Concern
136.	Pollen from **transgenic crops**, collected by bees, may lead to allergic problems for consumers of honey. (SN8E.s37)	El polen de **cultivos transgénicos**, recolectado por las abejas, puede suscitar problemas alérgicos. (SN8S.s38)	Concern (-)
137.	Marker genes are routinely integrated into **transgenic crops** to select transformed plants from untransformed plants (see Chapter 2). (SN8E.s50)	Los genes marcadores se integran de forma rutinaria en los **cultivos transgénicos** para seleccionar las plantas transformadas de las no transformadas (véase el capítulo 2). (SN8S.s51)	Neutral
138.	Although seen by many as unnecessary, the development of alternatives to antibiotic resistance marker genes is desirable in many **transgenic crops** destined for human consumption. (SN8E.s96)	Aunque algunos lo consideran innecesario (véase la nota 7), es aconsejable el desarrollo de alternativas a los genes marcadores de resistencia a los antibióticos en muchos **cultivos transgénicos** destinados a consumo humano. (SN8S.s94)	Concern
139.	Agracetus claimed that it needed broad patent protection to protect its investment in developing **transgenic crops**. (SN10E.s91)	Esta compañía aseguró que necesitaba la protección de una patente amplia para no poner en peligro su inversión en el desarrollo de **cultivos transgénicos** (véase la nota 9). (SN10S.s90)	Favorable
140.	Some of these varieties have characteristics that are being sought in **transgenic crops** - for example, slow-ripening in tomatoes. (SN10E.s188)	Algunas de estas variedades poseen características que se están buscando en los **cultivos transgénicos**, como por ejemplo, una maduración lenta en el caso de los tomates. (SN10S.s185)	Favorable
141.	Some states, however, have more frequent applications for field releases - for example, Iowa, which has rich soils and ideal growing conditions for many of the commonly grown **transgenic crops**. (SN11E.s58)	No obstante, algunos reciben con mayor frecuencia solicitudes de liberaciones de campo, como por ejemplo Iowa, que posee unos suelos fértiles y ofrece condiciones de cultivo idóneas para muchos de **los transgénicos** más habituales. (SN11S.s57)	Neutral

142.	Member states were under pressure to take some sort of action, however, even if only of symbol value, as public opinion appeared to swing against the import and marketing of unlabelled foods from **transgenic crops**. (SN12E.s158)	No obstante, los Estados miembros recibían presiones para emprender algún tipo de acción, aunque fuera simbólica, ya que la opinión pública parecía inclinarse contra la importación y comercialización de alimentos no etiquetados obtenidos a partir de **cultivos transgénicos**. (SN12S.s156)	Unfavorable
143.	During 1997, member states, including Austria, Luxembourg and Italy, also became increasingly concerned about the possibility of B.t. genes in **transgenic crops** causing insects to develop resistance to B.t. sprays, an important component of pest control on organic farms. (SN12E.s164)	Durante 1997, aumentó la preocupación entre los Estados miembros, incluidos Austria, Luxemburgo e Italia, por la posibilidad de que los genes B. t. de los **cultivos transgénicos** provocaran en los insectos resistencia a las fumigaciones B. t., un importante componente del control de plagas en las explotaciones agrícolas orgánicas. (SN12S.s162)	Concern (-)
144.	The government at the time, a coalition between the centre-left Social Democrats and the centre-right Austrian Popular Party, discussed the specific demands arising from the referendum. (SN12E.s179) These demands included a ban on the production of genetically modified food in Austria, a moratorium on field-testing of **transgenic crops** and a ban on imports of transgenic soya. (SN12E.s180)	El gobierno de la época, una coalición entre los socialdemócratas, de centro-izquierda, y el Partido Popular austríaco, de centroderecha, estudió las demandas específicas surgidas del referendo, entre las que cabe destacar la prohibición de producir alimentos transgénicos en Austria, una moratoria para las pruebas de campo de **cultivos transgénicos** y la prohibición de importaciones de soja transgénica. (SN12S.s177)	Unfavorable
145.	Similar conflicts over marketing approvals are likely to be played out with other **transgenic crops**. (SN12E.s191)	Es probable que se produzcan conflictos similares por las autorizaciones de comercialización de otros **cultivos transgénicos.** (SN12S.s188)	Concern (-)
146.	Such pressure has helped prevent any food produced from **transgenic crops** being labelled as " organic " in Europe and in the USA. (SN13E.s171)	Semejante presión ha contribuido a impedir que se etiquetara como " orgánico " cualquier alimento producido a partir de **cultivos transgénicos** en Europa y en Estados Unidos. (SN13S.s171)	Unfavorable
147.	Growing **transgenic crops** under organic conditions, therefore, does not enable them to be labelled as " organic ". (SN13E.s172)	Por consiguiente, cultivar **transgénicos** en condiciones orgánicas no permite etiquetarlos como " orgánicos ". (SN13S.s172)	Concern
148.	**Transgenic crops**, however, have been developed amidst promises that they will help the Third World feed itself, although this claim seems to ignore the complex social and political factors that contribute to hunger. (SN14E.s5)	Sin embargo, los **cultivos transgénicos** se han desarrollado entre promesas de que ayudarán a que el Tercer Mundo se alimente, aunque esta afirmación parece pasar por alto los complejos factores sociales y políticos que propician el hambre. (SN14S.s4)	Concern (-)
149.	Meanwhile, markets for economically important Third World agricultural products in industrialized countries are being threatened by alternatives grown using the new biotechnology in tissue culture or in **transgenic crops**. (SN14E.s6)	Entretanto, los mercados para productos agrícolas del Tercer Mundo en países industrializados, importantes desde el punto de vista económico, se están viendo amenazados por alternativas desarrolladas mediante la nueva tecnología en cultivo de tejidos o en **cultivos transgénicos.** (SN14S.s5)	Concern (-)
150.	Many of the potential ecological risks posed by genetically modified organisms are similar to those in the industrialized nations (see Chapter 7), although in the Third World the clash between traditional agricultural systems and the intensive systems under which **transgenic crops** grow optimally is more marked. (SN14E.s7)	Muchos de los posibles riesgos ecológicos que plantean los organismos modificados genéticamente son similares a los que se dan en los países industrializados (véase el capítulo 7), aunque en el Tercer Mundo está más marcado el conflicto entre los sistemas agrícolas tradicionales y los sistemas intensivos que permiten a **los transgénicos** desarrollarse de forma óptima. (SN14S.s6)	Favorable
151.	However, the **transgenic crops** produced to date have not been compatible with	Sin embargo, los **cultivos transgénicos** producidos hasta la fecha no han sido compatibles con la	Unfavorable

	sustainable agriculture. (SN14E.s9)	agricultura sostenible. (SN14S.s8)	
152.	**Transgenic crops** and the world 's hungry. (SN14E.s10)	LOS **CULTIVOS TRANSGÉNICOS** Y EL HAMBRE EN EL MUNDO. (SN14S.s9)	Concern
153.	The multinational companies involved in producing **transgenic crops** certainly think so, and use the claim as a selling point for transgenic crops in their promotional literature. (SN14E.s12)	Sin duda, las compañías multinacionales implicadas en la producción de **transgénicos** piensan que sí y utilizan esta afirmación como punto fuerte de los transgénicos en su material promocional. (SN14S.s11)	Favorable
154.	The multinational companies involved in producing transgenic crops certainly think so, and use the claim as a selling point for **transgenic crops** in their promotional literature. (SN14E.s12)	Sin duda, las compañías multinacionales implicadas en la producción de transgénicos piensan que sí y utilizan esta afirmación como punto fuerte de **los transgénicos** en su material promocional. (SN14S.s11)	Favorable
155.	In some cases **transgenic crops** are part of the problem of, rather than the solution to, poverty in the Third World. (SN14E.s24)	En algunos casos, los **cultivos transgénicos** forman parte del problema de la pobreza en el Tercer Mundo y no son su solución. (SN14S.s21)	Concern (-)
156.	**Transgenic crops** do not have this local adaptation. (SN14E.s45)	Los **cultivos transgénicos** no presentan esta adaptación local. (SN14S.s42)	Concern
157.	It is noteworthy that most of the food products from **transgenic crops** have been marketed to consumers in affluent industrialized countries - for example, Calgene 's Flavr SavrTM tomatoes, engineered to cut the cost of manufacturing tomato paste, and Monsanto 's high-starch " quick fry " potato for the fast-food market. (SN14E.s49)	Merece la pena observar que gran parte de los productos alimentarios obtenidos de **cultivos transgénicos** se han comercializado para los consumidores de países industrializados ricos ; así ha sucedido, por ejemplo, con los tomates Flavr SavrTM de Calgene, producidos mediante ingeniería genética para reducir el coste de la elaboración de concentrado de tomate, y las patatas con alto contenido en almidón de Monsanto, que " se fríen rápido " y se han destinado al mercado de comida rápida. (SN14S.s46)	Favorable
158.	Multinationals are seeking to grow large areas of **transgenic crops** in the Third World - for example, tomatoes and potatoes for the major fast-food chains. (SN14E.s53)	Las multinacionales están tratando de sembrar grandes extensiones de **transgénicos** en el Tercer Mundo, como por ejemplo tomates y patatas, para las principales cadenas de restaurantes de comida rápida. (SN14S.s50)	Favorable
159.	If the first wave of **transgenic crops** are a success, however, further beneficial modifications, which are not considered financially viable at the present time, may be commercially produced. (SN14E.s74)	Sin embargo, si la primera oleada de **cultivos transgénicos** tiene éxito, es posible que se produzcan comercialmente más modificaciones provechosas, unas modificaciones que actualmente no se consideran viables desde el punto de vista económico. (SN14S.s70)	Favorable
160.	A range of **transgenic crops** are now in the development stages, which could make valuable contributions to subsistence Third World agriculture. (SN14E.s77)	Actualmente, se encuentran en fases de desarrollo varios **cultivos transgénicos**, que podrían constituir valiosas aportaciones para la agricultura de subsistencia del Tercer Mundo. (SN14S.s73)	Favorable
161.	The **transgenic crops** delivered to date have been patented in the industrialized world, will require specific agrochemical inputs that need to be bought from multinational companies, and will be grown at the expense of local crop varieties. (SN14E.s81)	Los **cultivos transgénicos** entregados hasta la fecha están patentados en el mundo industrializado, requerirán insumos agroquímicos específicos que hay que comprar a las compañías multinacionales y se cultivarán en detrimento de las variedades de cultivos locales. (SN14S.s77)	Concern (-)
162.	**Transgenic crops**: chemical dependency or sustainable agriculture? (SN14E.s84)	**CULTIVOS TRANSGÉNICOS**: ¿DEPENDENCIA DE LOS PRODUCTOS QUÍMICOS O AGRICULTURA SOSTENIBLE? (SN14S.s80)	Concern
163.	However, genetic engineering is not	Sin embargo, la ingeniería genética no se percibe,	Unfavorable

	currently perceived as being compatible with the ideas of sustainable agriculture, largely because of the emphasis on producing **herbicide-resistant transgenic crops**. (SN14E.s93)	actualmente, como algo compatible con las ideas de la agricultura sostenible, en gran medida por el hincapié que se ha hecho en la producción de **cultivos transgénicos resistentes a los herbicidas**. (SN14S.s89)	
164.	About 45 per cent of the releases of **transgenic crops** in European countries between 1992 and 1995 were of plants modified for herbicide resistance. (SN14E.s97)	Entre 1992 y 1995, alrededor del 45 % de las liberaciones de **cultivos transgénicos** en países europeos fueron de vegetales modificados para lograr resistencia a los herbicidas. (SN14S.s93)	Favorable
165.	The use of genes for Bacillus thuringiensis (B.t.) toxins to create insect-resistant **transgenic crops** may threaten the usefulness of B.t. sprays in IPM programmes (see Chapter 5). (SN14E.s101)	El empleo de genes de toxinas de Bacillus thuringiensis (B. t.) para crear **transgénicos** resistentes a los insectos puede poner en peligro la utilidad de las fumigaciones B. t. en programas de CIP (véase el capítulo 5). (SN14S.s97)	Concern (-)
166.	If large areas of **transgenic crops** containing B.t. genes were to be grown in an area, however, increased resistance to the toxin would build up in pest insect populations. (SN14E.s103)	No obstante, si en una zona se tuvieran que cultivar grandes extensiones de **transgénicos** con genes B. t., se desarrollaría una creciente resistencia a la toxina en las poblaciones de insectos nocivos. (SN14S.s99)	Concern (-)
167.	The **transgenic crops** produced to date have been designed for use in high-input industrial farming, like the high-yielding crop varieties of the Green Revolution before them. (SN14E.s104)	**Los transgénicos** producidos hasta la fecha están diseñados para utilizarse en cultivos industriales de altos insumos, igual que sucedió anteriormente con las variedades de alto rendimiento de la revolución verde. (SN14S.s100)	Neutral
168.	In common with the high-yielding crop varieties of the Green Revolution, **transgenic crops** also require high levels of irrigation, a drain on valuable water resources, particularly in developing countries. (SN14E.s111)	Al igual que las variedades de alto rendimiento que trajo la revolución verde, los **cultivos transgénicos** también requieren grandes dosis de regadío, una sangría para los valiosos recursos hidrológicos, sobre todo en los países en desarrollo. (SN14S.s107)	Unfavorable
169.	**Transgenic crops** need not necessarily carry on creating the negative effects of the Green Revolution, but could be used to solve some of them. (SN14E.s115)	Los **cultivos transgénicos** no tienen por qué seguir teniendo las consecuencias negativas de la revolución verde, sino que pueden emplearse para poner remedio a algunas de ellas. (SN14S.s111)	Favorable
170.	**Transgenic crops** are, however, in many cases unlikely to represent the most appropriate technology for food production. (SN14E.s117)	No obstante, en muchos casos, es poco probable que **los transgénicos** representen la tecnología más apropiada para la producción de alimentos. (SN14S.s113)	Concern (-)
171.	The danger for developing countries is that **transgenic crops** might come to replace the more appropriate technology of traditional methods. (SN14E.s129)	El peligro para los países en desarrollo es que los **cultivos transgénicos** puedan llegar a sustituir a la tecnología más adecuada de los métodos tradicionales. (SN14S.s125)	Concern (-)
172.	**Transgenic crops** are strongly promoted as being scientifically advanced and superior to previous varieties, and traditional practices may as a result come to be erroneously viewed as backward in some way. (SN14E.s130)	Se da mucha publicidad a **los transgénicos** afirmando que son avanzados desde el punto de vista científico y superiores a las variedades anteriores y, como consecuencia, puede ocurrir que las prácticas tradicionales se consideren, erróneamente, un retraso en cierto sentido. (SN14S.s126)	Concern (-)
173.	If **transgenic crops** are developed to thrive on degraded soils, and in drought conditions they may provide great benefits, there is a danger that they might cause complacency and lead to the sources of environmental	Si se desarrollan **cultivos transgénicos** para que crezcan bien en suelos degradados y resultan muy beneficiosos en condiciones de sequía, pueden suscitar autocomplacencia y contribuir a que se haga caso omiso a las causas de degradación	Concern (-)

	degradation being ignored. (SN14E.s132)	medioambiental. (SN14S.s128)	
174.	**Transgenic crops** may come to have an adverse effect on biodiversity, as previously mentioned. (SN14E.s135)	Cabe la posibilidad de que los **cultivos transgénicos** tengan efectos perjudiciales en la diversidad biológica, como ya se ha mencionado anteriormente. (SN14S.s131)	Concern (-)
175.	**Transgenic crops**, with a high genetic uniformity, may be promoted in preference to traditional varieties because of the presence of proprietary genes making them more profitable. (SN14E.s137)	Los **cultivos transgénicos**, con una elevada uniformidad genética, pueden potenciarse en detrimento de las variedades tradicionales, por la presencia de genes patentados que los hacen más rentables. (SN14S.s133)	Favorable
176.	As with **transgenic crops**, genetically modified animals are designed for a high-input, intensive and industrialized agriculture. (SN14E.s140)	Igual que sucede con los **cultivos transgénicos**, los animales modificados genéticamente están concebidos para una agricultura intensiva, industrializada y de altos insumos. (SN14S.s136)	Neutral
177.	However, the promise that **transgenic crops** would be a useful component in IPM programmes and of value to sustainable agricultural systems has not been fulfilled. (SN14E.s143)	Sin embargo, la promesa de que los **cultivos transgénicos** serían un componente útil de los programas de CIP y resultarían valiosos para los sistemas de agricultura sostenible no se ha cumplido. (SN14S.s139)	Concern (-)
178.	Farmers in developing countries will hope to increase their incomes by growing **transgenic crops**. (SN14E.s148)	Los agricultores de los países en desarrollo esperarán aumentar sus ingresos con el cultivo de **transgénicos.** (SN14S.s144)	Favorable
179.	Multinational companies fund most of the research in biotechnology and **transgenic crops**, and increasingly direct the types of research programmes conducted in universities. (SN14E.s155)	Las compañías multinacionales financian gran parte de las investigaciones en biotecnología y **cultivos transgénicos**, y cada vez tienen más influencia en los tipos de programas de investigación que se están llevando a cabo en las universidades. (SN14S.s151)	Favorable
180.	The flow of technical information to the Third World is slowing because of concerns regarding the patenting of **transgenic crops**. (SN14E.s156)	El flujo de información técnica hacia los países del Tercer Mundo se está ralentizando por las preocupaciones que suscitan las patentes de **cultivos transgénicos**. (SN14S.s152)	Concern (-)
181.	However, additional royalty payments are required to be paid to multinational companies if further generations of seed are grown from patented **transgenic crops**. (SN14E.s160)	Sin embargo, es obligatorio pagar a las compañías multinacionales una cantidad suplementaria en concepto de derechos si se cultivan más generaciones de semillas a partir de **cultivos transgénicos** patentados. (SN14S.s156)	Neutral (Regulation)
182.	Farmers in the Third World may also find their markets shrinking in the face of competition from alternatives produced in industrialized countries, either grown in temperate **transgenic crops** or produced using genetically modified microbes. (SN14E.s164)	Los agricultores del Tercer Mundo también pueden ver cómo se reducen sus cuotas de mercado ante la competencia de las alternativas producidas en países industrializados, ya sean desarrolladas en **cultivos transgénicos** templados o producidas con microbios modificados genéticamente. (SN14S.s160)	Concern (-)
183.	Continued consumer opposition in Europe to foods produced from **transgenic crops** is therefore aiding Third World countries as they adjust to the rapid changes in agricultural production initiated by biotechnology. (SN14E.s176)	Por lo tanto, la continuada oposición por parte de los consumidores europeos a los alimentos producidos a partir de **cultivos transgénicos** está ayudando a los países del Tercer Mundo, mientras se van adaptando a los rápidos cambios en la producción agrícola iniciados por la biotecnología. (SN14S.s171)	Unfavorable
184.	If the technology can be adapted to the specific needs of developing countries some **transgenic crops** might come to make positive contributions to food production, but only if tied to policies of land reform or	Si la tecnología puede adaptarse a las necesidades específicas de los países en desarrollo, algunos **cultivos transgénicos** pueden realizar contribuciones positivas a la producción alimentaria, pero sólo si van ligados a políticas de reforma agraria u otros cambios	Favorable

	other social and political changes that favor the distribution of food to those who need it most. (SN14E.s252)	políticos y sociales que favorezcan la distribución de alimentos entre quienes más los necesitan. (SN14S.s246)	
185.	For example, multinationals have hinted that profits need to be made on high-value products for markets in the industrialized nations before investments are made in **transgenic crops** for food production in the Third World. (SN15E.s5)	Por ejemplo, las multinacionales han insinuado que es preciso obtener beneficios de los productos de gran valor destinados a mercados de los países industrializados antes de invertir en **cultivos transgénicos** para producir alimentos en el Tercer Mundo. (SN15S.s5)	Concern (-)
186.	Even if no extra herbicide is sprayed on crops, as multinationals working in this area still claim, gene-licensing agreements ensure that farmers spray only agrochemicals approved by that company on **transgenic crops**. (SN15E.s16)	Incluso si no se fumiga más herbicida en los cultivos, como siguen asegurando las multinacionales que trabajan en el sector, los acuerdos de licencia para la explotación de genes garantizan que los agricultores sólo fumigarán los **cultivos transgénicos** con productos agroquímicos aprobados por la compañía. (SN15S.s16)	Concern (-)
187.	The main profit from the development of **transgenic crops** is the sale of seed, which can fetch a premium price with subsequent royalty payments. (SN15E.s17)	El principal beneficio que genera el desarrollo de **cultivos transgénicos** es la venta de semillas, que pueden alcanzar un precio más elevado con los posteriores pagos en concepto de derechos. (SN15S.s17)	Neutral
188.	**Transgenic crops** produced to date represent a continuation of the high-input and high-yield varieties of the Green Revolution. (SN15E.s18)	Los **cultivos transgénicos** producidos hasta la fecha suponen una continuación de las variedades de altos insumos y de alto rendimiento de la revolución verde. (SN15S.s18)	Favorable
189.	Farmers should reap major benefits from **transgenic crops** in the short term, by decreased weed, pest or disease problems leading to substantial profits. (SN15E.s23)	Los agricultores deberían obtener importantes beneficios de los **cultivos transgénicos** a corto plazo, pues al reducirse los problemas de malas hierbas, plagas o enfermedades, se generan considerables ganancias. (SN15S.s23)	Favorable
190.	Supermarkets also benefit from longer shelf-life fruit and vegetable produce, with potential reductions in wastage, although **transgenic crops** have to date been grown mainly for the food processing industry. (SN15E.s38)	Los supermercados también se benefician de la mayor durabilidad de frutas y verduras, con reducciones potenciales de los productos que se estropean, aunque, hasta la fecha, **los transgénicos** se hayan cultivado principalmente para la industria de alimentos procesados. (SN15S.s38)	Favorable
191.	Similarly, in a more recent survey conducted by Eurobarometer, in the EU in 1996, environmental organizations were the group trusted to tell the truth about **transgenic crops**, with industry and the media least trusted. (SN15E.s115)	Igualmente, en una encuesta más reciente, elaborada en 1996 por Eurobarometro en la Unión Europea, las organizaciones ecologistas eran los grupos en los que más se confiaba que dijeran la verdad sobre los **cultivos transgénicos**, con una menor confianza en la industria y los medios de comunicación (véase la nota 7). (SN15S.s114)	Unfavorable
192.	A number of other recent surveys have shown a similar result, including a UK survey, commissioned by the Department of Trade and Industry, of people living in areas close to trials of **transgenic crops**. (SN15E.s117)	Varias encuestas recientes han arrojado resultados similares, incluida una encuesta realizada en Gran Bretaña, a instancias del Departamento de Industria y Comercio, entre personas que residían en zonas cercanas a las pruebas de **cultivos transgénicos**. (SN15S.s116)	Concern (-)
193.	For example, in the UK a loophole in the government 's consultation process allows companies to proceed with field trials of **transgenic crops** before the public consultation time limit has elapsed. (SN15E.s123)	Por ejemplo, en el Reino Unido, una laguna legal en el proceso de consulta del gobierno permite que las compañías prosigan las pruebas de campo de **cultivos transgénicos** antes de que haya vencido el plazo para la consulta pública. (SN15S.s122)	Concern (-)

194.	This suggests that the public will find it increasingly difficult to object to the growing of **transgenic crops** as it becomes more common. (SN15E.s126)	Esto parece indicar que a la opinión pública cada vez le va a resultar más difícil poner objeciones al **cultivo de transgénicos** a medida que se vaya generalizando. (SN15S.s125)	Concern
195.	Furthermore, ecological risks posed by **transgenic crops** include the possibility of herbicide resistance genes jumping to weed species. (SN15E.s140)	Además, entre los riesgos ecológicos que plantean los **cultivos transgénicos** se incluye la posibilidad de que los genes de resistencia a los herbicidas salten a especies de malas hierbas. (SN15S.s139)	Unfavorable
196.	Most consumers in the UK were shown to be neither wildly enthusiastic nor stro opposed to foods from **transgenic crops**, according to their conclusions, which suggested that the public are still waiting to be persuaded one way or the other. (SN15E.s153)	Según sus conclusiones, se demostró que la mayor parte de los consumidores británicos no se mostraban entusiasmados con los alimentos obtenidos de **cultivos transgénicos**, pero tampoco se oponían de forma radical a ellos, lo que sugería que la opinión pública sigue esperando que se le convenza, en un sentido o en otro. (SN15S.s152)	Concern
197.	In 1997, over 4 million hectares of **transgenic crops** were grown in the USA and it is estimated that 60 per cent of the crop seed sold in the USA will have genetically modified characteristics by the year 2000. (SN15E.s249)	En 1997, se cultivaron más de cuatro millones de hectáreas de **transgénicos** en Estados Unidos y se calcula que, en el año 2000, el 60 % de las semillas vendidas en Estados Unidos tendrá características modificadas genéticamente. (SN15S.s246)	Neutral
	* *transgenic crop/s* (10)		
1.	For example, **herbicide-resistant transgenic crops** help to sell more of the same company 's herbicide. (SN15E.s15)	Por ejemplo, los **cultivos transgénicos resistentes a los herbicidas** contribuyen a vender más herbicida de la misma compañía. (SN15S.s15)	Favorable
2.	**Herbicide-resistant transgenic crops** make it possible to apply broad-spectrum herbicides, killing many species indiscriminately. (MH8E.s85)	Los **cultivos transgénicos resistentes a los herbicidas** hacen posible la aplicación de herbicidas de amplio espectro, matando a muchas especies en forma indiscriminada. (MH8S.s84)	Unfavorable
3.	**Herbicide-tolerant transgenic crops** make it possible to apply powerful broad-spectrum herbicides, which kill many species indiscriminately. (MH8E.s89)	Los **cultivos transgénicos tolerantes a los herbicidas** hacen posible la aplicación de potentes herbicidas de amplio espectro, matando a muchas especies indiscriminadamente. (MH8S.s91)	Unfavorable
4.	This is so for Monsanto 's " Roundup ", and for other herbicides produced by rival companies to be used on their own **resistant transgenic crops**. (MH8E.s90)	Esto sucede con el Roundup de Monsanto y otros herbicidas producidos por compañías rivales para ser utilizados sobre sus propios **cultivos transgénicos resistentes.** (MH8S.s92)	Unfavorable
5.	**Herbicide-tolerant transgenic crops** also become weeds in the form of " volunteer plants " germinated from seeds after the harvest, so that other herbicides have to be applied to eliminate them, with a further impact on indigenous biodiversity. (MH8E.s97)	También, los **cultivos transgénicos tolerantes a los herbicidas** pueden transformarse en malezas bajo la forma de " vegetación espontánea ", germinada luego de la cosecha, de modo que es preciso aplicar otros herbicidas para eliminarlas y esto tiene un nuevo impacto sobre la biodiversidad autóctona. (MH8S.s99)	Unfavorable
6.	At the same time the use of toxic, wide-spectrum herbicides with **herbicide-resistant transgenic crops** will result in the irretrievable loss of the indigenous agricultural and natural biological diversity on which food security depends. (MH8E.s151)	Al mismo tiempo, la utilización de herbicidas tóxicos de amplio espectro con **cultivos transgénicos resistentes a los herbicidas** provocará pérdidas irrecuperables de la diversidad biológica natural y agrícola autóctonas, de la que depende la seguridad de los alimentos. (MH8S.s153)	Unfavorable
7.	(2) The increased use of toxic pesticides with **pesticide-resistant transgenic crops**, leading to pesticide-related illnesses in farm	2. Mayor utilización de pesticidas tóxicos con **cultivos transgénicos resistentes a los pesticidas**, lo que lleva a enfermedades vinculadas a los pesticidas	Unfavorable

	workers and the contamination of food and drinking-water. (MH8E.s413)	en los trabajadores agrícolas, y a la contaminación del alimento y el agua potable. (MH8S.s415)	
8.	The planting of **herbicide-resistant transgenic crops** is likely, therefore, to lead to increased amounts of potentially hazardous herbicide being sprayed onto crops. (SN4E.s143)	Por lo tanto, la plantación de **cultivos transgénicos resistentes a los herbicidas** puede tener como consecuencia un aumento de la cantidad de herbicida potencialmente peligroso que se pulveriza en los cultivos. (SN4S.s144)	Concern (-)
9.	Several genes coding for different types of insect toxins had been identified, however, which were used to develop **insect-resistant transgenic crops**. (SN5E.s4)	A pesar de todo, se había logrado identificar varios genes que codificaban distintos tipos de toxinas insecticidas, que se utilizaban para desarrollar **cultivos transgénicos resistentes a los insectos.** (SN5S.s5)	Neutral
10.	A number of unique ecological risks are associated with **virus-resistant transgenic crops**, however, which may limit their deployment in field situations (see Chapter 7). (SN6E.s153)	No obstante, a los **cultivos transgénicos** resistentes a los virus se asocian varios riesgos ecológicos excepcionales, una circunstancia que puede limitar su desarrollo en situaciones de campo (véase el capítulo 7). (SN6S.s151)	Concern (-)
	2) **-resistant* (40)		
	Herbicide-resistant crop/s (29)		
1.	Monsanto argues that by using a **herbicide-resistant crop**, a single herbicide spray could be used to kill all weeds after the crop has started to emerge, including types of immature weeds that would normally have required spraying just before crop emergence. (SN4E.s131)	Monsanto sostiene que, utilizando un **cultivo resistente a los herbicidas**, una sola pulverización con herbicida serviría para eliminar todas las malas hierbas después de que las plantas hayan empezado a salir, incluidas aquellas variedades de malas hierbas jóvenes que, por lo general, requieren otra pulverización antes de que salga la planta. (SN4S.s132)	Favorable
2.	Canada leads the world in the development of **herbicide-resistant crops**, and its criteria for approving varieties for the market are strict. (EG4E.s147)	Canadá lidera el desarrollo de **cultivos resistentes a los herbicidas**, siendo sus criterios para la aprobación de éstos muy estrictos. (EG4S.s148)	Favorable
3.	It 's worth noting that many of the chemical companies that manufacture herbicides also own major seed companies, and stand to gain by selling both seeds for **herbicide-resistant crops** and the herbicides that help control weeds. (EG4E.s126)	Es importante señalar que muchas de las compañías químicas que fabrican herbicidas son asimismo propietarias de empresas productoras de semillas, e intentan redondear el negocio vendiendo tanto la **semilla resistente al herbicida** como el herbicida al que ésta puede resistir. (EG4S.s127)	Concern
4.	Will **herbicide-resistant crops** need less spraying? (EG4E.s127)	¿Necesitarán menos fumigaciones los **cultivos resistentes a los herbicidas**? (EG4S.s128)	Concern
5.	**Herbicide-resistant crops** are no longer at risk of damage by the weedkillers sprayed on to them, which allows for more efficient and flexible weed control. (SN1E.s91)	Los **cultivos resistentes a los herbicidas** ya no corren peligro de estropearse por culpa de los productos químicos con que se rocían, lo que permite un control de malas hierbas más flexible y eficaz. (SN1S.s87)	Favorable
6.	**Herbicide-resistant crops** are delivering significant weed control benefits for farmers around the world. (SN1E.s98)	Las **cosechas resistentes a los herbicidas** están generando significativos beneficios para los agricultores de todo el mundo en cuanto a control de malas hierbas se refiere. (SN1S.s93)	Favorable
7.	**Herbicide-resistant crops** have been a great commercial success, and farmers have made significant savings on their weed control costs. (SN1E.s105)	Los **cultivos resistentes a los herbicidas** han tenido un gran éxito comercial y los agricultores ahorran cantidades importantes en los costes que supone el control de malas hierbas. (SN1S.s100)	Favorable
8.	A study that modelled the spread of	Por ejemplo, un estudio que simulaba la propagación	Concern

	herbicide-resistant crops in the UK, for instance, concluded that the amount of land available might not be sufficient to allow the co-existence of organic and transgenic crops of the same type. (SN1E.s397)	de **cultivos resistentes a los herbicidas** en el Reino Unido llegó a la conclusión de que tal vez la cantidad de territorio disponible no fuera suficiente para garantizar la coexistencia de cultivos orgánicos y transgénicos del mismo tipo. (SN1S.s383)	
9.	In the UK, a programme of farm-scale evaluations with **herbicide-resistant crops** has been conducted to look at their potential environmental impacts. (SN1E.s402)	En las explotaciones agrícolas del Reino Unido, se ha llevado a cabo un programa de evaluaciones con **cultivos resistentes a los herbicidas** para estudiar sus posibles consecuencias medioambientales. (SN1S.s388)	Concern
10.	**T SN44. Herbicide-resistant crops**. (SN4E.s1)	CAPÍTULO 4. (SN4S.s1) **CULTIVOS RESISTENTES A LOS HERBICIDAS**. (SN4S.s2)	Neutral
11.	The seven leading agrochemical producers, accounting for over 60 per cent of the world market, had developed **herbicide-resistant crops**. (SN4E.s4)	Los siete productores principales de agroquímicos, que representan más del 60 % del mercado mundial, habían desarrollado **cultivos resistentes a los herbicidas**. (SN4S.s5)	Neutral
12.	Therefore, **herbicide-resistant crops** allow greater flexibility in the choice of crops and herbicide treatments during a rotation. (SN4E.s23)	En definitiva, los **cultivos resistentes a los herbicidas** permiten una mayor flexibilidad a la hora de elegir el cultivo y los tratamientos con herbicidas durante una rotación. (SN4S.s23)	Favorable
13.	Most **herbicide-resistant crops** were initially developed using Agrobacterium to integrate foreign genes into plant cells. (SN4E.s28)	En un principio, se desarrollaron muchos **cultivos resistentes a los herbicidas** empleando Agrobacterium para incorporar genes ajenos a las células vegetales. (SN4S.s28)	Neutral
14.	Monsanto has released **herbicide-resistant crops**, under experimental conditions, around the world. (SN4E.s114)	Monsanto ha liberado **cultivos resistentes a los herbicidas**, en condiciones experimentales, por todo el mundo. (SN4S.s115)	Neutral
15.	Glyphosate, for example, according to Monsanto has several desirable properties for a herbicide used on **herbicide-resistant crops**, including a broad-spectrum action, high unit activity, low volatility and soil mobility, and relatively low toxicity to aquatic life, birds and mammals. (SN4E.s122)	Por ejemplo, según Monsanto, el glifosato posee varias propiedades ventajosas como herbicida empleado en **cultivos resistentes**, como una acción de amplio espectro, una elevada actividad por unidad de superficie, una baja volatilidad y movilidad en el suelo y una toxicidad relativamente baja para la vida acuática, los pájaros y los mamíferos. (SN4S.s123)	Favorable
16.	However, **herbicide-resistant crops** could themselves become weeds in other crops, while related weedy species could acquire resistance through pollen transfer from transgenic crops. (SN4E.s124)	A pesar de todo, cabe la posibilidad de que los propios **cultivos resistentes a los herbicidas** se conviertan en malas hierbas para otros cultivos, al tiempo que otras especies de malas hierbas emparentadas pueden adquirir resistencia por transferencia de polen de cultivos transgénicos. (SN4S.s125)	Concern
17.	**Herbicide-resistant crops** are likely to increase the amount of herbicide sprayed into the environment. (SN4E.s129)	Es muy probable que los **cultivos resistentes a los herbicidas** incrementen la cantidad de herbicidas liberada en el medio ambiente. (SN4S.s130)	Concern
18.	**Herbicide-resistant crops** may lead to a more effective use of herbicides, but the argument that they will not lead to increased use of herbicide is difficult to sustain. (SN4E.s134)	Es probable que los **cultivos resistentes a los herbicidas** propicien un uso más eficaz de estos últimos, pero el argumento según el cual no incrementarán el uso de estas sustancias resulta difícil de apoyar. (SN4S.s135)	Concern
19.	With **herbicide-resistant crops**, however, a tendency may exist to overspray as there is unlikely to be an adverse effect on the crop plants. (SN4E.s139)	Sin embargo, con **cultivos resistentes a los herbicidas** puede darse una tendencia a la pulverización excesiva, ya que es poco probable que las plantas resulten perjudicadas. (SN4S.s140)	Concern

20.	Increased use of herbicides, due to widespread deployment of **herbicide-resistant crops**, could have a number of undesirable environmental effects. (SN4E.s144)	El incremento del uso de herbicidas, debido a la utilización generalizada de **cultivos resistentes a estas sustancias**, podría comportar varias consecuencias medioambientales indeseables. (SN4S.s145)	Concern (-)
21.	There is immense potential for **herbicide-resistant crops** to improve weed management and crop yields, while providing a more cost-effective and arguably more environmentally acceptable weed control. (SN4E.s161)	Los **cultivos resistentes a los herbicidas** poseen un enorme potencial para mejorar el control de las malas hierbas y aumentar el rendimiento de los cultivos, al tiempo que posibilitan un control de malas hierbas más rentable y, posiblemente, más aceptable desde el punto de vista medioambiental. (SN4S.s162)	Favorable
22.	**Herbicide-resistant crops** represent a high-input solution to weed control, however, which is not compatible with current ideas of sustainable agriculture. (SN4E.s167)	Sin embargo, los **cultivos resistentes a los herbicidas** constituyen una solución para el control de malas hierbas que requiere grandes dosis de inversión, algo que no resulta compatible con las actuales ideas sobre agricultura sostenible. (SN4S.s168)	Favorable
23.	It was used unsuccessfully by both the opponents of the OncoMouseTM patent, on the grounds that it encouraged cruelty to animals, and by opponents of the patenting of **herbicide-resistant crops**, on the grounds that they encouraged the indiscriminate spraying of crops with agrochemicals. (SN9E.s95)	Fue utilizada sin éxito por los detractores de la patente OncoMouseTM, que esgrimieron que fomentaba la crueldad a los animales ; y por los detractores de la patente de **cultivos resistentes a los herbicidas**, que sostuvieron que incitaba a la fumigación indiscriminada de cultivos con sustancias agroquímicas. (SN9S.s96)	Unfavorable
24.	In September 1996, approval was pending on applications to market several more crops in Europe, including further **herbicide-resistant crops** - for example, oilseed rape and maize resistant to glufosinate ammonium (Plant Genetic Systems and AgrEvo) and insect-resistant maize (Pioneer Hi-Bred, Monsanto and Ciba-Geigy). (SN12E.s84)	En septiembre de 1996, estaban pendientes de aprobación [de] solicitudes para comercializar varios cultivos más en Europa, que incluían más **cultivos resistentes a los herbicidas,** como colza y maíz resistentes al glufosinato amónico (Plant Genetic Systems y AgrEvo) y maíz resistente al insecticida (Pioneer Hi-Bred, Monsanto y Ciba-Geigy). (SN12S.s82)	Neutral (Regulation)
25.	The production of **herbicide-resistant crops** has been top of the multinationals research and development agenda, while research on improvements in photosynthesis, nitrogen fixation and drought resistance, which could probably have the most impact on world food production, is still at an early stage. (SN14E.s59)	La producción de **cultivos resistentes a los herbicidas** ha constituido la principal prioridad de los programas de investigación y desarrollo de las multinacionales, mientras que las investigaciones sobre mejora de la fotosíntesis, la fijación de nitrógeno y la resistencia a la sequía siguen aún en sus fases iniciales. (SN14S.s55)	Favorable
26.	However, the response of these companies has been to move forward enthusiastically with the development of **herbicide-resistant crops**. (SN14E.s95)	Sin embargo, la respuesta de estas compañías ha sido sumarse con entusiasmo al desarrollo de **cultivos resistentes a los herbicidas**. (SN14S.s91)	Favorable
27.	**Herbicide-resistant crops** are widely seen as likely to increase herbicide use (see Chapter 4). (SN14E.s99)	Los **cultivos resistentes a los herbicidas** son considerados por la mayoría como un factor con probabilidades de aumentar el uso de herbicidas (véase el capítulo 4). (SN14S.s95)	Concern (-)
28.	**Herbicide-resistant crops** reduce yield loss due to weeds. (SN15E.s25)	Los **cultivos resistentes a los herbicidas** reducen las pérdidas en las cosechas provocadas por las malas hierbas. (SN15S.s25)	Favorable
29.	The major public relations problems for the	Los principales problemas de imagen para las	Concern (-)

	multinationals in the biotechnology industry are probably the abundance of the foods that are being genetically modified, and the development of **herbicide-resistant crops**, which are perceived as increasing the levels of agrochemicals in the environment. (SN15E.s142)	compañías de la industria biotecnológica surgen, posiblemente, de lo abundantes que resultan los alimentos que están siendo objeto de modificaciones genéticas y del desarrollo de **cultivos resistentes a los herbicidas**, que se cree que aumentan los niveles de productos agroquímicos en el medio ambiente (véase la nota 10). (SN15S.s141)	
	Insect-resistant crop/s (6)		
30.	In May 1995, NewLeaf Russet Burbank potatoes became the first **genetically modified**, **insect-resistant crop** to receive full U.S. federal regulatory approval for commercialization, and grocery stores now sell potatoes with added bacterial genes. (EG4E.s242)	Las patatas de la variedad NewLeaf Russet Burbank fueron el primer **cultivo** genéticamente modificado **para resistir a las plagas** que recibió la plena aprobación del gobierno federal de Estados Unidos, necesaria para su comercialización, en mayo de 1995 ; desde entonces se venden patatas con genes bacterianos adicionales. (EG4S.s243)	Favorable
31.	Virtually all commercial **insect-resistant crops** have been engineered with genes from the bacterium Bacillus thuringiensis (B.t.).These transgenes express toxins that are specifically toxic to immature stages of insects. (SN1E.s119)	Prácticamente todos los **cultivos** comerciales **resistentes a los insectos** han sido manipulados introduciéndoles genes de la bacteria Bacillus thuringiensis (B. t.). (SN1S.s114) Estos transgenes expresan toxinas que resultan toxicas para el periodo larvario de algunos insectos específicos. (SN1S.s115)	Neutral
32.	**T SN5**5. **Insect-resistant crops** and a modified insect baculovirus. (SN5E.s1)	CAPÍTULO 5. (SN5S.s1) **CULTIVOS RESISTENTES A LOS INSECTOS** Y UN VACULOVIRUS INSECTICIDA MODIFICADO. (SN5S.s2)	Neutral
33.	The use of **insect-resistant crops** also promises improvements for the environment compared to conventional insecticide spraying. (SN5E.s155)	El uso de **cultivos resistentes a los insectos** también resulta muy prometedor para el medio ambiente, en comparación con las fumigaciones de insecticida convencional. (SN5S.s155)	Favorable
34.	Further information, for example correlating the mortality levels of pests to toxin levels present in leaves, would slow down the deployment of **insect-resistant crops**, not something that companies wanting a return on their investment want. (SN5E.s208)	Una mayor información que, por ejemplo, estableciera una correlación entre las tasas de mortalidad en las plagas y los niveles de toxinas presentes en las hojas ralentizaría el despliegue de **cultivos resistentes a los insectos**, algo que no quieren las compañías que desean recuperar su inversión. (SN5S.s207)	Concern
35.	The approval of further herbicide- or **insect-resistant crops** was pending under Directive 90/220/EEC during 1997, including canola (spring oilseed rape) resistant to glufosinate ammonium (Plant Genetic Systems), and various insect-resistant maize varieties (Northrup King and Pioneer Hi-Bred). (SN12E.s210)	Durante 1997, de acuerdo con la Directiva 90/220/EEC, quedó pendiente la aprobación de más **cultivos resistentes a** los herbicidas o **los insecticidas**, como canola (colza de primavera) resistente al glufosinato amónico (Plant Genetic Systems) y varias variedades de maíz resistente a los insecticidas (Northrup King y Pioneer Hi-Bred). (SN12S.s207)	Concern
	Others-resistant crop/s (5)		
36.	In a poll conducted in Europe in 1996, **insect**- and **disease-resistant crops** were perceived as more useful, less risky arid more morally acceptable than foods produced with a longer shelf-life or modified for taste or biochemical composition. (SN15E.s78)	En una encuesta realizada en Europa en 1996, los **cultivos resistentes a insectos y enfermedades** se consideraron más útiles, menos peligrosos y más aceptables desde el unto de vista moral que los alimentos desarrollados para conseguir una mayor durabilidad antes de la venta o aquellos con modificaciones en el sabor o la composición bioquímica. (SN15S.s78)	Favorable
37.	Risks posed by **virus-resistant crops**.	RIESGOS PLANTEADOS POR **CULTIVOS**	Unfavorable

	(SN7E.s81)	**RESISTENTES A LOS VIRUS**. (SN7S.s81)	
38.	**Virus-resistant crops** will contain viral genes in all their cells for the lifetime of the plants, and given the ability of viruses to acquire, recombine and swap genetic material, the deployment of large areas of these transgenic crops may create the ideal conditions for new disease-causing viruses to evolve. (SN7E.s97)	Los **cultivos resistentes a los virus** contendrán genes víricos en todas sus células mientras vivan las plantas y, si tenemos en cuenta la capacidad de los virus para adquirir, recombinar e intercambiar material genético, la utilización de grandes zonas con estos cultivos transgénicos puede crear condiciones idóneas para que evolucionen nuevos virus causantes de enfermedades. (SN7S.s97)	Concern
39.	The main commercial motivation behind **Monsanto 's Roundup ReadyTM (glyphosate-resistant) crops** is the preservation of market share for their brand-name herbicide. (SN1E.s103)	La principal motivación comercial que hay detrás de los **cultivos Roundup ReadyTM** de Monsanto (**resistentes** al glifosato) es mantener la cuota de mercado de su herbicida con marca. (SN1S.s98)	Favorable
40.	Although much research was done on obtaining resistance to them during the 1980s, few experimental releases of **triazine-resistant crops** have been made in recent years. (SN4E.s93)	Aunque en la década de 1980 se llevaron a cabo muchas investigaciones para lograr la resistencia a estas sustancias (véase la nota 3), en los últimos años se han realizado pocas liberaciones experimentales de **cultivos resistentes a la triazina** (véase la nota 5). (SN4S.s94)	Favorable
	3) *Genetically modified* crop/s (24)		
1.	There is no need for **genetically modified crops**. (MH8E.s144)	No hay ninguna necesidad de **cultivos modificados genéticamente**. (MH8S.s146)	Unfavorable
2.	There is no need for **genetically modified crops**. (MH8E.s147)	No hay ninguna necesidad de **cultivos modificados genéticamente**. (MH8S.s149)	Unfavorable
3.	Transgenic or **genetically modified (GM) crops** entered the diet as ingredients in processed food rather than as discrete food items. (SN1E.s6)	Los **cultivos** transgénicos o **modificados genéticamente (MG)** se habían introducido en la dieta como ingredientes de los alimentos procesados y no tanto como alimentos específicos. (SN1S.s7)	Neutral
4.	The scale of experimental releases of **genetically modified crops** during the mid-1990s is outlined, indicating the massive investment in research and development in this area. (SN1E.s39)	Asimismo, se hace hincapié en la cuantía de las liberaciones experimentales de **cultivos transgénicos** que se produjeron a mediados de la década de 1990, un indicio de la importante inversión en investigación y desarrollo que se ha realizado en este campo. (SN1S.s39)	Favorable
5.	The potential risks to human health from **genetically modified crops** are discussed in Chapter 8. (SN1E.s217)	En el capítulo 8 se analizan los posibles riesgos para la salud humana derivados de los **cultivos transgénicos**. (SN1S.s208)	Concern
6.	**Genetically modified crops** arrived with promises of reductions in pesticide use, but critics pointed to the emphasis on crops engineered for herbicide resistance, with transgenic seeds and herbicides produced by the same company. (SN1E.s342)	Los **cultivos modificados genéticamente** llegaron con la promesa de reducir el uso de pesticidas, pero sus detractores han destacado el énfasis puesto en los cultivos manipulados genéticamente para conferirles resistencia a los herbicidas, con las semillas transgénicas y los herbicidas producidos por la misma compañía. (SN1S.s330)	Unfavorable
7.	This has relevance for genetic engineering, as the risk of gene spread is a possibility with certain **genetically modified crops**. (SN1E.s484)	Este hecho tiene relevancia para la ingeniería genética, ya que el riesgo de propagación de genes es una posibilidad en determinados **cultivos modificados genéticamente**. (SN1S.s470)	Concern
8.	The speed of progress in producing commercial **genetically modified crops**, and other organisms, has also been much quicker than during the green revolution.	El progreso en la producción de **cultivos** comerciales **modificados genéticamente**, y otros organismos, también ha avanzado a un ritmo más rápido que durante la revolución verde. (SN1S.s512)	Favorable

	(SN1E.s527)		
9.	The Agracetus patent was instrumental in gaining the company broad patent rights to **genetically modified crops** (see Chapter 10). (SN2E.s203)	La patente de Agracetus contribuyó de forma decisiva a que la empresa obtuviera amplios derechos de patente que contemplaban **cultivos transgénicos** (véase el capítulo 10). (SN2S.s201)	Favorable
10.	The increasing number of variants of **genetically modified crops**, with different gene combinations, may mean that different variants have different markers, whose identity is preserved from the farm through processing into food items. (SN5E.s140)	El número cada vez mayor de variantes de **cultivos modificados genéticamente**, con combinaciones génicas diferentes, puede significar que las distintas variantes tengan marcadores distintos, cuya identidad se mantenga desde el lugar de cultivo y durante todo el procesamiento hasta convertirse en producto alimentario. (SN5S.s140)	Neutral
11.	This was the first major planting of a **genetically modified crop** in the UK. (SN5E.s105)	Constituyó la primera plantación importante de un **cultivo transgénico** en el Reino Unido. (SN5S.s105)	Neutral
12.	**Genetically modified crops** are therefore starting to make major contributions in a number of areas, in addition to food production. (SN6E.s310)**/T**	Por consiguiente, los **cultivos modificados genéticamente** están empezando a hacer importantes contribuciones en varios ámbitos, además de en el campo de la producción alimentaria. (SN6S.s304)	Favorable
13.	Therefore it is the pure-breeding lines of **genetically modified crops** that are patented, and these are crossed with other varieties to produce hybrid crops containing the transgenes. (SN10E.s28)	Por consiguiente, lo que se patenta son los linajes puros de **cultivos transgénicos** y se cruzan con otras variedades para producir cultivos híbridos que contienen los transgenes. (SN10S.s28)	Neutral
14.	The first of these alternatives, the Notification Process, streamlined the permit procedure for six **genetically modified crops**: maize, soybean, cotton, potatoes, tomatoes and tobacco. (SN11E.s41)	La primera de ellas, el " Proceso de Notificación ", racionalizaba el trámite para seis **cultivos transgénicos**: maíz, soja, algodón, patatas, tomates y tabaco. (SN11S.s41)	Neutral
15.	The first large-scale plantings of **genetically modified crops** occurred in the USA in 1996 ; 1.2 million hectares of transgenic soybeans, cotton, maize and other crops. (SN12E.s33)	En 1996 se realizo en Estados Unidos la primera plantación a gran escala de **cultivos modificados genéticamente**: 1,2 millones de hectáreas de soja, algodón, maíz y otros transgénicos. (SN12S.s31)	Neutral
16.	By September 1996, the European Commission (EC) had approved a number of **genetically modified crops** for the European market, under Directive 90/220/EEC. (SN12E.s37)	En septiembre de 1996, la Comisión Europea (CE) autorizó varios **cultivos transgénicos** para el mercado europeo, con arreglo a la Directiva 90/220/EEC. (SN12S.s35)	Neutral (Regulation)
17.	Monsanto hopes that imports will soon return to normal, as it sees **genetically modified crops** soon becoming acceptable to most consumers. (SN12E.s66)	Monsanto alberga la esperanza de que las importaciones no tarden en volver a la normalidad, porque va viendo que los **cultivos modificados genéticamente** enseguida resultan aceptables para la mayoría de los consumidores. (SN12S.s64)	Favorable
18.	The different policies adopted by member states towards **genetically modified crops** opened serious splits within the European single market. (SN12E.s155)	Las diferentes políticas adoptadas por los Estados miembros con respecto a los **cultivos transgénicos** abrieron graves brechas en el mercado único europeo. (SN12S.s153)	Concern (-)
19.	European food industry associations, meanwhile, continued to disagree among themselves on whether **genetically modified crops** could feasibly be segregated from non-modified varieties. (SN12E.s202)	Entretanto, las asociaciones europeas de industrias alimentarias seguían sin ponerse de acuerdo con respecto a si era factible separar los **cultivos transgénicos** de las variedades no modificadas (véase la nota 16). (SN12S.s199)	Concern

20.	The agrochemical and biotechnology industries in Europe, meanwhile, fear they will be left behind if further obstacles are put in the way of marketing **genetically modified crops**. (SN12E.s207)	Entretanto, las industrias agroquímicas y biotecnológicas europeas temen quedarse atrás si se ponen más obstáculos a la comercialización de **cultivos transgénicos**. (SN12S.s204)	Concern
21.	Further imports of mixed shipments of **genetically modified** and unmodified **crops** to Europe followed in 1997, for crops that had received EC approval. (SN12E.s196)	En 1997 llegaron a Europa más cargamentos mezclados de **cultivos transgénicos** y no modificados, unos cultivos que habían recibido la autorización de la CE. (SN12S.s193)	Favorable
22.	A range of other **genetically modified crops** and foods were also pending approval by the EC by 1998. (SN12E.s215)	En 1998, varios **cultivos** y alimentos **transgénicos** también quedaron pendientes de autorización por parte de la CE. (SN12S.s212)	Concern
23.	Much of the initial research on **genetically modified crops** was aimed at making crops resistant to attack by pests and disease, which would reduce pesticide use. (SN14E.s85)	La mayor parte de las primeras investigaciones sobre **cultivos modificados genéticamente** tenía como objetivo producir cultivos resistentes a los ataques de plagas y enfermedades, un factor que reduciría el uso de pesticidas. (SN14S.s81)	Favorable
24.	In the light of recent research, there might not be enough knowledge or sufficient understanding of gene regulation to predict the risks **genetically modified crops** pose. (SN15E.s65)	A la luz de las investigaciones más recientes, es probable que no se conozca o no se comprenda lo suficiente la regulación génica como para predecir los riesgos de los **cultivos transgénicos**. (SN15S.s65)	Concern
	4) *Bt* crop/s (13)		
1.	One of the first commercial **B.t. crops** was maize modified to be resistant to the European corn borer (Ostrinia nubilalis), by Ciba-Geigy (Novartis, and then Syngenta). (SN1E.s121)	Uno de los primeros **cultivos B. t.** que comercializó Ciba-Geigy (Novartis y, por entonces, Syngenta) fue el maíz modificado para resistir a la oruga del taladro europea (Ostrinia nubilalis). (SN1S.s117)	Neutral
2.	The management of insect resistance is therefore a necessary part of the cultivation of **B.t. crops**. (SN1E.s126)	Por consiguiente, el control de la resistencia a los insectos constituye una parte necesaria del cultivo de **cosechas modificadas con B.t.** (SN1S.s122)	Neutral
3.	The management of **B.t. crops** is also threatened by their illegal, and therefore unregulated, cultivation. (SN1E.s139)	El control de las **cosechas B.t.** también se ve amenazado por los cultivos ilegales y, por lo tanto, sin regulación. (SN1S.s135)	Concern
4.	Effective resistance management must be established in all cases if **B.t. crops** are to offer more than just short-term benefits to farmers. (SN1E.s142)	Es imprescindible determinar un control efectivo de la resistencia en todos los casos si los **cultivos B.t.** han de ofrecer algo más que simples beneficios a corto plazo para los agricultores. (SN1S.s138)	Concern
5.	If whole areas were to be grown with **transgenic B.t. crops**, few susceptible insects would survive, and insects resistant to B.t. would quickly dominate the population. (SN5E.s187)	Si se cultivaran zonas enteras con **cultivos transgénicos B. t.**, sobrevivirían pocos insectos vulnerables y los insectos resistentes a la B. t. no tardarían en dominar la población. (SN5S.s186)	Concern (-)
6.	It is also uncertain whether the toxin is being delivered in doses that are high enough for the refugia strategy to work in current **B.t. crops**. (SN5E.s196)	Tampoco se tiene la seguridad de que se esté liberando la toxina en dosis lo bastante elevadas como para que la estrategia de los refugios funcione con los actuales **cultivos B. t.** (SN5S.s195)	Concern
7.	One reason **Bt-engineered crops** are expected to promote pest resistance is that they produce the toxin continuously, unlike Bt sprays, which expose insects only	Una razón por la que se teme que los **cultivos manipulados genéticamente** con Bt puedan desarrollar parásitos resistentes se basa en que estos cultivos producen la toxina de modo constante,	Neutral (English)/ Concern (-) (Spanish)

	periodically. (EG4E.s246)	mientras que las pulverizaciones con Bt exponen a los insectos a la toxina tan sólo de manera esporádica. (EG4S.s247)	
8.	A typical customer for **Bt-expressing crops** is either encouraged or, in some cases, required to rotate the genetically altered crop with others, to mix different varieties of seeds, to continue using some chemical sprays where needed, and to plant areas of crops that do n't contain Bt toxins among engineered plants that do. (EG4E.s255)	Un usuario de **semillas manipuladas genéticamente** con el Bt puede ser invitado, o incluso obligado, a rotar su cultivo con otras que no lo hayan sido, con la finalidad de mezclar diferentes variedades de semillas, a continuar utilizando plaguicidas químicos en determinadas circunstancias, y a intercalar zonas con cultivos carentes del Bt entre las que lo contengan. (EG4S.s256)	Concern
9.	Bt 's advantages, however, may quickly prove to be its downfall if more farmers rush to plant **Bt-engineered crops**. (EG4E.s262)	Las ventajas del Bt, sin embargo, podrían causar bien pronto su propio ocaso si cada vez más agricultores se apresuran a plantar **semillas manipuladas genéticamente** con él. (EG4S.s263)	Concern (-)
10.	An early warning sign came in the summer of 1996, when thousands of acres of one of the first **Bt cotton crops** grown in the southern U.S. were infested by cotton bollworms. (EG4E.s263)	El primer aviso llegó en el verano de 1996, cuando cientos de hectáreas de uno de los primeros **cultivos de algodón tratado con Bt** plantado en el sur de Estados Unidos fueron infestadas por la mariposa del algodón. (EG4S.s264)	Unfavorable
11.	Until we know more about it, say some environmental groups, the government should place a moratorium on further planting of **Bt crops**. (EG4E.s268) Whatever the final analysis, the infestation of engineered crops is a valuable reminder that 100 percent elimination of pests is neither possible nor desirable. (EG4E.s269)	Hasta que lo sepamos con certeza, dicen algunos grupos medioambientales, la infestación de **cultivos transgénicos** constituye un buen recordatorio de que la eliminación de las plagas al ciento por ciento no es ni posible ni deseable. (EG4S.s269)	Concern
12.	For example, an issue of Science magazine in July 1996 carried the news headline: " Pests overwhelm **Bt cotton crop**. " (EG4E.s375)	El número de julio de 1996 de Science, por ejemplo, decía en la portada: " Las plagas asolan los **cultivos de algodón tratado con Bt.** " (EG4S.s375)	Concern (-)
13.	Bt-resistance contributed substantially to the problems experienced by the **Bt-cotton crop** in the United States and Australia in 1996-7. (MH8E.s283)	La resistencia al Bt contribuyó sustancialmente a los problemas experimentados por el **cultivo del algodón Bt** en Estados Unidos y Australia durante 1996-7. (MH8S.s285)	Concern (-)
	5) *Genetically engineered* crop/s (8)		
1.	If field tests are successful, a petition must be filed for USDA exemption before a **genetically engineered crop** can be sold commercially. (SN11E.s52)	Si las pruebas de campo tienen un resultado positivo, debe rellenarse una solicitud de exención del USDA antes de que pueda comercializarse un **cultivo transgénico.** (SN11S.s52)	Unfavorable
2.	Today, millions of people are calling for an outright ban on transgenic agriculture, or at least for an immediate moratorium on further releases of **genetically engineered crops**. (MH1E.s172)	Hoy en día, millones de personas exigen una categórica prohibición de la agricultura transgénica, o al menos una moratoria inmediata sobre nuevos lanzamientos de **cultivos modificados por ingeniería genética**. (MH1S.s172)	Unfavorable
3.	While opposition was building up in Europe the biotech companies have chosen the Third World in which to develop markets for their **genetically engineered crops**. (MH1E.s209)	Mientras la oposición aumentaba en Europa, las compañías de biotecnología eligieron al Tercer Mundo como el sitio en el cual desarrollar mercados para sus **cultivos modificados genéticamente**. (MH1S.s209)	Unfavorable
4.	The corporations will stop at nothing to force **genetically engineered crops** and	Las corporaciones no se detendrán ante nada en su meta de imponer a todo el mundo los **cultivos** y	Unfavorable

	products on the world ; but civil society is fighting back, and science is playing a central role. (MH2E.s193)	productos **modificados genéticamente** ; pero la sociedad civil se resiste y la ciencia desempeña un papel central. (MH2S.s194)	
5.	Margaret Mellon and Jane Rissler have this to say: ' Care should be taken in citing the field test record as strong evidence for the safety of **genetically engineered crops**. (MH2E.s211)	Margaret Mellon y Jane Rissler dicen lo siguiente: " Es necesario tener precaución al citar el registro de una prueba de campo como fuerte evidencia de la seguridad de los **cultivos genéticamente modificados**. (MH2S.s212)	Concern
6.	The major ecological concerns with **genetically engineered crops** are: a) that they may, by gaining in vigour or invasiveness, become weeds of agricultural or natural habitats, and b) that genes may be transferred from them to wild relatives, whose hybrid offspring become detrimental in some way to the existing flora or fauna. (SN7E.s8)	Las principales preocupaciones ecológicas que suscitan los **cultivos modificados mediante ingeniería genética** son: en primer lugar, que, al ganar vigor o invasividad, pueden convertirse en malas hierbas de hábitats agrícolas o naturales ; y, en segundo lugar, que pueden transferir genes propios a parientes silvestres, cuya descendencia híbrida puede perjudicar, en algún sentido, a la fauna o flora existentes. (SN7S.s9)	Concern (-)
7.	The risks may be small, but as increasing numbers of **genetically engineered crops** are grown in the countryside, all such potential risks need to be seriously addressed. (SN8E.s39)	Tal vez el riesgo no sea demasiado elevado, pero como en el campo cada vez crecen más **cultivos transgénicos**, deben abordarse con rigor todos los riesgos potenciales de esta naturaleza. (SN8S.s40)	Concern
8.	In addition, the countries where patent-holding multinationals are based could be within their rights to prohibit imports of raw materials or finished goods derived from **genetically engineered crops** covered by species-wide patents but not sanctioned by the patent holder - for example, cotton clothing from India or soypaste from Brazil. (SN10E.s117)	Además, los países donde tienen su sede las compañías titulares de patentes estarían en su derecho de prohibir las importaciones de materias primas o bienes terminados derivados de **cultivos transgénicos** protegidos por patentes que contemplen una especie entera y no autorizados por el titular ; por ejemplo, prendas de vestir elaboradas con algodón de la India o pasta de soja de Brasil (véase la nota 9). (SN10S.s115)	Unfavorable
	6) *Genetically* * crop/s (5)		
1.	Monocultures are prone to pest and disease outbreaks because of their genetic uniformity, while **genetically diverse crops** contain a proportion of plants that are likely to have some degree of resistance to pests and diseases. (SN14E.s32)	Los monocultivos son propensos a sufrir brotes de plagas o enfermedades por su uniformidad genética, mientras que los **cultivos diversos desde el punto de vista genético** contienen un porcentaje de plantas capaces de presentar algún grado de resistencia a plagas y enfermedades. (SN14S.s29)	Favorable
2.	One of the most resounding cases was a referendum in Austria during April 1997, involving 1.2 million people, who agreed to the following: ' No food from genetic laboratories in Austria ; no field trials of **genetically manipulated crops** in Austria ; and no patents on life. " (SN15E.s193)	Uno de los casos más rotundos fue un referendo celebrado en Austria en abril de 1997, donde 1,2 millones de personas convocadas a las urnas convinieron en lo siguiente: " No a los alimentos procedentes de laboratorios genéticos en Austria ; no a las pruebas de campo con **cultivos manipulados genéticamente** en Austria ; y no a las patentes de la vida ". (SN15S.s192)	Unfavorable
3.	The Electric Power Research Institute (EPRI) in the United States believes that biomass could make a major contribution to the nation 's supply of electricity within the next two decades, using new plantations of **genetically altered, rapidly growing crops** planted especially for the purpose of supplying energy. (EG5E.s284)	El Electric Power Research Institute (EPRI), de Estados Unidos, opina que la biomasa podría contribuir en gran medida al suministro nacional de electricidad en las dos próximas décadas, mediante la utilización de nuevas **plantaciones** de árboles **de crecimiento rápido genéticamente modificados**, plantados específicamente para su utilización como fuente de energía. (EG5S.s279)	Favorable

4.	Field releases of **genetically transformed crops** in Europe between 1992 and 1995 were conducted mainly in France (95 releases), Belgium (59), Great Britain (58) and The Netherlands (51). (SN1E.s538)	Las liberaciones sobre el terreno de **cultivos manipulados genéticamente** en Europa entre 1992 y 1995 tuvieron lugar, principalmente, en Francia (95 liberaciones), Bélgica (59), Gran Bretaña (58) y los Países Bajos (51). (SN1S.s523)	Unfavorable
5.	One such activist, John Seymour, an 84-year old author and organic farmer, compares the invasion of Ireland by **Monsanto 's genetically " mutilated crops** " to the Norman invasion and sees it as his duty to defend his country, even to the extent of going to prison. (MH1E.s187)	Uno de estos activistas, John Seymour, escritor y granjero orgánico de 84 años de edad, compara la invasión de Irlanda por parte de los **cultivos " genéticamente mutilados " de Monsanto** con la invasión normanda, y considera que es su deber defender a su país, aun al punto de ir a prisión. (MH1S.s188)	Unfavorable
	7) *Modified* crop/s (4)		
1.	The produce from entire regions is pooled and sold in bulk and therefore **modified** and unmodified **crop** is mixed together, making labelling further down the distribution line difficult. (SN13E.s44)	Los productos obtenidos en regiones enteras se juntan y se venden al por mayor, lo que tiene como consecuencia la mezcla de **cultivos modificados** y no modificados, una circunstancia que dificulta el etiquetado en los niveles inferiores de la línea de distribución. (SN13S.s44)	Concern
2.	Will food from **modified crops** or livestock be safe to eat? (EG7E.s371)	¿Serán seguros los alimentos a base de animales y **plantas transgénicos**? (EG7S.s368)	Concern
3.	In this chapter, genetically modified soybeans and maize are followed through the marketing approval process in Europe, and the controversy surrounding the lack of segregation between **modified** and unmodified **crops** is examined. (SN12E.s5)	En este capítulo, se examina el proceso de autorización que siguen la soja y el maíz transgénicos en Europa y la controversia que rodea a la falta de separación entre **cultivos modificados** y no modificados. (SN12S.s5)	Concern
4.	If processed food products manufactured from mixed imports of **modified** and unmodified **crops** were to be labelled as possibly containing genetically modified material, then such labels would be " meaningless ", according to the European Bureau of Consumer Unions (BEUC). (SN13E.s118)	Si fuera necesario etiquetar los productos alimentarios procesados que se elaboran a partir de importaciones mezcladas de **cultivos modificados** y no modificados para dejar constancia de que, posiblemente, contienen material transgénico, tales etiquetas " no tendrían sentido ", según la Oficina Europea de Asociaciones de Consumidores (OEAC). (SN13S.s118)	Concern
	8) *Engineered* crop/s (4)		
1.	In the end, there seems little doubt that **engineered crops** and livestock will play a growing role in food production. (EG4E.s154)	A la larga, parece haber pocas dudas de que los animales y **cultivos genéticamente manipulados** irán adquiriendo un papel cada vez más preponderante en la producción de alimentos. (EG4S.s155)	Favorable
2.	Until we know more about it, say some environmental groups, the government should place a moratorium on further planting of Bt crops. (EG4E.s268) Whatever the final analysis, the infestation of **engineered crops** is a valuable reminder that 100 percent elimination of pests is neither possible nor desirable. (EG4E.s269)	Hasta que lo sepamos con certeza, dicen algunos grupos medioambientales, la infestación de **cultivos transgénicos** constituye un buen recordatorio de que la eliminación de las plagas al ciento por ciento no es ni posible ni deseable. (EG4S.s269)	Unfavorable
3.	Beneficial effects for human health have also been proposed for **engineered crops** compared to conventionally sprayed crops. (SN5E.s162)	También se han planteado las consecuencias beneficiosas para la salud humana de los **cultivos modificados mediante ingeniería genética** en comparación con los cultivos fumigados de modo convencional. (SN5S.s162)	Favorable
4.	Traditional plant breeding is largely	En gran medida, la mejora vegetal tradicional carece	Neutral

	unregulated, while the effects of **engineered crops** are closely monitored and regulated. (SN5E.s171)	de regulaciones, mientras que las consecuencias de los **cultivos modificados mediante ingeniería genética** están sometidas a regulaciones y a un estrecho control. (SN5S.s170)	(Regulation)
		9) *Herbicide-tolerant* crops (3)	
1.	The attraction of **herbicide-tolerant crops** for farmers is that it lets them control weeds more efficiently and cheaply. (EG4E.s119)	El atractivo para los agricultores de las **plantas resistentes a los herbicidas** reside en que les permite controlar las malas hierbas de modo más eficiente y económico. (EG4S.s120)	Favorable
2.	As a result, the industry 's focus on producing **herbicide-tolerant crops** could undermine efforts to encourage alternative, nonchemical methods of weed control that may be more sustainable in the long term. (EG4E.s135)	Como resultado, el interés de la industria en la producción de **plantas resistentes a los herbicidas** podría minar los esfuerzos para estimular métodos no químicos alternativos para el control de las malas hierbas susceptibles de resultar más sostenibles a largo plazo. (EG4S.s136)	Concern
3.	Another hazard from **herbicide-tolerant crops** is the spread of transgenes to wild relatives by cross-hybridisation, creating " superweeds ". (MH8E.s95)	Otro peligro de los **cultivos tolerantes a los herbicidas** es la difusión de transgenes a especies silvestres emparentadas por hibridación cruzada, creando así " supermalezas ". (MH8S.s97)	Unfavorable
		10) *New* crop/s (3)	
1.	We have created **new crops**, livestock, and domestic pets for centuries by altering wild ancestral genes through selective breeding. (EG7E.s335)	Hemos creado **nuevos cultivos**, ganado y animales de compañía durante siglos, alterando los genes originales mediante la cría selectiva. (EG7S.s332)	Neutral
2.	The organization is surveying the country for suitable areas of land with the best soil, nutrients, water, climate, and topography needed to grow and harvest the **new crop**. (EG5E.s285)	Esta organización busca las zonas dotadas del suelo, nutrientes, agua, clima y topografía más adecuados para el crecimiento y la de las **nuevas plantaciones**. (EG5S.s280)	Neutral
3.	The **new crops** favored large farms, and large landowners came to displace poor farmers, who could not benefit from the new seed varieties. (SN1E.s504)	Los **nuevos cultivos** favorecieron a las grandes explotaciones agrícolas y los grandes terratenientes llegaron a desplazar a los pequeños agricultores, que no podían beneficiarse de las nuevas variedades de semillas. (SN1S.s489)	Concern
		11) *GM* crops (2)	
1.	This is in recognition of the need to guard against inadvertent exports of **GM crops** (and transgenic material) that might adversely impact future markets. (SN1E.s279)	Supone el reconocimiento de que es necesario evitar las exportaciones involuntarias de **cultivos MG** (y material transgénico) que pudieran tener consecuencias negativas en mercados futuros. (SN1S.s268)	Concern (-)
2.	Foods obtained from **GM crops** are evaluated within the framework of the EU Novel Food Regulation (EC/258/97). (SN1E.s290)	Los alimentos obtenidos a partir de **cultivos MG** se evalúan en el marco del Reglamento (EC/258/97) de la UE sobre alimentos e ingredientes alimentarios nuevos. (SN1S.s279)	Neutral
		12) *Nitrogen-fixing* crops (2)	
1.	Pest-resistant varieties reduce the need for pesticides, **nitrogen-fixing crops** reduce the need for chemical fertilizers. (ER8E.s155)	Las variedades resistentes a plagas mitigarán la necesidad de pesticidas y las **plantas fijadoras de nitrógeno** reducirán la necesidad de fertilizantes químicos. (ER8S.s157)	Favorable
2.	The empty promise of " high-yielding " and **" nitrogen-fixing " crops**. (MH8E.s243)	La promesa vacía de los **cultivos** de " alto rendimiento " y " **fijadores de nitrógeno** ". (MH8S.s245)	Unfavorable

13) ***Roundup Ready*** **crops (2)**			
1.	**Monsanto 's Roundup ReadyTM crops**. (SN4E.s100)	LOS **CULTIVOS ROUNDUP READYTM** DE MONSANTO. (SN4S.s101)	Neutral
2.	However, the commercial **Roundup ReadyTM crops** on the market today including soybeans, maize, oilseed rape and sugar beet, contain an EPSPS gene from Agrobacterium tumefaciens strain CP4. (SN4E.s104)	Los **cultivos** comerciales **Roundup ReadyTM** disponibles en el mercado en la actualidad, como las sojas, el maíz, la colza y la remolacha azucarera, contienen un gen de EPSPS de Agrobacterium tumefaciens cepa CP4. (SN4S.s105)	Neutral
14) ***Others*** **(2)**			
Monsanto crop (1)			
1.	The variety was bred using a patented transgene from a **Monsanto crop**, without the company 's permission, and before the cultivation of B.t. cotton was officially approved in India. (SN1E.s141)	La variedad se desarrolló, empleando un transgén patentado de un **cultivo de Monsanto**, sin el permiso de la empresa y antes de que se aprobara oficialmente el cultivo de algodón B.t. en la India. (SN1S.s137)	Concern (-)
Designer crop (1)			
1.	**Designer crops**. (SN1E.s147)	**CULTIVOS DE DISEÑO**. (SN1S.s143)	Neutral

Table 8.20: *ST-TT pairs of denominative variants for 'Adj + N (crop/s)' (sci corpus).*

EXCLUDED		
1.	The canola were grown for their oil, but oil from the **engineered crops** could n't be sold to the United States without approval from the U.S. Food and Drug Administration. (EG4E.s145)	La colza se cultivaba por su aceite, pero <u>éste</u> no podía ser vendido en Estados Unidos sin la aprobación previa de la U.S. Food and Drug Administration. (EG4S.s146)
2.	A typical customer for Bt-expressing crops is either encouraged or, in some cases, required to rotate the **genetically altered crop** with others, to mix different varieties of seeds, to continue using some chemical sprays where needed, and to plant areas of crops that do n't contain Bt toxins among engineered plants that do. (EG4E.s255)	Un usuario de semillas manipuladas genéticamente con el Bt puede ser invitado, o incluso obligado, a rotar <u>su cultivo</u> con otras que no lo hayan sido, con la finalidad de mezclar diferentes variedades de semillas, a continuar utilizando plaguicidas químicos en determinadas circunstancias, y a intercalar zonas con cultivos carentes del Bt entre las que lo contengan. (EG4S.s256)
3.	Critics argued that **transgenic crops** make little contribution to solving the problems of hunger and starvation, as these are caused by poverty, and political solutions are required. (SN1E.s341)	Los detractores de <u>estos cultivos</u> han sostenido que los transgénicos no contribuyen mucho a resolver los problemas de hambre y hambrunas, porque la causa de los mismos es la pobreza, y se requieren soluciones políticas. (SN1S.s329)
4.	By 1993, however, 32 countries had conducted field trials with **transgenic crops**, including Australia, New Zealand, Japan, China, Chile and Argentina. (SN1E.s535)	Sin embargo, en 1993, ya había treinta y dos países que habían realizado pruebas, como Australia, Nueva Zelanda, Japón, China, Chile y Argentina. (SN1S.s520)
5.	These crops represent the most profitable use of genetic engineering in crop production to date, because **herbicide-resistant crops** generate demand for herbicides. (SN4E.s5)	Estos cultivos suponen el uso más rentable de la ingeniería genética hasta la fecha, porque generan demanda de herbicidas. (SN4S.s6)
6.	Monsanto claims, however, that the use of **herbicide-resistant crops** will decrease the number of herbicide sprays required and will promote environmentally sound herbicide usage. (SN4E.s130)	Con todo, Monsanto asegura que el uso de <u>este tipo de cultivos</u> reducirá el número de pulverizaciones necesarias y fomentará un empleo de los herbicidas respetuoso con el medio ambiente (véase la nota 4). (SN4S.s131)
7.	Some of these **transgenic crops** are now also being grown commercially within Europe. (SN12E.s200)	En la actualidad, algunos de <u>estos cultivos</u> también se están desarrollando en Europa con fines comerciales. (SN12S.s197)
8.	Although it can be shown scientifically that foods made from **modified crops** are identical to foods made from unmodified crops, consumers might want to avoid these foods simply because of their method of production. (SN13E.s63)	

Table 8.21: *Excluded ST-TT pairs of denominative variants for ‘Adj + N (crop/s)’ in the sci corpus.*

Denominative variants of *Adj + N (Crop/s)* in the *soc corpus*			
#	*English*	*Spanish*	**SP**
	1) *Transgenic* crop/s (33)		
1.	Concern that the use of the Bt transgenic toxin might create a new generation of resistant super bugs was heightened in 1996 when an unusually hot and dry growing season in the southern region of the United States triggered an unanticipated series of events in the **transgenic cotton crop**. (JR3E.s241)	El miedo a que el uso de la toxina Bt transgénica cree una nueva generación de " superbichos " resistentes subió de tono en 1966 cuando una estación inusualmente cálida y seca en el sur de Estados Unidos provocó una inesperada serie de sucesos en la cosecha de **algodón transgénico**. (JR3S.s240)	Concern (-) (English/ Unfavorable (Spanish)
2.	For example, a **transgenic crop** containing novel genes that precipitate more rapid germination in cool spring temperatures might grow back as a weed early in the subsequent growing season, creating serious problems for other crops scheduled to be grown in the same field. (JR3E.s274)	Un **cultivo transgénico**, por ejemplo, que contenga genes nuevos que precipiten una germinación más rápida a las temperaturas más frías de la primavera podría desarrollarse como mala hierba al comienzo de la época del desarrollo que sigue a continuación, creando problemas serios a los demás cultivos que esté previsto que crezcan en el mismo campo. (JR3S.s274)	Unfavorable
3.	A **transgenic crop** engineered to tolerate colder temperatures could migrate north and successfully invade and colonize new habitats, crowding out existing plant species and changing the ecological dynamics of its new residence. (JR3E.s276)	Un **cultivo transgénico** transformado por la ingeniería genética para que tolere unas temperaturas más frías podría migrar al norte e invadir y colonizar con éxito nuevos hábitats, desplazando a las plantas existentes y cambiando la dinámica ecológica de su nueva residencia. (JR3S.s276)	Neutral
4.	However, a spate of recent studies on weediness belie the oft-heard claim of industry biologists that the likelihood of a **transgenic crop** becoming a weed is slim or nonexistent. (JR3E.s282)	Sin embargo, una serie de estudios recientes sobre la maleza desmiente una aseveración que se les ha oído a menudo a los biólogos de las empresas, que la probabilidad de que un **cultivo transgénico** se convierta en hierba mala es mínima o nula. (JR3S.s282)	Neutral
5.	Fears over the possibility of transgenic genes jumping to wild weedy relatives heightened in 1996 when a Danish research team, working under the auspices of Denmark 's Environmental Science and Technology Department, observed the transfer of a transgene from a **transgenic crop** to the genome of a wild weedy relative - something critics of deliberate release experiments have warned of for years and biotech companies have dismissed as a remote or nonexistent possibility. (JR3E.s296)	El miedo a que los genes transgénicos salten a las malas hierbas silvestres emparentadas creció en 1996 cuando un equipo investigador danés, que trabajaba bajo los auspicios del Departamento de Tecnología y Ciencia del Medio Ambiente de Dinamarca, observó la transferencia de un transgén de un **cultivo transgénico** al genoma de una mala hierba silvestre emparentado, algo que los críticos de los experimentos de liberación deliberada advertían que podía pasar desde hacía años y que las compañías biotécnicas rechazaban como una posibilidad remota o inexistente. (JR3S.s296)	Unfavorable
6.	In research at Michigan State, scientists have reported successes manipulating the genes of potatoes, melons, and squash with the aim of sowing these **transgenic crops** in countries that want them. (BL1E.s283)	Los científicos que investigan en el estado de Michigan han informado de sus progresos en la manipulación de los genes de las patatas, los melones y la calabaza, con miras a sembrar estos **cultivos transgénicos** en aquellos países que deseen tenerlos. (BL1S.s279)	Neutral
7.	And in the spring of 1998, the government was forecasting doubled acreage of **transgenic crops**. (BL1E.s52)	Y en la primavera de 1998 el gobierno preveía que el número de acres destinados a las **cosechas transgénicas** se duplicaría durante el año. (BL1S.s51)	Favorable
8.	Planche, the insurance inspector, says the panel decided French farmers may need **transgenic crops** to remain competitive.	Planche, el inspector de seguros, dice que la junta ha decidido que es posible que los granjeros franceses necesiten **cultivos transgénicos** para seguir siendo	Favorable

	(BL13E.s244)	competitivos en el mercado. (BL13S.s242)	
9.	In the end, the French citizens split on a key decision: Some of them wanted a moratorium on **transgenic crops**, others did n't. (BL13E.s246)	Al final, los ciudadanos franceses no alcanzaron el consenso respecto a una decisión clave: algunos de ellos querían alcanzar una moratoria para los **cultivos transgénicos**, y otros no. (BL13S.s244)	Concern
10.	" I firmly believe that it is only the **transgenic crops** that can contribute to productivity and food security in India. " (BL17E.s218)	Creo firmemente que lo único que puede contribuir a la productividad y la garantía de alimentos en la India son los **cultivos transgénicos**. (BL17S.s218)	Favorable
11.	Chemical and agribusiness companies are introducing a new generation of **transgenic crops** into agriculture with hopes of making a wholesale shift into the new genetics revolution. (JR3E.s188)	Las empresas químicas y agrícolas están introduciendo en la agricultura una nueva generación de **cultivos transgénicos** con la esperanza de adaptarse por completo a la nueva revolución genética. (JR3S.s187)	Favorable
12.	To increase their share of the growing global market for herbicides, chemical companies have created **transgenic crops** that tolerate their own herbicides. (JR3E.s214)	Para aumentar su participación en el creciente mercado mundial de los herbicidas, las compañías químicas han creado **cultivos transgénicos** que toleran los herbicidas que ellas mismas fabrican. (JR3S.s213)	Favorable
13.	The new **pest-resistant transgenic crops** pose similar environmental problems. (JR3E.s226)	Los nuevos **cultivos transgénicos** resistentes a las plagas plantean problemas medioambientales similares. (JR3S.s225)	Unfavorable
14.	Chemical companies are readying **transgenic crops** that produce insecticide in every cell of each plant. (JR3E.s227)	Las compañías químicas están ultimando unos **cultivos transgénicos** que producen insecticida en cada célula de cada planta. (JR3S.s226)	Neutral
15.	The new generation of **virus-resistant transgenic crops** pose the equally dangerous possibility of creating new viruses that have never before existed in nature. (JR3E.s256)	La nueva generación de **cosechas transgénicas resistentes a los virus** plantea la posibilidad no menos peligrosa de que se creen nuevos virus que nunca antes han existido en la naturaleza. (JR3S.s256)	Concern (-)
16.	**Virus-resistant transgenic crops** could be a potential boon for farmers around the world as well as a windfall for biotech companies. (JR3E.s260)	Los **cultivos transgénicos resistentes a los virus** podrían representar un gran avance para los agricultores de todo el mundo y una ganancia inesperada para las compañías biotécnicas. (JR3S.s260)	Favorable
17.	The prospect of creating new viruses is troubling and raises serious doubts as to the safety and efficacy of releasing **virus-resistant transgenic crops** into the open environment. (JR3E.s264)	La perspectiva de que se creen nuevos virus es inquietante, y suscita serias dudas sobre la seguridad y la eficacia de la implantación de **cultivos transgénicos resistentes a los virus** en el medio ambiente abierto. (JR3S.s264)	Unfavorable
18.	However, even in the case of crops like corn and soy, it is important to note that the chemical and agribusiness firms are preparing to market their transgenic seeds all over the world, virtually ensuring that in some regions **transgenic crops** will be grown near wild, weedy relatives, raising the prospect of contaminating centers of crop origin and diversity with this new form of genetic pollution. (JR3E.s313)	Pero hasta en el caso del maíz y de la soja debe tenerse en cuenta que las firmas químicas y agropecuarias preparan la salida al mercado de sus semillas transgénicas en todo el mundo, con lo que es prácticamente seguro que en algunas regiones los **cultivos transgénicos** crecerán cerca de hierbas malas silvestres emparentadas con ellos, y se abre la perspectiva de que se contaminen con esta nueva forma de polución genética centros donde se originan plantas cultivadas y fuentes de diversidad. (JR3S.s311)	Unfavorable
19.	The new **transgenic crops** and animals are designed to grow faster, produce greater yield, and withstand more varied environmental and weather-related stresses. (JR3E.s624)	Los **nuevos cultivos** y animales están pensados para que crezcan más deprisa, produzcan más y soporten estreses medioambientales y climáticos más variados. (JR3S.s620)	Neutral

20.	In an industry where profit margins are notoriously low, farmers will likely jump at the opportunity of saving a few dollars per acre and a few cents per pound by shifting quickly to the new **transgenic crops** and animals. (JR3E.s626)	En una rama económica donde los márgenes comerciales son notoriamente pequeños, los mercados no dejarán pasar, seguramente, la oportunidad de ahorrarse unos dólares por hectárea y unos centavos por kilo gracias a una rápida adopción de los nuevos **cultivos** y animales **transgénicos**. (JR3S.s622)	Favorable
21.	**Transgenic crops** threaten to drain the world 's genetic reservoirs in still other ways. (JR3E.s640)	Los **cultivos transgénicos** amenazan con drenar las reservas genéticas mundiales también de otras maneras. (JR3S.s636)	Unfavorable
22.	**Transgenic crops** pose an even more direct threat to the world 's remaining centers of crop diversity. (JR3E.s650) These centers are the regions that contain both wild relatives and landraces and are the reservoirs for providing new genetic material for purposes of breeding. (JR3E.s651)	Los **cultivos transgénicos** plantean una amenaza aún más directa a los centros mundiales de diversidad vegetal que aún quedan, esas regiones que poseen tanto cultivos tradicionales como sus parientes silvestres, las reservas que proporcionan nuevo material génico a la mejora genética. (JR3S.s646)	Unfavorable
23.	There is growing concern that the large-scale introduction of **transgenic crops** could contaminate the world 's remaining centers of crop diversity. (JR3E.s652)	Cada vez inquieta más que la introducción a gran escala de **cultivos transgénicos** pueda contaminar los centros de diversidad vegetal que todavía se conservan en el mundo. (JR3S.s647)	Concern (-)
24.	It will probably be impossible to shield the few remaining centers of crop diversity from the increasing encroachment of **transgenic crops**. (JR3E.s654)	Probablemente será imposible proteger a los pocos centros de diversidad vegetal que quedan de la progresiva implantación de los **cultivos transgénicos**. (JR3S.s649)	Unfavorable
25.	Pollinators, such as bees, could be affected in unexpected ways by **insect-resistant transgenic crops**. (LA2E.s64)	§ Los polinizadores, como las abejas, podrían verse afectados de forma inesperada por los **cultivos transgénicos** resistentes a los insectos. (LA2S.s64)	Concern (-)
26.	In laboratory experiments at New York University, researchers found that active forms of Bt, like those found in some types of **transgenic crops**, do not disappear when added to soil, but instead become rapidly bound to soil particles. (LA2E.s68)	§ En un experimento de laboratorio en la Universidad de Nueva York, los investigadores encontraron que las formas activas de Bt, como las que se encuentran en algunos tipos de **cultivos transgénicos**, no desaparecen cuando se las añade al suelo, sino que se mezclan y unen rápidamente con las partículas de tierra. (LA2S.s68)	Neutral
27.	Using established knowledge of gene movement from conventionally bred crops into wild plant populations, three scientists from Michigan State University writing in the journal Hortscience concluded that gene transfer can be expected to occur " regularly... from most if not all **transgenic crops** ". (LA2E.s134)	Empleando el conocimiento establecido del movimiento de los genes de los cultivos convencionales a las poblaciones de plantas silvestres, tres científicos de la Universidad Estatal de Michigan escribieron en el periódico Hortscience que se producirá una transferencia " regular de genes... desde la mayoría, sino de todos los **cultivos transgénicos**. " (LA2S.s134)	Concern
28.	These studies suggest that where there are weedy (and non-weedy) species of plant related to **transgenic crops**, there could be a rapid transfer of modified genes between the two. (LA2E.s144)	Estos estudios sugieren que, donde hay malas hierbas (y otras malezas) de especies de plantas relacionadas con **cultivos transgénicos**, puede haber una rápida transferencia de genes modificados entre las dos especies. (LA2S.s144)	Concern
29.	Estimated area of land sown commercially with **transgenic crops** (millions of hectares) 1997-8. (LA2E.s198)/**T**	**Cultivos transgénicos** globales, 1996-99 (millones de hectáreas). (LA2S.s202)	Neutral
30.	The RICS also said that the presence all of **transgenic crops** could become as relevant to purchasing a piece of land as any past contamination, location close to slag heaps or	El RICS también dijo que la presencia de **cultivos transgénicos** puede ser tan importante para comprar una parcela de tierra como cualquier contaminación pasada, proximidad a un vertedero de residuos	Concern

	a history of crop disease. (LA3E.s93)	tóxicos, o el historial de alguna enfermedad de los cultivos. (LA3S.s97)	
31.	These traits could give **transgenic crops** a competitive advantage over native plants, potentially causing serious ecological disruption. (LA3E.s99)	Estos rasgos podrían dar a los **cultivos transgénicos** una ventaja competitiva sobre las plantas autóctonas, ocasionando posiblemente serias alteraciones ecológicas. (LA3S.s103)	Concern (-)
32.	It aims to bring about " the creation of familiarity with and acceptance of **transgenic crops** for farmers, extension, organisation, processing industry, regulatory organisation, consumer groups and public interest groups. " (LA5E.s71)	Su objetivo es provocar " la creación de familiaridad y aceptación de los **cultivos transgénicos** por los agricultores, organizaciones de extensión, la industria procesadora, los organismos reguladores, las organizaciones de consumidores y los grupos de interés público. " (LA5s.s77)	Favorable
33.	This has led to delays in the approval of new **transgenic crops**, and even outright bans in countries such as Austria and Luxembourg, which have been forcefully challenged by the United States. (LA5E.s138)	Esto ha supuesto retrasos en la aprobación de nuevos **cultivos transgénicos**, e incluso la prohibición en países como Austria, Luxemburgo, Italia y Grecia que han sido rechazadas enérgicamente por Estados Unidos. (LA5s.s144)	Unfavorable
	2) *Genetically modified* crop/s (29)		
1.	If a company wants to grow or self a **genetically modified crop** in Europe, it must first apply to a single country as a sponsor. (IB12E.s203)	Si una compañía desea plantar o vender en Europa un **cultivo genéticamente modificado**, primero tiene que presentar su solicitud a un único país, que hará de patrocinador. (IB12S.s200)	Neutral (Regulation)
2.	In 1997, just the second year after the United States had approved **genetically modified crops**, farmers had planted them on more than thirty-two million acres. (BL1E.s51)	En 1997, justo un año después de que los Estados Unidos aprobasen los **cultivos alterados genéticamente**, los granjeros los habían plantado en más de 32 millones de acres de terreno. (BL1S.s50)	Favorable
3.	In the late 1990s, Monsanto would be stunned when Europe exploded over its plans to sow **genetically modified crops**. (BL2E.s234)	A finales de los años noventa, Monsanto se quedó atónita cuando Europa se dedicó a pulverizar sus planes para sembrar **cultivos genéticamente modificados**. (BL2S.s231)	Unfavorable
4.	In any case, Roundup will live on, whether or not **genetically modified crops** flourish. (BL3E.s236)	En cualquier caso, el Roundup seguirá existiendo, medren o no los **cultivos genéticamente modificados**. (BL3S.s235)	Concern
5.	As reported in Europe, Rifkin was influential in 1998 in persuading the French government to push for a de facto moratorium in European Commission approvals of new **genetically modified crops**. (BL4E.s307)	Como se anunció en Europa, en 1998 Rifkin influyó para persuadir al gobierno francés de que abogase por una moratoria de facto para las aprobaciones de la Comisión Europea sobre nuevos **cultivos alterados genéticamente**. (BL4S.s303)	Concern (-)
6.	The lushness of **genetically modified crops** is displayed at Monsanto Company 's Beautiful Science exhibit at Epcot at Walt Disney World Resort in Orlando. (BL4E.s344)**/T**	La exuberancia de los **cultivos transgénicos** queda manifiesta en la exposición " La hermosa ciencia " de Monsanto, en Epcot, en el World Disney World Resort de Idaho. (BL4S.s335)	Favorable
7.	Tim Seifert was an early convert to **genetically modified crops**, and he 'll plant any gene-altered new seed that will shake out of a bag. (BL6E.s20)	Tim Seifert fue uno de los primeros conversos a los **cultivos genéticamente modificados**, y piensa plantar toda semilla transgénica que vaya a parar a un saco. (BL6S.s20)	Favorable
8.	The newly patented system offered hope for managing the undesirable consequences of **genetically modified crops**. (BL7E.s25)	El sistema recién patentado ofrecía una esperanza para gestionar las indeseables consecuencias de los **cultivos alterados genéticamente**. (BL7S.s25)	Unfavorable
9.	With a relatively modest 150,000-dollar investment, Monsanto would be spreading conservation techniques that farmers in	Con una inversión relativamente modesta de 150.000 dólares, Monsanto pretendía extender las técnicas de conservación que tanto necesitaban los agricultores de	Favorable

	Bengali villages sorely needed and potentially sowing **genetically modified crops**. (BL7E.s191)	las aldeas bengalíes (y, potencialmente, fomentar la siembra de **cultivos transgénicos**). (BL7S.s189)	
10.	When Paul talks about **genetically modified crops**, it seldom has anything to do with efficiency or yield or any of the measures of farmer success. (BL10E.s104)	Cuando Paul me habla de los **cultivos modificados genéticamente**, raras veces sus palabras se refieren a la eficiencia o el rendimiento o cualquiera de los baremos del éxito agrícola. (BL10S.s107)	Concern
11.	The issue was Ireland 's pivotal vote in the European Commission on **genetically modified crops**. (BL12E.s336)	El tema de conversación fue el voto decisivo de Irlanda en la decisión de la Comisión Europea sobre los **cultivos modificados genéticamente**. (BL12S.s328)	Concern
12.	For the ballot initiative was broad: It aimed not only to ban **genetically modified crops** but also prohibit the breeding of livestock with altered DNA and deny companies rights to patents on newly engineered varieties of plants and animals. (BL13E.s189)	Porque la iniciativa de la votación era amplia: no sólo iba dirigida a prohibir los **cultivos modificados**, sino que también aspiraba a prohibir la cría de ganado con ADN alterado y a negar a las compañías los derechos de patente sobre las variedades recién alteradas de plantas y animales. (BL13S.s186)	Unfavorable
13.	In one, a character was punched when he confronted protesters attacking a field of **genetically modified crops**. (BL14E.s200)	En uno de ellos, un personaje recibe unos cuantos palos cuando se enfrenta a unos manifestantes que están asaltando un campo de **cultivos transgénicos**. (BL14S.s198)	Unfavorable
14.	A Daily Mail article on February 6 kept pace: " Disturbing questions about the government 's policy on so-called Frankenstein food were raised last night when it emerged that a producer of **genetically modified crops** has given money to the Labor Party. " (BL14E.s308)	Un artículo del Daily Mail del 6 de febrero seguía la misma tónica: " Ayer por la noche se formularon unas inquietantes preguntas sobre la política gubernamental en relación a la llamada Frankencomida, al descubrirse que un productor de **cultivos modificados genéticamente** había dado dinero al partido laborista ". (BL14S.s305)	Unfavorable
15.	The story went on to say that before touring Monsanto headquarters in St. Louis, " the ten delegates will be wined, dined and bombarded with positive messages about the safety of **genetically modified crops** and food. " (BL14E.s315)	La historia seguía informando de que, antes de hacer la visita a la sede de Monsanto en St. Louis, " los diez delegados serán agasajados con comida y bebida, y bombardeados con mensajes positivos sobre la inocuidad de los **cultivos** y de los alimentos **genéticamente modificados** ". (BL14S.s312)	Favorable
16.	In the United States, where the American Medical Association has raised no such concerns, the British report pricked the sensitive skins of senators whose districts included swaths of **genetically modified crops** already planted for export. (BL14E.s373)	En los Estados Unidos, donde la American Medical Association (Asociación Médica Norteamericana) no ha provocado tales preocupaciones, el informe británico tocó la fibra sensible de los senadores cuyos distritos incluían parcelas de **cultivos modificados genéticamente** que ya estaban plantados, listos para su exportación. (BL14S.s371)	Concern
17.	The protesters say **genetically modified crops** must be proved safe in field tests. (BL14E.s455) But they have destroyed a test that can give the proof. (BL14E.s456)	Los manifestantes dicen que hay que demostrar, en campos de pruebas, que los **cultivos transgénicos** son inocuos, pero acaban de destruir un campo que podría darles esa prueba que exigen. (BL14S.s452)	Concern
18.	Many of the farmers I spoke with in villages and fields had not heard of Shiva or **genetically modified crops**. (BL17E.s277)	Muchos de los campesinos con los que hablé en aldeas y campos no habían oído hablar de ella ni de los **cultivos modificados genéticamente.** (BL17S.s262)	Neutral
19.	" At this point in time, the main " developing country " that is using **genetically modified crops** is China, and they have very rapidly adopted it. (BL18E.s271)	" En este momento de la historia, el principal " país en vías de desarrollo " que está usando **cultivos transgénicos** es China, y los ha adoptado muy rápidamente. (BL18S.s268)	Favorable

20.	New Delhi scientist and activist Vandana Shiva travels the globe with the message that **genetically modified crops** are dangerous to farmers in the developing world. (BL18E.s368)/**T**	La científica y activista de Nueva Delhi Vandana Shiva viaja por el mundo transmitiendo el mensaje de que los **cultivos alterados genéticamente** son peligrosos para los campesinos de los países en vías de desarrollo. (BL18S.s364)	Unfavorable
21.	No **genetically modified crops** could be legally planted in Brazil - though farmers had been smuggling them in from Argentina, where Roundup Ready soybeans flourished. (BL19E.s45)	En Brasil sería imposible plantar legalmente **cultivos modificados**, aunque los granjeros los estaban pasando de contrabando desde Argentina, donde medraba la soja Roundup Ready. (BL19S.s45)	Concern
22.	A successful biosafety protocol could go a long way toward melting the global impasse over **genetically modified crops** and thus carry the world toward the middle, away from the extremes: On one side, the biotechnology industry, awash in arrogance, had allied with the self-interested Big Farm lobby and scientists hungry for grants and recognition - none of whom would concede risks. (BL21E.s65)	Un exitoso protocolo de bioseguridad podría hacer mucho para superar el punto muerto mundial sobre los **cultivos transgénicos**, llevando así al mundo hacia el centro, alejándolo de los extremos: por una parte, la industria biotecnológica, sumida en la arrogancia, se había unido con el egocéntrico grupo político Big Farm y con científicos hambrientos de subvenciones y de reconocimientos públicos, ninguno de los cuales quería correr riesgo alguno. (BL21S.s65)	Unfavorable
23.	He told the Ag Biotech Bulletin in July 1997, " I have come to the conclusion that it could effectively shut clown the research and development of **genetically modified crops** in Canada. " (IB8E.s170)	En julio de 1997 declaró al Ag Biotech Bulletin: " He llegado a la conclusión de que esa medida podría acabar definitivamente con la investigación y el desarrollo de **cultivos genéticamente modificados** en Canadá ". (IB8S.s170)	Unfavorable
24.	For a time, the commission was thinking about requiring importing companies to separate **genetically modified crops** from conventional grains. (IB12E.s226)	Durante un tiempo, la comisión estuvo barajando la posibilidad de exigir a las compañías importadoras que separasen los **cultivos genéticamente modificados** de los granos convencionales. (IB12S.s223)	Concern
25.	However, the United States Food and Drug Administration (FDA) had made it clear that in their view, **genetically modified crops** were assumed to be safe and to offer similar nutritional value as their natural counterparts. (JS1E.s182)	No obstante, el US Food and Drug Administration (FDA ; Administración de alimentos y medicamentos de Estados Unidos) había dejado claro que asumían que los **cultivos modificados genéticamente** no representaban riesgo alguno y que suponían similares valores nutricionales que sus correspondientes naturales. (JS1S.s180)	Favorable
26.	The panel of scientists also called for a moratorium on the sale of **genetically modified crops**. (JS1E.s413)	La comisión de científicos pidió una suspensión cautelar de la venta de **alimentos modificados genéticamente**. (JS1S.s392)	Concern (-)
27.	We can better understand the conclusions of a team of scientists who set out to document all that was not yet understood in the science of **genetically modified crops**. (JS2E.s519)	Podremos entender mejor las conclusiones de un equipo de científicos que se dedicaron a documentar todo aquello que aún no se comprende en lo relativo a la ciencia de los **cultivos manipulados genéticamente**. (JS2S.s490)	Neutral
28.	It revealed that " thirteen of the largest newspapers and magazines in the United States have all but shut out criticism of **genetically modified (GM)** food and **crops** from their opinion pages. " (JS7E.s256)	En él se decía que " trece de los más importantes periódicos y revistas de Estados Unidos han silenciado las críticas dirigidas a los alimentos y **cultivos genéticamente modificados** en sus páginas de opinión ". (JS7S.s236)	Unfavorable
29.	British MP Alan Simpson was even more explicit when he spoke out in parliament in March 1999 about the looming dispute: " The history of Monsanto 's interests in bovine	El diputado británico Alan Simpson fue aún más explícito cuando habló en el parlamento en marzo de 1999: " La historia de los intereses de Monsanto en la somatotropina bovina recombinante y en los **cultivos**	Unfavorable

	somatotropin milk and **genetically modified crops** is littered with the company buying its way into public policy decisions in its favor. (LA6E.s100)	**modificados** está ensuciada por la forma en la que la empresa ha comprado a su favor las decisiones de las administraciones públicas... (LA6S.s104)	
3) *Modified* crop/s (29)			
1.	In Britain, epicenter of the European resistance to GMOs, a protest alongside a canola field in July 1999 evolved into the biggest sabotage of a **modified crop** to date. (BL14E.s467)/**T**	En julio de 1999, en Gran Bretaña, el epicentro de la resistencia europea a los OMG, una manifestación aliado de un campo de colza se convirtió en el mayor sabotaje hasta la fecha de un **cultivo transgénico**. (BL14S.s463)	Unfavorable
2.	But Americans began to notice when studies showed potential damage from **modified crops** to their beloved monarch butterflies. (BL1E.s79)	Pero los estadounidenses empezaron a ser conscientes del problema cuando los estudios demostraron el perjuicio potencial que suponían las **plantaciones transgénicas** para sus amadas mariposas monarca. (BL1S.s77)	Concern (-)
3.	The next wave of **modified crops** promises more nutritious food-even food that can ward off disease. (BL1E.s89)	La próxima oleada de **cosechas modificadas** promete unos alimentos más nutritivos, algunos de los cuales, incluso, podrán prevenir las enfermedades. (BL1S.s87)	Favorable
4.	Nor is this technology yet about " golden rice " or vaccines from bananas ; soybeans make up nearly 60 percent of the global plantings of **modified crops**. (BL1E.s425)	Esta tecnología tampoco tiene que ver, en nuestra época, con el " arroz dorado " ni con las vacunas extraídas de los plátanos ; las semillas de soja constituyen casi el 60 % de la siembra mundial en el ámbito de los **cultivos modificados.** (BL1S.s420)	Concern
5.	But by 2001, five years after **modified crops** began sprouting widely in the United States, safety tests remained voluntary. (BL3E.s58)	Pero en 2001, cinco años después de que empezaran a brotar por todas partes de los Estados Unidos **cultivos transgénicos**, esas pruebas de seguridad seguían siendo voluntarias. (BL3S.s57)	Concern
6.	In the United States, news media had all but ignored the expanding acreage of **modified crops** and the budding opposition. (BL7E.s180)	En los Estados Unidos, los medios de comunicación apenas habían prestado atención a la creciente extensión de acres dedicados a **cultivos transgénicos**, y a la incipiente oposición a ellos. (BL7S.s179)	Unfavorable
7.	In addition, the inherent needs of organic farmers to have their land kept free of windblown pollen from **modified crops** was posing regulatory and liability questions that the United States government had not summoned courage to face. (BL8E.s59)	Además, las necesidades inherentes de los cultivadores orgánicos, que debían mantener sus tierras libres del polen arrastrado por el viento y procedente de **cultivos transgénicos**, planteaba unas preguntas sobre regulación y responsabilidad que el gobierno de los Estados Unidos no tenía el coraje de responder. (BL8S.s58)	Concern (-)
8.	Like many organic farmers, he worries about " genetic pollution " from neighboring farms where **modified crops** are planted. (BL10E.s179)/**T**	Como muchos granjeros orgánicos, se preocupa por la " contaminación genética " de las granjas vecinas, donde hay plantados **cultivos transgénicos**. (BL10S.s184)	Unfavorable
9.	In less than three weeks, in March of 1998, the European Commission would vote on whether to approve four more **modified crops**. (BL12E.s88)	En menos de tres semanas, en marzo de 1998, la Comisión Europea iba a votar sobre si aprobar o no cuatro **cultivos transgénicos** más. (BL12S.s88)	Neutral (Regulation)
10.	While I am in Dublin, the Irish Food & ; Drink Industry announces at a news conference that it will call for voluntary labeling of products and ingredients from **modified crops**. (BL12E.s294)	Mientras estoy en Dublín, la Irish Food & ; Drink Industry (Industria Irlandesa de Alimentos y Bebidas) anuncia una conferencia de prensa donde solicitarán el etiquetado voluntario de productos e ingredientes procedentes de **cultivos modificados**. (BL12S.s287)	Neutral (Regulation)
11.	The Commission 's decision was good news	La decisión de la Comisión fue una buena noticia para	Favorable

	for Monsanto and for American farmers switching to **modified crops**. (BL12E.s347)	Monsanto y para todos los granjeros norteamericanos que se estaban pasando a los **cultivos modificados**. (BL12S.s339)	
12.	" I think it 's going to happen, " she said of the arrival in Ireland of **modified crops**. (BL12E.s405)	Al tocar el tema de la llegada a Irlanda de **cultivos transgénicos**, repuso (BL12S.s396): Creo que sí es factible que eso suceda. (BL12S.s397)	Concern
13.	Three months earlier, in March 1998, the European Commission approved plantings and import of corn and other **modified crops**. (BL13E.s71)	Tres meses antes, en 1998, la Comisión Europea aprobaba plantaciones e importaciones de maíz y otros **cultivos alterados**. (BL13S.s70)	Neutral (Regulation)
14.	Argentina, never a bastion of open government, ranks second in acreage of **modified crops** behind the United States. (BL13E.s134)	Argentina, que nunca había sido un baluarte del gobierno abierto, es el segundo país con mayor número de acres dedicados a **cultivos transgénicos**, después de los Estados Unidos. (BL13S.s131)	Concern (-)
15.	Marc Planche, an insurance inspector, wants to know how developing nations stand to gain from **modified crops**. (BL13E.s174)	Marc Planche, inspector de seguros, quiere saber qué ventajas pueden obtener los países en vías de desarrollo gracias a los **cultivos modificados**. (BL13S.s171)	Concern
16.	But they also reached a conclusion that the industry found distressing: They demanded changes in French law so that companies would be held responsible for damage from **modified crops**, such as contamination of nearby organic produce. (BL13E.s245)	Pero también llegaron a una conclusión que para la industria fue inquietante: exigían cambios en la legislación francesa, de modo que las compañías pudieran ser consideradas responsables de daños provocados por esos **cultivos modificados**, tales como la contaminación de los productos orgánicos con los que entren en contacto. (BL13S.s243)	Unfavorable
17.	In the United States, farmers listened nervously to reports from Europe and wondered if more markets for their **modified crops** would disappear. (BL14E.s54)	En los Estados Unidos, los granjeros escuchaban nerviosos los informes europeos y se preguntaban si iban a desaparecer más mercados para sus **alimentos transgénicos**. (BL14S.s54)	Concern
18.	The year 1999 had seen the largest global plantings ever of **modified crops**: nearly seventy-three million acres in the United States and another twenty-six million in the rest of the world. (BL14E.s80)	El año 1999 fue testigo de la mayor plantación mundial de **cultivos modificados**: casi 73 millones de acres en los Estados Unidos y otros 26 millones en el resto del mundo. (BL14S.s79)	Concern
19.	The field test in Watlington, one of six farm-scale trial sites being run by the government in the United Kingdom, is designed to measure the effects of the **modified crops** on the abundance as well as the diversity of plants and invertebrates. (BL14E.s277)	El campo experimental de Watlington, uno de seis parcelas de prueba bajo la supervisión del gobierno británico, está diseñado para medir los efectos que tendrán los **cultivos transgénicos** sobre la abundancia, así como la diversidad, de las plantas y los invertebrados. (BL14S.s274)	Neutral
20.	Two months earlier, Asscher 's organization poured fuel on the fire by calling for a moratorium on **modified crops** until scientists conduct more safety studies. (BL14E.s365)	Dos meses antes, la organización de Asscher añadió más leña al fuego al solicitar una moratoria para los **cultivos modificados** hasta que los científicos pudieran realizar más estudios sobre su inocuidad. (BL14S.s363)	Unfavorable
21.	EU representatives from France, Italy, Denmark, Greece, Austria, and Luxembourg promised that their countries would block new approvals for planting **modified crops** or importing them into Europe until strict rules for traceability were in place. (BL15E.s24)	Los representantes de la Unión Europea procedentes de Francia, Italia, Dinamarca, Grecia, Austria y Luxemburgo prometieron que sus países bloquearían las nuevas aprobaciones para plantar **cultivos modificados** o importarlos a Europa, hasta que comenzasen a funcionar las reglas estrictas que permitiesen seguirles la pista con facilidad. (BL15S.s24)	Unfavorable

22.	Toby Moffett, who was Monsanto 's vice president for international affairs until 1999, insisted that his company had no choice but to push hard in Europe after the **modified crops** began sprouting commercially in the United States. (BL15E.s101)	Toby Moffett, que fue el vicepresidente de Monsanto para asuntos internacionales hasta 1999, insistía en que su compañía no tenía más opción que presionar con fuerza en Europa, una vez los **cultivos transgénicos** empezaron a brotar comercialmente en los Estados Unidos. (BL15S.s97)	Favorable
23.	I receive at least a dozen stories on my e-mail every day ; a recent study pointing to diminished yields from **modified crops** was sent to me six times. (BL16E.s61)	Yo recibo cada día un mínimo de una docena de historias ; recibí al menos seis veces un reciente estudio que indicaba una reducción del rendimiento en la cosecha de los **cultivos transgénicos**. (BL16S.s63)	Concern (-)
24.	There 's the Ruckus Society, the California-based organization that sponsors training sessions in civil disobedience ; Genetix Snowball, which promotes destruction in fields of **modified crops** ; and an Internet site called Watching Monsanto, which asserts that " within ten or twenty years, they may inadvertently and unintentionally destroy civilization as we know it, with massive famine and/or world war. " (BL16E.s83)	Tenemos la Ruckus Society (Sociedad del Follón), una organización con sede en California que esponsoriza sesiones de formación en desobediencia civil ; Genetix Snowball (Bola de Nieve Genética), que promueve la destrucción de los campos de **cultivos transgénicos**, y una página web llamada Watching Monsanto (Los Vigilantes de Monsanto), que afirma que " dentro de diez o veinte años, es posible que, inconsciente e inintencionadamente, Monsanto destruya la civilización tal y como la conocemos, mediante una hambruna masiva y/o una guerra mundial ". (BL16S.s84)	Unfavorable
25.	American farmers already had placed many of their seed orders for planting around 71.8 million acres of genetically modified soybeans and corn in 1999-72 percent of the world 's acreage of **modified crops**. (BL19E.s52)	En 1999, los granjeros norteamericanos ya habían firmado la solicitud para plantar semillas transgénicas de soja y maíz en unos 71,8 millones de acres, un 72 % del espacio dedicado en el mundo a los **cultivos modificados**. (BL19S.s52)	Concern (-)
26.	That would require extensive testing and, most likely, segregation of **modified crops**. (BL21E.s251)	Esto exigiría unos ensayos profundos y, probablemente, la segregación de los **cultivos modificados.** (BL21S.s254)	Concern (-)
27.	By mid-1998, sixty-four **modified crops** had been approved in the United States and Canada, the heartland of biotechnology. (IB1E.s65)	Para mediados de 1998, el sesenta y cuatro por ciento de los **cultivos genéticamente modificados** ya habían sido autorizados por Estados Unidos y por Canadá, los centros de la biotecnología. (IB1S.s65)	Favorable
28.	Other **modified crops** include some U.S. zucchini and yellow squash, Hawaiian papaya, and some tobacco. (JS8E.s112)	En Estados Unidos, otros **cultivos modificados** son el calabacín y la calabaza amarilla, la papaya hawaiana y algunas variedades de tabaco. (JS8S.s99)	Neutral
29.	But much about China 's adoption of the technology was considered a " state secret, " including the true acreage of **modified crops**, which the industry no longer included in its global estimates or, if they guessed at it, applied an asterisk. (BL21E.s160)	Pero buena parte de la adopción china de la tecnología se consideraba un " secreto de estado ", incluyendo la verdadera extensión de los **cultivos modificados**, que la industria ya no incluía en sus cálculos mundiales o, si formulaban una hipótesis, la señalaban con un asterisco. (BL21S.s162)	Concern (-)
4) *Genetically engineered* crop/s (11)			
1.	Never have so many people, five hundred or so, massed to threaten a **genetically engineered crop**. (BL14E.s13)	Nunca se había reunido tal cantidad de gente, unas 500 personas, para amenazar un **cultivo genéticamente modificado**. (BL14S.s13)	Unfavorable
2.	Finally, in August 2000, the Kenyan government formally declared that it was commercially launching its first **genetically engineered crop**, the disease-resistant potato. (BL18E.s29)	Por fin, en agosto de 2000, el gobierno keniata declaró oficialmente que iba a lanzar comercialmente su primer **cultivo modificado genéticamente**, la batata resistente a la enfermedad. (BL18S.s29)	Favorable

3.	AgrEvo 's Innovator canola, the one Dean Moxham was growing, was the first **genetically engineered crop** on the Canadian market, leading an incoming wave of plants manipulated to be used with specific herbicides. (IB6E.s49)	La colza Innovator de AgrEvo, la misma que plantó Dean Moxham, fue el primer **cultivo de la ingeniería genética** que se introdujo en el mercado canadiense, capitaneando así la oleada creciente de plantas manipuladas que tenían que ser utilizadas junto con herbicidas específicos. (IB6S.s51)	Concern
4.	But he reassured himself that his **genetically engineered crop** had been reviewed and approved by the Canadian government. (IB6E.s315)	Pero se convence una vez más a sí mismo, diciéndose que ese **cultivo transgénico** ha sido supervisado y autorizado por el gobierno canadiense. (IB6S.s316)	Favorable
5.	For the first spring since 1996, when **genetically engineered crops** had become legal, sales of the new crop wonder had fallen. (BL1E.s219)	Esa primavera, por primera vez desde 1996, cuando se habían legalizado los **cultivos manipulados genéticamente**, las ventas de la nueva maravilla vegetal se habían reducido. (BL1S.s215)	Concern (-)
6.	I visited laboratories and I walked through fields of **genetically engineered crops** to see for myself the seedlings of change. (BL1E.s66)	Visité laboratorios y me paseé por **plantaciones fruto de la ingeniería genética,** para ver por mi mismo las semillas del cambio. (BL1S.s65)	Concern
7.	What will be the outcome of widespread crossing between **genetically engineered crops** and their wild relatives? (BL1E.s351)	¿Cuál será el resultado de los cruces generalizados entre los **cultivos transgénicos** y sus parientes naturales? (BL1S.s346)	Concern
8.	" There are problems we think are associated with these **genetically engineered crops**. (BL5E.s199)	" Existen problemas que creemos que están asociados con esos **cultivos genéticamente modificados**. (BL5S.s201)	Concern (-)
9.	It 's a " no-brainer, " he said with regard to his choice of **genetically engineered crops**, before inviting me back to the farm for the remainder of the harvest. (BL6E.s239)	- Está fuera de toda duda - continuó, refiriéndose a su elección de **cultivos modificados genéticamente**, antes de invitarme a acudir a su granja para el resto de la cosecha-. (BL6S.s240)	Favorable
10.	Conway who is British, is president of the biotechnology-friendly Rockefeller Foundation, which by 1999 had sunk $ 100 million into research on **genetically engineered crops**. (BL7E.s272)	Conway, que es británico, es presidente de la Fundación Rockefeller, que respalda la tecnología, y que en 1999 había invertido cien millones de dólares en la investigación de **cultivos genéticamente modificados**. (BL7S.s270)	Favorable
11.	Now a few of the Iowa farmers I met wondered if they had something new to fear: **genetically engineered crops**. (BL9E.s7)	Ahora, algunos de los granjeros de Iowa con los que conversé se preguntaban si no tendrían que inquietarse por algo nuevo: los **cultivos alterados genéticamente**. (BL9S.s7)	Concern (-)
5) *Engineered* crop/s (10)			
1.	In the 1980s I wrote about the " deliberate release experiments, " as they then were called, when microbes and, later, **engineered crops** were first transplanted from labs to the soil. (BL1E.s42)	En los años ochenta escribí sobre " los experimentos de liberación ", como se llamaban entonces, cuando unos microbios primero y, más tarde, **cosechas** enteras **alteradas genéticamente** se transplantaron de los laboratorios a la tierra de los campos de cultivo. (BL1S.s41)	Unfavorable
2.	By the spring of 2001, the American debate had widened to legislatures across the country, with more than forty bills introduced to regulate **engineered crops** or the labeling of modified food. (BL1E.s81)	En la primavera de 2001, el debate norteamericano se había extendido por las legislaturas de todo el país, donde se introdujeron más de cuarenta leyes para regular las **plantaciones transgénicas** o el etiquetado de los alimentos modificados. (BL1S.s79)	Concern
3.	In 1999, three new countries - Portugal, Rumania, and Ukraine - planted **engineered crops** commercially for the first	En 1999, tres nuevos países (Portugal, Rumanía y Ucrania) plantaron por primera vez, y con miras a su comercialización, **semillas modificadas** ; sumados a	Concern

	time, bringing to an even dozen the countries of the world where they legally sprout. (BL1E.s139)	los demás países donde se lleva a cabo esta práctica, son ya una docena. (BL1S.s136)	
4.	The biotech-friendly Department of Agriculture oversees the thousands of field trials required before newly **engineered crops** reach the market. (BL3E.s68)	El Departamento de Agricultura, que apuesta por la biotecnología, supervisa los miles de pruebas de campo que son un prerrequisito ineludible para que los **cultivos transgénicos** lleguen al mercado. (BL3S.s67)	Favorable
5.	The only way to do that is to compare risks and benefits of conventional crops and the risks and benefits of **engineered crops**. (BL3E.s99)	La única forma de hacerlo es comparar los beneficios y los riesgos propios de los cultivos convencionales, y aquellos otros de los **cultivos transgénicos**. (BL3S.s98)	Concern
6.	When you do this kind of analysis, **engineered crops** come out equal to, or less than, conventional crops in the environmental risks that they pose ". (BL3E.s100)	Cuando se lleva a cabo este tipo de análisis, y desde el punto de vista de los riesgos medioambientales que suponen, los **productos transgénicos** son iguales o mejores que los convencionales. (BL3S.s99)	Favorable
7.	On the Internet, companies pointed proudly to a future where clothing derived from corn and **engineered crops** " may help reduce our dependence on oil and natural gas and could reduce water and energy use by as much as fifty percent. " (BL4E.s225)	En Internet, las compañías apuntan ostentosamente hacia un futuro en el que las prendas de vestir derivadas del maíz y de los **cultivos transgénicos** " podrán ayudarnos a reducir nuestra dependencia del petróleo y del gas natural, disminuyendo hasta en un 50 % el gasto de agua y de energía ". (BL4S.s220)	Favorable
8.	In the United States that spring, the first year farmers could legally **plant engineered crops**, about seven million acres were sown. (BL12E.s72)	Aquella primavera, en los Estados Unidos, que fue el primer año en que los granjeros podrían plantar legalmente **semillas modificadas**, se sembraron unos siete millones de acres. (BL12S.s72)	Neutral
9.	By the time the new century arrived, the American government had approved more than fifty **bioengineered crops**. (BL1E.s170)	Cuando llegó el nuevo siglo, el gobierno norteamericano había aprobado más de cincuenta **cultivos transgénicos**. (BL1S.s166)	Concern (-)
10.	Granting power to a specific institution or group of individuals to determine a **better-engineered crop** or animal or a new human hormone seems a trifle in comparison with the potential returns. (JR5E.s343)	Conceder a una institución o a un grupo concreto de individuos el poder de determinar un **cultivo** o animal **mejorado con la ingeniería** o una nueva hormona humana parece una minucia en comparación con los beneficios esperados. (JR5S.s334)	Favorable
		6) *GM/GMO* crop/s (9)	
1.	I noted that rather than Quentin or Clare, a woman named Sadhbh O'Neill was speaking for Genetic Concern. (BL12E.s360) She said: (BL12E.s361) " This is the first time the Minister has candidly admitted that not only did the U.S. National Security Advisor lobby the Taoiseach last year in relation to GM crops, but that the Taoiseach instructed Environment Minister Noel Dempsey to vote in favor of a **GM crop** at a crucial E.U. meeting on the eighteenth of March, 1998.... (BL12E.s362)	Me di cuenta de que, en lugar de Quentin o Clare, la que hablaba en nombre de Genetic Concern era una mujer llamada Sadhbh O'Neill: " Ésta es la primera vez en la que el Ministro ha admitido cándidamente que no sólo el Consejero de Seguridad Nacional de los Estados Unidos presionó al Taoiseach el año pasado en relación con los cultivos MG, sino que el Taoiseach instruyó al Ministro de Medio Ambiente Noel Dempsey para que votase a favor de un **cultivo MG** en una reunión crucial de la Unión Europea en marzo de 1998... (BL12S.s352)	Concern (-)
2.	The prestigious journal Nature did the industry a favor with the headline, " Stunted **GM crop** may help feed world. " (BL14E.s392)	La prestigiosa revista Nature hizo un favor a la industria con uno de sus titulares: " Un **cultivo MG** enano puede alimentar al mundo ". (BL14S.s389)	Favorable
3.	As this was the first **GM crop** to be approved in the U.S., the manufacturer actually requested the FDA to review their feeding	Como ésta fue la primera **cosecha GM** aprobada en Estados Unidos, el fabricante pidió a la FDA que revisara los datos sobre estudios alimentarios, un	Favorable

	study data - a gesture no subsequent manufacturer has repeated. (JS1E.s637)	gesto que ningún otro fabricante ha seguido. (JS1S.s613)	
4.	Pusztai concurs, saying, " It is at present impossible to definitely establish whether a new **GM crop** is allergenic or not before its release into the human/animal food/feed chain. " (JS6E.s95)	Pusztai está de acuerdo y añade: " De momento nos es imposible determinar si un nuevo **cultivo GM** causa o no alergia hasta que ese producto pasa a formar parte de la alimentación de seres humanos y/o animales ". (JS6S.s94)	Concern
5.	The corn variety, known as Chardon LL, also became the UK government 's first **GM crop** approved for cultivation on March 10, 2004. (JS6E.s382)/**T**	La variedad de maíz, conocida como Chardon LL, se convirtió, el 10 de marzo de 2004, en el primer **cultivo GM** aprobado por el Gobierno del Reino Unido. (JS6S.s363)	Unfavorable
6.	Meacher says that the while " it is often claimed that all GMOs have been " rigorously tested, " all that this testing amounts to is deciding whether a **GM crop** is similar in terms of its composition to the non-GM plant.... (JS9E.s256) It wholly misses the point that health concerns are focused, not on known compounds, but on the effects of the GM technology which are unpredictable. " (JS9E.s257)	Meacher dijo que aunque " a menudo se afirma que los OGM han sido sometidos a " pruebas rigurosas ", en realidad estas pruebas se limitan a decidir si un **cultivo GM** tiene una composición similar a la de las plantas no GM... se les escapa el hecho de que la preocupación no se debe a los componentes conocidos, sino a los efectos de la tecnología GM, aún impredecibles ". (JS9S.s228)	Concern
7.	Genetic Concern, the advocacy group which was fighting now to stay afloat, responded with a news release headlined: " Dempsey owns up to U.S. lobbying on **GM crops**. " (BL12E.s359)	Genetic Concern, el grupo que en esa época luchaba por mantenerse a flote, respondió con un comunicado de prensa titulado: " Dempsey confiesa la presión estadounidense en relación a los **cultivos MG** ". (BL12S.s351)	Concern (-)
8.	I noted that rather than Quentin or Clare, a woman named Sadhbh O'Neill was speaking for Genetic Concern. (BL12E.s360) She said: (BL12E.s361) " This is the first time the Minister has candidly admitted that not only did the U.S. National Security Advisor lobby the Taoiseach last year in relation to **GM crops**, but that the Taoiseach instructed Environment Minister Noel Dempsey to vote in favor of a GM crop at a crucial E.U. meeting on the eighteenth of March, 1998.... (BL12E.s362)	Me di cuenta de que, en lugar de Quentin o Clare, la que hablaba en nombre de Genetic Concern era una mujer llamada Sadhbh O'Neill: " Ésta es la primera vez en la que el Ministro ha admitido cándidamente que no sólo el Consejero de Seguridad Nacional de los Estados Unidos presionó al Taoiseach el año pasado en relación con los **cultivos MG**, sino que el Taoiseach instruyó al Ministro de Medio Ambiente Noel Dempsey para que votase a favor de un cultivo MG en una reunión crucial de la Unión Europea en marzo de 1998... (BL12S.s352)	Concern (-)
9.	In 1996, the first year **GMO crops** were grown commercially, American farmers planted 3.6 million acres, surpassing China. (BL1E.s166) In Canada that year, farmers planted about 300,000 acres with an herbicide-tolerant canola. (BL1E.s167)	En 1996, el primer año en que se produjeron comercialmente **OMG**, los granjeros norteamericanos plantaron unos 300.000 acres con una colza tolerante a los herbicidas. (BL1S.s163)	Favorable
	7) *Gene- altered/spliced* crop/s (5)		
1.	Saboteurs have struck in County Carlow, slashing and trampling Monsanto Company 's **gene-altered test crop**. (BL12E.s9)	Los saboteadores han hecho de las suyas en County Carlow, destruyendo y pisoteando los **cultivos experimentales transgénicos** de Monsanto. (BL12S.s9)	Unfavorable
2.	In June of 2000, for instance, Prakash warned in London that Britain was becoming less self-sufficient in food production, which he attributed partly to its robust opposition to **gene-altered crops**. (BL16E.s113)	En junio de 2000, por ejemplo, Prakash advirtió en Londres que Gran Bretaña se estaba volviendo menos autosuficiente en lo tocante a su alimentación, lo cual él atribuía en parte a su robusta oposición a los **cultivos transgénicos**. (BL16S.s114)	Unfavorable

3.	It was the boldest attack yet on a field of **gene-altered crops**, and it was especially destructive because of its timing-the day before the sugar beets were to be harvested. (BL12E.s157)	Fue el ataque más osado hasta la fecha contra un campo de **vegetales transgénicos**, y fue especialmente destructivo gracias al momento tan sensible que habían elegido: el día antes de que se cosecharan las remolachas azucareras. (BL12S.s155)	Unfavorable
4.	François Rey, a twenty-year-old political scientist and the group 's youngest member, declares that the citizens believe that **gene-altered crops** pose little risk to the environment with one exception ; the " marker genes " for antibiotic resistance built in to tell if the newly engineered genes take hold. (BL13E.s239)	François Rey, un científico político de 20 años y el miembro más joven del grupo, declara que los ciudadanos piensan que los **cultivos alterados genéticamente** suponen un escaso riesgo para el medio ambiente, con una excepción: los " genes marcadores " generadores de la resistencia antibiótica incorporados para saber si los genes recién modificados son viables. (BL13S.s237)	Concern
Gene-spliced crop/s (1)			
5.	Toward the end of summer, after a second pass of Roundup, cotton bolls on some of the 600,000 acres of the **gene-spliced crop** began to droop and fall off. (IB6E.s334)	Hacia finales del verano, tras una segunda pasada con Roundup, las cápsulas de algodón en algunas de las 243.000 hectáreas de **cultivo transgénico** empezaron a ponerse mustias y acabaron cayendo a la tierra. (IB6S.s336)	Concern (-)
8) *Resistant/tolerant* GROUP (3)			
1.	That is, the question is not " Do we need another **herbicide-resistant crop**? " but " Does it work in the way it claims to? " (IB11E.s26)	Es decir, la cuestión no consiste en: " ¿Necesitamos otra **planta resistente a los herbicidas**? ", sino en: " ¿Funciona eso tal como dicen que funciona? ". (IB11S.s25)	Concern
2.	When I ask David if genetic engineering can help him grow better food, he acknowledges that there might indeed be some benefits to **herbicide-tolerant crops**. (BL12E.s42)	Cuando le pregunto si la ingeniería genética puede ayudarle a cultivar mejores alimentos, admite que ciertamente le beneficiaría disponer de unos **cultivos que tolerasen bien los herbicidas**. (BL12S.s42)	Favorable
3.	This means that a field can be sprayed with chemicals and nearly all plants will die except the **resistant crop**. (LA2E.s4)	Esto significa que una parcela puede rociarse con herbicidas y casi todas las plantas morirán excepto el **cultivo resistente**. (LA2S.s4)	Neutral
9) *Bt* crops (2)			
1.	Even so, the U.S. Environmental Protection Agency deemed these studies " not useful " for assessing risks of **Bt crops** without more field studies. (BL5E.s44)	A pesar de ello, la Agencia Medioambiental Estadounidense consideró que tales estudios " no eran pertinentes " para valorar los riesgos de **los cultivos dotados de Bt**, en ausencia de otros estudios de campo. (BL5S.s44)	Concern
2.	The GMO critic had argued that heavy plantings of **Bt crops** will hasten the evolutionary cycle of pests and thereby allow them to develop resistance to the Bacillus thuriengensis bacteria. (BL6E.s9)	El crítico de los OMG había argumentado que una plantación excesiva de **cultivos con Bt** aceleraría el ciclo evolutivo de las plagas y, por consiguiente, les permitiría desarrollar resistencia a esa bacteria, la Bacillus thuringiensis. (BL6S.s9)	Concern (-)
10) *Genetically* * crop (1)			
3.	So the companies asked farmers to plant strips or buffers of unmodified plants next to a **genetically altered crop**. (IB6E.s170)	Así que las compañías pidieron a los campesinos que plantasen setos verdes de plantas no modificadas alrededor de los cultivos de **plantas genéticamente alteradas** para que sirviesen de barreras. (IB6S.s171)	Concern
11) *GE* crop (1)			
1.	Instability in **GE crop** lines has already led to crop failures, which have not been well reported. (LA3E.s8)	La inestabilidad en los **cultivos transgénicos** ya ha supuesto serios fracasos, sobre los que apenas se ha informado. (LA3S.s8)	Unfavorable
12) *Others* (2)			

		High-tech crops (1)	
1.	Gardeners and organic growers - not just the genetic engineers who have heisted Bt 's magic for their **high-tech crops** - have depended on the naturally occurring bacteria for seventy years. (BL6E.s11)	Los jardineros y los cultivadores orgánicos, y no sólo los ingenieros genéticos que han robado a mano armada la magia de la Bt para aplicarla a sus **cultivos de alta tecnología**, han dependido durante setenta años de la presencia natural de esa bacteria en el medio ambiente. (BL6S.s11)	Unfavorable
		Value-added crops (1)	
2.	There 's " **value-added crops**, " a term with a sterile, mercantile ring that gives no clue as to who gets the value. (BL4E.s115)	También encontramos " **cultivos de valor añadido** ", una expresión que suena estéril y mercantilista, y que no nos da ninguna pista sobre quién es el beneficiario de ese valor. (BL4S.s110)	Unfavorable

Table 8.22: *ST-TT pairs of denominative variants for ‘Adj + N (crop/s)’ (soc corpus).*

EXCLUDED		
1.	Travelers returned from England with stories of how the menu at the Piccadilly McDonald 's proclaimed its food was GM-free or how otherwise mild-mannered individuals were transformed into " eco-warriors " in the battle to tear up trial plots of **engineered crops**. (IB14E.s215)	
2.	European Union environmental ministers moved to implement the legal equivalent of a three-year moratorium on any new approvals of **engineered crops** or foods. (IB14E.s220)	
3.	Also increasingly in 1999, international export markets were closing the door to **genetically engineered crops**. (IB14E.s270)	
4.	The segregation of **altered crops** from conventional varieties became a reality of doing business. (IB14E.s272)	
5.	Benbrook also found that up to five times the chemicals had been used on the **herbicide-resistant crops** compared to natural varieties. (IB14E.s285)	
6.	Germany 's influential Deutsche Bank even went so far as to produce a report for investors advising them to steer clear of companies associated with **engineered crops**. (IB14E.s294)	
7.	Herbicide tolerance, pest resistance, and viral resistance are among the transgenic traits that are likely to confer competitive advantage, making **transgenic crops** potentially formidable invaders in various environments. (JR3E.s272)	La tolerancia a los herbicidas y la resistencia a plagas y virus son algunos de los caracteres transgénicos que probablemente les conferirán una ventaja competitiva y gracias a los cuales podrían ser potencialmente unas invasoras formidables en diversos entornos. (JR3S.s272)
8.	In one such study scientists planted genetically engineered potatoes containing an antibiotic-resistant gene. (JR3E.s308) Ordinary potatoes were then planted at various distances from the **transgenic crop**. (JR3E.s309)	En uno de ellos los científicos plantaron patatas sometidas a ingeniería genética que contenían un gen resistente a los antibió-ticos, y a diversas distancias patatas corrientes. (JR3S.s307)
9.	Molecular biologists working in the agricultural biotechnology industry argue that the addition of one or two transgenes into existing crops is not enough to confer weediness, and since the current technology limits the number of genes that can be successfully inserted into a plant, there 's little cause for concern that **transgenic crops** might become weeds. (JR3E.s281)	Los biólogos moleculares que trabajan en la industria de la biotecnología agraria argumentan que la adición de uno o dos transgenes a los cultivos existentes no basta para hacerlos maleza, y como la tecnología actual limita el número de genes que se puede insertar con éxito, no hay mucha razón para preocuparse por que puedan convertir<u>se</u> en malas hierbas. (JR3S.s281)
10.	The next day, the European governing body approved Monsanto 's plantings of gene-crossed corn and three **modified crops** of rivals. (BL12E.s344)	Al día siguiente, el cuerpo gubernativo europeo aprobaba la plantación del maíz genéticamente alterado de Monsanto y de tres <u>otras variedades de cultivo</u> de sus rivales. (BL12S.s336)
11.	Now that the power exists to transfer genes across species and even kingdoms, the tropics	Ahora que existe el poder para transferir genes entre especies e incluso reinos, los trópicos no sólo ofrecen el potencial para

	offer not just the makings of medicines but also raw materials for **designer crops** and foods. (BL11E.s22)	fabricar medicinas, sino también las materias primas para diseñar cultivos y alimentos. (BL11S.s19)

Table 8.23: *Excluded ST-TT pairs of denominative variants for 'Adj + N (crop/s)' in the soc corpus.*

8.8. Appendix 8: Semantic prosodies

GENETICALLY (sci corpus) (418)				
Genetically modified (261)				
62	se. The case of the first	**genetically modified**	animal to be patented highlight	2SA
63	e is a selection step for	**genetically modified**	plant cells that depends on the	2SA
64	ound the production of	**genetically modified**	tomatoes, which have an exten	2SA
65	ic fear of the release of	**genetically modified**	organisms. However, there is a	2SA
66	onsumer pressure that	**genetically modified**	products such as the Flavr Savr	2SA
118	tatoes became the first	**genetically modified, insect-resistant**	crop to receive	3EG
119	se. The first patent for	**genetically modified**	mice was approved by the Unite	3EG
120	ology, the patenting of	**genetically modified**	organisms, and the role of scien	3EG
121	etlands. The escape of	**genetically modified**	species and the release of medic	3EG
122	a, scientists are testing	**genetically modified**	alfalfa, grapes, and winter barley	3EG
201	es and regulations. Can	**genetically modified**	food feed the world? The povert	5MH
202	ll. There is no need for	**genetically modified**	crops. They will not feed the wo	5MH
203	a. There is no need for	**genetically modified**	crops. They will not feed the wor	5MH
204	nd the patenting of life.	**Genetically modified**	foods were earlier rejected also	5MH
205	der any trace barrier of	**genetically modified**	agricultural products, be it discri	5MH
206	e deliberate release of	**genetically modified**	organisms, and the patenting of	5MH
207	MID THE PROMISES OF	**GENETICALLY MODIFIED**	FOOD. Agricultural biotechn	5MH
208	rnational commerce of	**genetically modified**	food and agricultural products a	5MH
209	cale contained users of	**genetically modified**	micro-organisms (GMMs) routin	5MH
210	xation of regulation on	**genetically modified**	products, especially in the United	5MH
211	h Council, Field Testing	**Genetically Modified**	Organisms: Framework for Decis	5MH
212	ferring that trait to the	**genetically modified**	organism, which can then pass it	5MH
280	ing to Europe. In 1997	**genetically modified**	soya accounted for about 15 per	9SN
281	1995. These included a	**genetically modified**	Russet Burbank, the most popula	9SN
282	first major planting of a	**genetically modified**	crop in the UK. Lectin genes hav	9SN
283	side the definition of a	**genetically modified**	food. In addition, Monsanto has	9SN
284	r example, produced a	**genetically modified**	canola, or spring rape, containin	9SN
285	of the first releases of a	**genetically modified**	organism into an agricultural ec	9SN
286	g-term monitoring of a	**genetically modified**	micro-organism, however, requi	9SN
287	e, with the release of a	**genetically modified**	baculovirus (see Chapter 5). The	9SN
288	onmental release, of a	**genetically modified**	organism. The applicant must p	9SN
289	e term ‘plant pest’ to a	**genetically modified**	organism means only that its ‘n	9SN
290	dispel concerns about	**genetically modified**	foods. The battle for hearts and	9SN
291	ers were worried about	**genetically modified**	foods. This has led the Australia	9SN
292	nt public unease about	**genetically modified**	foods’. This report claimed that	9SN
293	ish public further about	**genetically modified**	foods. The emphasis of this and	9SN
294	was hardening against	**genetically modified**	food in many European countrie	9SN
295	imals, as well as against	**genetically modified**	foods. These environmental issu	9SN
296	st an argument against	**genetically modified**	varieties. Herbicide-resistant cr	9SN
297	for, but mainly against,	**genetically modified**	foods. They are of immense imp	9SN
298	in intensive agriculture.	**Genetically modified**	foods appeared to arrive sudden	9SN
299	erefore, they argue, all	**genetically modified**	foods should be labelled so that	9SN
300	andatory labelling of all	**genetically modified**	foods are examined, and the de	9SN

301	andatory labelling of all	**genetically modified**	foods, recent events have shown	9SN
302	This patent covered all	**genetically modified**	soybean, irrespective of the tech	9SN
303	orted full labelling of all	**genetically modified**	foods. Around this time, the Env	9SN
304	andatory labelling of all	**genetically modified**	foods. It agreed on 23 July that	9SN
305	resolution calling for all	**genetically modified**	products to be labelled as such	9SN
306	ed for the release of all	**genetically modified**	organisms into the environment	9SN
307	eir food products if any	**genetically modified**	soya ingredients had been used.	9SN
308	the decision to approve	**genetically modified**	foods for the European market,	9SN
317	cological risks posed by	**genetically modified**	organisms are similar to those in	9SN
318	possibility with certain	**genetically modified**	crops. Alleles can also be lost th	9SN
319	pter 3). In this chapter,	**genetically modified**	soybeans and maize are followe	9SN
320	composition are clearly	**genetically modified**	organisms, and are likely to be la	9SN
321	producing commercial	**genetically modified**	crops, and other organisms, has	9SN
322	themselves, or contain,	**genetically modified**	organisms, and those foods that	9SN
323	engineering or contain	**genetically modified**	organisms. A massive social prot	9SN
324	e that products contain	**genetically modified**	material. This will be helped by a	9SN
325	rocessed foods contain	**genetically modified**	ingredients. This was particularly	9SN
326	ntain' or 'may contain'	**genetically modified**	ingredients. The proportion of g	9SN
327	ow potentially contain	**genetically modified**	soybeans. The first consignment	9SN
328	s, which might contain	**genetically modified**	produce. Europe decides. On 12	9SN
329	r or not they contained	**genetically modified**	seed. Plant Genetic Systems, as	9SN
330	s potentially contained	**genetically modified**	ingredients; soya alone, for exa	9SN
331	ght not have contained	**genetically modified**	soybeans. By December 1996, m	9SN
332	the market, containing	**genetically modified**	ingredients, supply no benefit t	9SN
333	the USA, as containing	**genetically modified**	ingredients. Mandatory labeling	9SN
334	uy products containing	**genetically modified**	foods, it makes economic sense	9SN
335	d as possibly containing	**genetically modified**	material, then such labels would	9SN
336	uch as those containing	**genetically modified**	soybeans, did not require labella	9SN
337	soybean oils containing	**genetically modified**	soybeans. Continued consumer	9SN
338	tified as not containing	**genetically modified**	ingredients with a 'this does not	9SN
339	elling foods containing	**genetically modified**	ingredients. Foods did not require	9SN
340	: 'This product contains	**genetically modified**	organisms'. The USA has viewed	9SN
341	s with transgenic crops,	**genetically modified**	animals are designed for a high-I	9SN
342	less effective. Different	**genetically modified**	foods are likely to carry different	9SN
343	ion did not want to eat	**genetically modified**	foods.' Consumer pressure had a	9SN
344	re that they are eating	**genetically modified**	soya, maize or oilseed products I	9SN
345	belling to be effective,	**genetically modified**	foods would need to be segrega	9SN
346	rs. In early 1997, eight	**genetically modified**	food product releases had been	9SN
347	f the offspring of either	**genetically modified**	organisms or organisms that acq	9SN
348	ng genetic engineering.	**Genetically modified**	foods may also contain the antib	9SN
349	ustrial use is enormous.	**Genetically modified**	crops are therefore starting to	9SN
350	indefinitely in the EU.	**Genetically modified**	sheep, cows, goats and rabbits	9SN
351	gulations, for example,	**genetically modified**	plants have to be transported in	9SN
352	ate canola was the first	**genetically modified**	oil to be sold commercially, whe	9SN
353	ified material. The first	**genetically modified**	foods sold in the UK were tomat	9SN
354	s were among the first	**genetically modified**	organisms to be widely markete	9SN
355	el for consideration for	**genetically modified**	foods in the above categories. T	9SN

356	ment. 15. Prospects for	**genetically modified**	foods. If opinion polls are to be b	9SN
357	Marketing approval for	**genetically modified**	food in Europe. Marketing appro	9SN
358	arketing approvals for	**genetically modified**	food. However, it was US-based	9SN
359	marketing approval for	**genetically modified**	foods in Europe is the subject of	9SN
360	. Testing shipments for	**genetically modified**	content has been likened to find	9SN
361	tional labelling laws for	**genetically modified**	foods. A change in EC attitude to	9SN
362	labelling guidelines for	**genetically modified**	foods. In 1996, it started to bring	9SN
363	ng approvals sought for	**genetically modified**	foods have predominantly been	9SN
364	became the first fresh	**genetically modified**	fruit or vegetable to reach the m	9SN
365	s to human health from	**genetically modified**	crops are discussed in Chapter 8.	9SN
366	all food produced from	**genetically modified**	organisms. Labelling, under the	9SN
367	why crops grown from	**genetically modified**	seeds could not also be treated	9SN
368	lecithin produced from	**genetically modified**	soya, even though it was now pe	9SN
369	ing T-shirts, made from	**genetically modified**	cotton is already exported aroun	9SN
370	uary 1996. Purée from	**genetically modified**	tomatoes has been clearly labell	9SN
371	food safety to the FSA.	**Genetically modified**	foods and food ingredients appr	9SN
372	stralia and Japan have	**genetically modified**	tobacco to destroy its own seeds	9SN
373	old in the USA will have	**genetically modified**	characteristics by the year 2000	9SN
374	a needle in a haystack.	**Genetically modified**	maize formed less than 1 per ce	9SN
375	ent and human health.	**Genetically modified**	foods are here to stay. In 1997,	9SN
376	Risks to human health.	**Genetically modified**	foods are unlikely to present dir	9SN
377	its? To understand how	**genetically modified**	foods so quickly became part of	9SN
378	EAT YOUR GENES: How	**Genetically Modified**	Food Is Entering Our Diet. Lond	9SN
379	iated ecological risks if	**genetically modified**	organisms persist in the environ	9SN
380	large ecological impact.	**Genetically modified**	organisms themselves can be c	9SN
381	s selectable markers in	**genetically modified**	plants, are therefore already wi	9SN
382	re public confidence in	**genetically modified**	foods. They are working, for ex	9SN
383	that have been used in	**genetically modified**	foods. DNA. Genes are function	9SN
384	et, but has potential in	**genetically modified**	foods because of its effect on th	9SN
385	f experiments involving	**genetically modified**	organisms has occurred on a nu	9SN
386	in labelling some of its	**genetically modified**	products. It started by labelling	9SN
387	or approval to place its	**genetically modified**	maize in the European market.	9SN
388	ame reluctance to label	**genetically modified**	foods (see Chapter 13). Transge	9SN
389	contained viable ('live')	**genetically modified**	organisms, had modified ingred	9SN
390	g to develop or market	**genetically modified**	foods that for some reason are r	9SN
391	the 'Lite' beer market.	**Genetically modified**	yeasts have also been used in b	9SN
392	n the way of marketing	**genetically modified**	crops. Multinationals have explo	9SN
393	consignment of mixed,	**genetically modified**	and unmodified, soybeans arriv	9SN
394	by shipments of mixed	**genetically modified**	and unmodified soybeans and m	9SN
395	ck behaviour of model	**genetically modified**	organisms in the environment.	9SN
396	ve the right to monitor	**genetically modified**	organisms. The way they do this	9SN
397	does not apply to most	**genetically modified**	foods. Crops modified with gene	9SN
398	d the labelling of most	**genetically modified**	foods, on the basis that these fo	9SN
400	tion on the labelling of	**genetically modified**	food. The European Parliament's	9SN
401	ents on a wide range of	**genetically modified**	organisms, and on the technique	9SN
402	calls for full labelling of	**genetically modified**	foods. Most UK supermarkets ap	9SN
403	the USA. Regulation of	**genetically modified**	organisms in the USA is through	9SN

404	ession of disapproval of	**genetically modified**	food may not correspond to how	9SN
405	large-scale plantings of	**genetically modified**	crops occurred in the USA in 199	9SN
406	e Voluntary Release of	**Genetically Modified**	Organisms into the Environment	9SN
407	nt and introduction of	**genetically modified**	foods, with only 22 per cent bein	9SN
408	mber 1996, a range of	**genetically modified**	food products had been approve	9SN
409	r voluntary labelling of	**genetically modified**	foods. The British Retail Consorti	9SN
410	Mandatory labelling of	**genetically modified**	foods has been agreed, at least I	9SN
411	mandatory labelling of	**genetically modified**	foods are summarized in Chapte	9SN
412	ent on the biosafety of	**genetically modified**	organisms (GMOs). Meanwhile, i	9Sn
413	a worldwide boycott of	**genetically modified**	soya and maize. Participating org	9SN
414	ization of marketing of	**genetically modified**	food products to 'correctly reflec	9SN
415	endum on the issue of	**genetically modified**	food. Two-thirds of supermarket	9SN
416	xperimental releases of	**genetically modified**	crops during the mid-1990s is ou	9SN
417	companies. The sale of	**genetically modified**	seeds and increased herbicide sa	9SN
418	ment and marketing of	**genetically modified**	organisms are broadly similar in	9SN
419	e reliability of testing of	**genetically modified**	maize. Margaret Mellon claimed	9SN
420	meaningful labelling of	**genetically modified**	foods gathered support through	9SN
421	, that illegal imports of	**genetically modified**	maize from the USA had occurr	9SN
422	on over to the cause of	**genetically modified**	foods, may not exist. Whether t	9SN
423	e Voluntary Releases of	**Genetically Modified**	Organisms into the Environmen	9SN
424	ments about the risk of	**genetically modified**	organisms made by different gro	9SN
425	e any actual releases of	**genetically modified**	organisms are made to the envir	9SN
426	r marketing approval of	**genetically modified**	foods. This is compounded by th	9SN
427	ially banned imports of	**genetically modified**	soya. In April 1997, however, it d	9SN
428	de in the production of	**genetically modified**	foods. Legislation is needed to re	9SN
429	lture. 11. Regulation of	**genetically modified**	organisms and food products. Th	9SN
430	approved a number of	**genetically modified**	crops for the European market,	9SN
431	e public's perception of	**genetically modified**	foods. It effectively acknowledge	9SN
432	e long-term stability of	**genetically modified**	lines. The ACNFP works alongsid	9SN
433	ported the labelling of	**genetically modified**	foods, while few saw advantages	9SN
434	correctly. The selling of	**genetically modified**	food using a simple view of gene	9SN
435	main as to the safety of	**genetically modified**	maize and the risks of transmissi	9SN
436	ecide if the benefits of	**genetically modified**	foods outweigh their risks to the	9SN
437	pure-breeding lines of	**genetically modified**	crops that are patented, and the	9SN
438	to abandon their use of	**genetically modified**	soya, while wholesalers and reta	9SN
439	Licences for releases of	**genetically modified**	organisms are issued in the light	9SN
440	ents. The proportion of	**genetically modified**	material in products could also b	9SN
441	tinued development of	**genetically modified**	foods because of initial consume	9SN
442	ough the monitoring of	**genetically modified**	organisms in the environment, t	9SN
443	d be labelled as free of	**genetically modified**	organisms (GMO-free). It was pr	9SN
444	e control of releases of	**genetically modified**	organisms to the environment in	9SN
445	n on the production of	**genetically modified**	food in Austria, a moratorium on	9SN
446	l public's acceptance of	**genetically modified**	foods may rest on a perception o	9SN
447	d as guaranteed free of	**genetically modified**	ingredients or that have been m	9SN
448	xperimental releases of	**genetically modified**	organisms, the facilities available	9SN
449	horize the marketing of	**genetically modified**	maize, but only if it was appropri	9SN
450	early done the cause of	**genetically modified**	foods no favors. A more reassu	9SN

451	ing the development of	**genetically modified**	organisms can go some way to e	9SN
452	creasingly suspicious of	**genetically modified**	foods. Consumers will ultimately	9SN
453	ults from the release of	**genetically modified**	organisms. The escape of introd	9SN
454	to market ten lines of	**genetically modified**	tomatoes containing the Flavr Sa	9SN
455	evelopment and sale of	**genetically modified**	food. A life science multinational	9SN
456	B.t. sprays. The view of	**genetically modified**	baculovirus as being analogous t	9SN
457	of mixed shipments of	**genetically modified**	and unmodified crops to Europe	9SN
458	sible ecological risks of	**genetically modified**	organisms, the Royal Commissio	9SN
459	g number of variants of	**genetically modified**	crops, with different gene combi	9SN
460	e public of the safety of	**genetically modified**	food. A massive restoration of co	9SN
461	al until the decision on	**genetically modified**	maize had been made by the EC.	9SN
462	purposes. Research on	**genetically modified**	baculovirus started at the Nation	9SN
463	ch and development on	**genetically modified**	soya. If researchers at a Europea	9SN
464	s can claim royalties on	**genetically modified**	seeds, and they may start to mar	9SN
465	f the initial research on	**genetically modified**	crops was aimed at making crop	9SN
466	. Patents are issued on	**genetically modified**	organisms, genes and the process	9SN
467	lare illegal any bans on	**genetically modified**	foods exported from the USA tha	9SN
468	ly in support of bans on	**genetically modified**	foods. The strong Green moveme	9SN
469	ugh the EU Directive on	**Genetically Modified**	Organisms, which may take up t	9SN
470	ipment can detect one	**genetically modified**	maize kernel in 10,000 non-modi	9SN
471	ineering. Transgenic or	**genetically modified**	(GM) crops entered the diet as i	9SN
472	rape. A range of other	**genetically modified**	crops and foods were also pend	9SN
473	were used to produce	**genetically modified**	bovine somatotropin (BST), a gro	9SN
474	e companies producing	**genetically modified**	foods have been keen followers	9SN
475	ing to food production.	**Genetically modified**	bacteria manufacture drugs and	9SN
476	e in Europe to promote	**genetically modified**	foods was initiated in June 1997	9SN
477	ration, which promotes	**genetically modified**	foods, launched its FoodFuture I	9SN
478	n of the risks regarding	**genetically modified**	food. The perceived risks are lik	9SN
479	Agency (EPA) regulates	**genetically modified**	organisms under the authority o	9SN
480	ble effects of releasing	**genetically modified**	organisms into the environment	9SN
481	solutions are required.	**Genetically modified**	crops arrived with promises of r	9SN
482	tion to predict the risks	**genetically modified**	crops pose. A case-by-case appr	9SN
483	n 1995 to sell Calgene's	**genetically modified**	tomatoes in Mexico and Canada.	9SN
484	ary about food safety.	**Genetically modified**	foods have been caught up in th	9SN
485	rn to normal, as it sees	**genetically modified**	crops soon becoming acceptable	9SN
486	o supermarket shelves.	**Genetically modified**	foods have, therefore, quickly b	9SN
487	ermit procedure for six	**genetically modified**	crops: maize, soybean, cotton, p	9SN
488	ounced plans to ban six	**genetically modified**	products that had been authorize	9SN
489	ore, unjustly stigmatize	**genetically modified**	foods. The differential labelling o	9SN
490	ry pledged not to stock	**genetically modified**	foods, and the two most popular	9SN
491	rmined by reports that	**genetically modified**	maize had been segregated infor	9SN
492	gineering, suggest that	**genetically modified**	plants should be considered diff	9SN
493	ses are covered by the	'**Genetically Modified**	Organisms (contained use)' an	9SN
494	ion for authorizing the	**genetically modified**	maize imports. MEPs voted reso	9SN
495	s bacteria was that the	**genetically modified**	microbes might persist in the en	9SN
496	ontained use)' and the	'**Genetically Modified**	Organisms (deliberate release)'	9SN
497	processed foods. These	**genetically modified**	ingredients have tended to beco	9SN

498	other attributes. These	**genetically modified**	foods will be heavily marketed a	9SN
499	likely to be awarded to	**genetically modified**	products for agriculture, but mad	9SN
500	at might be attached to	**genetically modified**	foods. The possible transfer of h	9SN
501	his can be extended to	**genetically modified**	products, as happened when Wi	9SN
502	ar ethical objections to	**genetically modified**	foods. The Committee on the Eth	9SN
503	s at how opposition to	**genetically modified**	food started and subsequently gr	9SN
504	of allergic reactions to	**genetically modified**	foods, and b) the possibility that	9SN
505	broad patent rights to	**genetically modified**	crops (see Chapter 10). In 1988,	9SN
506	al concerns relating to	**genetically modified**	food are raised in Chapter 9. Bio	9SN
507	of public opposition to	**genetically modified**	food. Public opposition is also gr	9SN
508	growing opposition to	**genetically modified**	food can be seen as part of a wid	9SN
509	eir initial resistance to	**genetically modified**	food. Perceived risks and benefit	9SN
510	re strongly opposed to	**genetically modified**	foods in the UK, an independent	9SN
511	f safeguards applies to	**genetically modified**	foods. The Advisory Committee	9SN
512	obilizing opposition to	**genetically modified**	foods. Their attitude on labeling	9SN
513	levels of opposition to	**genetically modified**	foods in Europe. In early 1997, G	9SN
514	r not to be opposed to	**genetically modified**	food in principle, but say they wo	9SN
515	ember states towards	**genetically modified**	crops opened serious splits withi	9SN
516	nce of an unprocessed	**genetically modified**	food anywhere in Europe. The go	9SN
517	rops or produced using	**genetically modified**	microbes. Calgene (now Monsan	9SN
518	possible to avoid using	**genetically modified**	soya in products in Britain, which	9SN
519	- for example, by using	**genetically modified**	bacteria and yeasts to produce c	9SN
520	t. Milk produced using	**genetically modified**	BST, fruits grown with ice minus	9SN
521	ian cheese, made using	**genetically modified**	chymosin, is not required to be l	9SN
522	ty and nutritional value	**genetically modified**	soya was equivalent to unmodifi	9SN
523	aracteristics that were	**genetically modified**	in these crops included enhanced	9SN
524	ize in the future, when	**genetically modified**	produce will form a much higher	9SN
525	themselves on whether	**genetically modified**	crops could feasibly be segregate	9SN
526	of the extent to which	**genetically modified**	ingredients are used in processe	9SN
527	explains how and why	**genetically modified**	food suddenly became part of o	9SN
528	dures for dealing with	**genetically modified**	plants, with advisory committee	9SN
529	ods will be made with	**genetically modified**	ingredients and soon a large pro	9SN
530	work can be done with	**genetically modified**	organisms. The Health and Safet	9SN
531	of risks associated with	**genetically modified**	foods have been identified, inclu	9SN
532	iseases. However, with	**genetically modified**	seed, royalties are payable to th	9SN

Genetically engineered (136)

9	. In neither case was a	**genetically engineered**	organism involved. Rabbits	1ER
11	e the transmission of a	**genetically engineered**	gene from a crop plant to a	1ER
12	e-market testing of any	**genetically engineered**	food. The labelling of the fo	1ER
14	iscussed seriously. Can	**genetically engineered**	food and drugs be harmful?	1ER
15	start such a game. Can	**genetically engineered**	organisms destroy our ecolo	1ER
16	ely in E. coli containing	**genetically engineered**	plasmids. Human growth hor	1ER
17	We need to introduce	**genetically engineered**	plants with caution. Figure 8.	1ER
18	rriers; all synonyms) of	**genetically engineered**	DNA into host cells. Some vir	1ER
19	of risk from the use of	**genetically engineered**	organisms has therefore to e	1ER
20	aspect of the release of	**genetically engineered**	organisms that has to be appr	1ER
21	and that the release of	**genetically engineered**	organisms must be stopped u	1ER

22	reening. The release of	**genetically engineered**	microbes, plants and animals	1ER
23	e genes. The release of	**genetically engineered**	organisms into the environme	1ER
24	h the crop plant and so	**genetically engineered**	genes might be transmitted f	1ER
25	s subject as it relates to	**genetically engineered**	plants in Chapter 8. We need	1ER
42	as we saw in Chapter 5.	**Genetically engineered**	chymosin must surely be just	2SA
43	'Natural' pesticides and	**genetically engineered**	plants will, they say, account	2SA
44	hat are used to express	**genetically engineered**	products: insect cells and ha	2SA
45	use live virus. The first	**genetically engineered**	vaccine was for human hepat	2SA
46	tomato that is the first	**genetically engineered**	food to find its way into the	2SA
47	uct offered. But even if	**genetically engineered**	food turns out to be perfectl	2SA
48	ll be antibiotic genes in	**genetically engineered**	products. So it is clear that th	2SA
49	However, there is now	**genetically engineered**	bovine somatotrophin (BST),	2SA
50	bjections to the use of	**genetically engineered**	products. This argument has	2SA
51	commercial viability of	**genetically engineered**	foods. There may, fortunatel	2SA
52	es in the production of	**genetically engineered**	chymosin. 1. First a stretch of	2SA
53	t. The manufacturers of	**genetically engineered**	food know they will have a to	2SA
54	promote the view that	**genetically engineered**	food is both unnatural and d	2SA
55	e used to select out the	**genetically engineered**	plant cells at the start of the	2SA
56	otic cells. As far as the	**genetically engineered**	chymosin is concerned E. coli	2SA
57	rst step on the road to	**genetically engineered**	chymosin is to obtain the calf	2SA
58	California working with	**genetically engineered**	tomato plants have found tha	2SA
94	racetus a patent for all	**genetically engineered**	cotton plants. Scientists work	3EG
95	exclusive rights to any	**genetically engineered**	organisms they develop: stron	3EG
96	e latest generation are	**genetically engineered**	hybrid molecules that combine	3EG
100	erence in size between	**genetically engineered**	(above) and regular coho salm	3EG
101	rred into the T-cells by	**genetically engineered**	viral vectors, the cells began to	3EG
102	already in use employs	**genetically engineered**	bacteria. The bacteria, which l	3EG
103	worth. One of the first	**genetically engineered**	products available to farmers	3EG
104	ard practice for making	**genetically engineered**	bacteria (Figure 2.5). Putting r	3EG
105	) to prohibit the use of	**genetically engineered**	microbes outside of sealed la	3EG
106	ow the risk of releasing	**genetically engineered**	organisms into the environme	3EG
106	ow the risk of releasing	**genetically engineered**	organisms into the environme	3EG
107	e dangers of releasing	**genetically engineered**	organisms before their safety	3EG
108	rmer pathogenic state.	**Genetically engineered**	vaccines are safer because the	3EG
109	forming the public that	**genetically engineered**	bacteria were involved in the	3EG
110	he patent given for the	**genetically engineered**	oil-eating bacteria he develop	3EG
112	re especially wary. Will	**genetically engineered**	foods cause health problems?	3EG
134	otech company using a	**genetically engineered**	micro-organism, were implicat	5MH
135	istant 'superweeds'. A	**genetically engineered**	soil bacterium, thought to be q	5Mh
136	ily escape detection. A	**genetically engineered**	potato, grossly altered, with d	5MH
137	u need to know about	**genetically engineered**	foods and why genetic engine	5MH
138	cide whether to accept	**genetically engineered**	foods; health practitioners, ins	5MH
139	ether we should accept	**genetically engineered**	foods: genetic-engineering agr	5MH
140	called Agracetus on all	**genetically engineered**	cotton, and the Indian govern	5MH
141	m transgenic crops and	**genetically engineered**	micro-organisms; the artificial	5MH
145	tial difference between	**genetically engineered**	organisms and the strains obt	5MH
146	no difference between	**genetically engineered**	varieties and those made by t	5MH

148	lled only if they contain	**genetically engineered**	protein or DNA, and food addi	5MH
149	r will, as guinea pigs for	**genetically engineered**	products, while new viruses a	5MH
150	all new applications for	**genetically engineered**	products since April 1998. A s	5MH
151	oring unit be set up for	**genetically engineered**	foods, similar to the one moni	5MH
152	top at nothing to force	**genetically engineered**	crops and products on the wo	5MH
153	ansfers can occur from	**genetically engineered**	crop plants that are now relea	5MH
156	st their will, into a new	**genetically engineered**	world, in which faceless multi	5MH
158	on further releases of	**genetically engineered**	crops. Many are also calling fo	5MH
159	an Union to imports of	**genetically engineered**	foods, and any requirement fo	5MH
160	997 for the banning of	**genetically engineered**	foods, the deliberate release o	5MH
161	ed their assessment of	**genetically engineered**	products as 'safe' have fallen b	5MH
162	r things, the boycott of	**genetically engineered**	foods by hundreds of food and	5MH
163	idence for the safety of	**genetically engineered**	crops. It is not. Unless they are	5MH
164	fore. The new breed of	**genetically engineered**	organisms (or 'transgenics') th	5MH
165	release or marketing of	**genetically engineered**	products, pending an indepen	5MH
166	the use and transfer of	**genetically engineered**	organisms should be establish	5MH
167	oving the marketing of	**genetically engineered**	foods, demanding adequate s	5MH
168	om new generations of	**genetically engineered**	drugs and vaccines. Conclusio	5MH
169	to took two varieties of	**genetically engineered**	canola seeds off the Canadian	5MH
170	ganisms. The release of	**genetically engineered**	micro-organisms is especially	5MH
171	n in the Unite States on	**genetically engineered**	foods was begun in May 1998	5MH
172	for a patent in India on	**genetically engineered**	cotton. Many legal oppositions	5MH
173	lé, announced bans on	**genetically engineered**	products. And resistance is stil	5MH
174	f the gene is carried on	**genetically engineered**	gene-transfer vectors. Transg	5MH
175	nnounce a total ban on	**genetically engineered**	products. While opposition w	5MH
176	nt no legal control over	**genetically engineered**	versions of drugs and chemic	5MH
178	think it safe to release	**genetically engineered**	organisms into the environm	5MH
179	guinea-pigs for testing	**genetically engineered**	drugs and vaccines. By 1994 t	5MH
180	ourt ruling in 1980 that	**genetically engineered**	microorganisms could be pat	5MH
181	t or animal variety. The	**genetically engineered**	food could be compared with	5MH
182	among the first of the	**genetically engineered**	nightmares. The hazards fro	5MH
183	duced on whether the	**genetically engineered**	Rhizobium was effective in im	5MH
184	velop markets for their	**genetically engineered**	crops. I met angry farmers in	5MH
185	ough exclusive rights to	**genetically engineered**	seeds, the food giants of the N	5MH
189	rom cows injected with	**genetically engineered**	bovine growth hormone to b	5MH
190	y been associated with	**genetically engineered**	foods. Moreover as opposition	5MH
191	e been associated with	**genetically engineered**	foods. The first case was in 19	5MH
227	DA exemption before a	**genetically engineered**	crop can be sold commerciall	9SN
228	he cost of developing a	**genetically engineered**	seed variety represents a mu	9SN
229	to secure a patent on a	**genetically engineered**	tomato that remains firm whe	9SN
230	. The first patent on a	**genetically engineered**	plant in Europe was granted in	9SN
231	ndatory labelling of all	**genetically engineered**	foods have claimed that these	9SN
232	pecies monopoly on all	**genetically engineered**	soya within the European com	9SN
238	ing and taste. The first	**genetically engineered**	vegetables to reach the marke	9SN
239	ST) was one of the first	**genetically engineered**	products used in agriculture.	9SN
240	become one of the first	**genetically engineered**	biotechnology products for agr	9SN
241	and developed the first	**genetically engineered**	products such as human insuli	9SN

242	a patent by the EPO for	**genetically engineered**	soybeans. This patent covered	9SN
243	ia in Berkeley, to form	**genetically engineered**	ice minus bacteria. It was ther	9SN
244	ly being obtained from	**genetically engineered**	bacteria rather than from calv	9SN
245	ed goods derived from	**genetically engineered**	crops covered by species-wide	9SN
246	saving any seeds from	**genetically engineered**	soya, or any other crop covere	9SN
247	k assessment involving	**genetically engineered**	micro-organisms. Detection is	9SN
248	development involving	**genetically engineered**	organisms will conduct experi	9SN
249	t to consumers of most	**genetically engineered**	food is small, the accuracy an	9SN
250	e labelled as such, most	**genetically engineered**	food products are processed f	9SN
251	ncreasing regulation of	**genetically engineered**	plants in order to create comp	9SN
252	or rights to all forms of	**genetically engineered**	cotton, no matter what techni	9SN
253	increasing numbers of	**genetically engineered**	crops are grown in the country	9SN
254	he harvest of a field of	**genetically engineered**	soya in Iowa in October 1996	9SN
255	that the production of	**genetically engineered**	cotton had already become ‘o	9SN
256	ely small proportion of	**genetically engineered**	food, and are more likely to re	9SN
257	uence the behaviour of	**genetically engineered**	micro-organisms in the enviro	9SN
258	threatened by crops of	**genetically engineered**	high-lauric canola, while coun	9SN
259	ps of micro-organisms.	**Genetically engineered**	oilseed rape, black mustard, t	9SN
261	filled their desired role.	**Genetically engineered**	baculovirus were ‘crippled’, d	9SN
263	isplayed ‘We not serve	**genetically engineered**	foods’ stickers on their menus	9SN
264	sh to move or field-test	**genetically engineered**	plants. A detailed form (APHIS	9SN
265	Society, in London, that	**genetically engineered**	baculovirus would need to be	9SN
266	ation (FDA) stated that	**genetically engineered**	foods must be tested and labe	9SN
267	ct does not contain the	**genetically engineered**	organism itself. In the product	9SN
268	ell over sixty thousand	**genetically engineered**	animals were born in the UK a	9SN
269	ity of California is using	**genetically engineered**	cell cultures to produce the p	9SN
270	he people did not want	**genetically engineered**	food. A range of other polls a	9SN
272	cological concerns with	**genetically engineered**	crops are: a) that they may, by	9SN
273	essed foods made with	**genetically engineered**	soya and maize, while in Marc	9SN
274	d to be considered with	**genetically engineered**	micro-organisms. Micro-organ	9SN
275	t want food made with	**genetically engineered**	ingredients. However, the EC’	9SN
		Genetically altered (18)		
71	s to generate new cells,	**genetically altered**	stem cells can be a source of heal	3EG
72	managers quickly clone	**genetically altered**	bacteria and put them to work m	3EG
73	in 1994 describes how	**genetically altered**	members of the brassica plant fa	3EG
74	ers be required to label	**genetically altered**	food products? Life. A Questionna	3EG
75	rs, results were mixed.	**Genetically altered**	TILs were detectable in his body u	3EG
76	They introduced a new,	**genetically altered**	strain of bacteria and changed the	3EG
77	ern over the release of	**genetically altered**	microbes into the environment. I	3EG
78	ted in large numbers of	**genetically altered**	cells appearing in the bloodstream	3EG
79	ing new plantations of	**genetically altered**	, rapidly growing crops planted esp	3EG
80	ent protecting a line of	**genetically altered**	animals was controversial. Origina	3EG
81	ut 1,600) of all tests of	**genetically altered**	plants between 1988 and 1995 inv	3EG
82	What can be patented?	**Genetically altered**	microbes such as bacteria, fungi,	3EG
83	much safer.) Now that	**genetically altered**	bacteria have been handled for m	3EG
84	ction. Hearts from the	**genetically altered**	pigs were subsequently transplant	3EG
85	deficiency. As well, the	**genetically altered**	cells had the same lifespan as nor	3EG

86	, required to rotate the	**genetically altered** crop with others, to mix different	3EG
87	ock be safe to eat? Will	**genetically altered** food have less nutritional value? S	3EG
88	ironmental safety. Will	**genetically altered** organisms upset the balance of po	3EG
		Genetically manipulated (3)	
31	plant to a wild species.	**Genetically manipulated** organisms, bacteria, viruses,	1ER
278	could be obtained from	**genetically manipulated** bacterial cells grown in a fer	9SN
279	ustria; no field trials of	**genetically manipulated** crops in Austria; and no pate	9SN
		Others (7)	
129	more hazardous, than	**genetically crippled** micro-organisms that were engine	5MH
226	netic uniformity, while	**genetically diverse** crops contain a proportion of plan	9SN
115	ongoing production of	**genetically improved** seeds. The problem with letting	3EG
214	Ireland by Monsanto's	**genetically 'mutilated** crops' to the Norman invasion	5MH
125	eered genes. But while	**genetically novel** organisms establish their place in a c	3EG
534	e East. Field releases of	**genetically transformed** crops in Europe between 19	9SN
535	ted with antibiotic, the	**genetically transformed** material is therefore selecte	9SN

Table 8.24. *Concordance of 'Genetically + adjective + Noun' in the sci corpus.*

GENETICALLY (soc corpus) (705)				
***Genetically engineered* (425)**				
16	llions of dollars. Whenever a	genetically engineered	organism is released, there is always a s	4JR
17	d international patents for a	genetically engineered	sweet protein derived from a plant found	4JR
18	f the potential impacts that a	genetically engineered	organism might have on the Earth's eco	4JR
19	ment-approved release of a	genetically engineered	organism into the open environment. In t	4JR
20	he possibility of producing a	genetically engineered	enzyme that could destroy lignin, an org	4JR
21	atent on the first mammal, a	genetically engineered	mouse containing human genes that pre	4JR
22	fice (PTO) for a patent on a	genetically engineered	microorganism designed to consume oil	4JR
23	st patent request been for a	genetically engineered	mouse or chimpanzee, it is highly unlikel	4JR
24	ed experimental release of a	genetically engineered	organism virtually assures an infusion of	4JR
25	ore we lock ourselves into a	genetically engineered	future. The new genetic engineering tec	4JR
26	mate objects. Henceforth, a	genetically engineered	organism was to be regarded as an inve	4JR
27	ays. Because they are alive,	genetically engineered	organisms are inherently more unpredic	4JR
28	n and issued a ruling that all	genetically engineered	multicellular living organisms, including a	4JR
29	nting of patents covering all	genetically engineered	varieties of a species, irrespective of the	4JR
30	re than 8 million acres and	genetically engineered	corn on more than 3.5 million acres in the	4JR
31	rey on noxious insects and	genetically engineered	fish with growth hormone and "antifreeze"	4JR
32	FDA said it would label any	genetically engineered	foods containing genes from common all	4JR
33	gene construction (i.e., are	genetically engineered	)." Other companies, worried that "the pat	4JR
35	animal genomes to create	genetically engineered	"super crops" and transgenic animals, or	4JR
36	berate release of dangerous	genetically engineered	viruses, bacteria, and fungi could spread	4JR
37	deliberate release of deadly	genetically engineered	biological warfare agents, even the seem	4JR
38	Researchers are developing	genetically engineered	"super animals" with enhanced characteri	4JR
39	on the Earth's ecosystems.	Genetically engineered	products also reproduce. They grow and	4JR
40	oducts into the environment.	Genetically engineered	organisms differ from petrochemical prod	4JR
41	boundaries. Virtually every	genetically engineered	organism released into the environment	4JR
42	e years. Meanwhile, the first	genetically engineered	insect, a predator mite, was released in	4JR
43	ranting a patent on the first	genetically engineered	life form. Speaking for the majority, Chief	4JR
44	xceptions. For example, fish	genetically engineered	to increase the efficiency of food convers	4JR
45	992 that special labeling for	genetically engineered	foods would not be required, touching off	4JR
46	xperiments, scientists have	genetically engineered	mosquitoes with altered salivary glands	4JR
47	otential. By 1991, however,	genetically engineered	growth hormone had far eclipsed its orig	4JR
48	out the increasing interest in	genetically engineered	germ warfare agents and what it perceive	4JR
49	he Earth and its inhabitants.	Genetically engineered	biological warfare agents could pose as	4JR
50	patents on genes, cell lines,	genetically engineered	tissue, organs, and organisms, as well a	4JR
51	y is moving quickly to make	genetically engineered	food crops and animals a commercial rea	4JR
52	open waters. Although most	genetically engineered	fish are being designed to live in commer	4JR
53	after administering the new	genetically engineered	drug. Anxious to document the mounting	4JR
54	fibrosis patients. These new	genetically engineered	drugs are only the beginning of the vast	4JR
55	introduce thousands of new	genetically engineered	organisms into the environment in the co	4JR
56	ed patents to market a new	genetically engineered	growth hormone to the few thousand chi	4JR
57	at hoped to market the new	genetically engineered	soy. The biotech industry had long dismi	4JR
58	is. The introduction of novel	genetically engineered	organisms raises a number of serious an	4JR
59	The risks in releasing novel	genetically engineered	organisms into the biosphere are similar	4JR
60	t in hens. The new breed of	genetically engineered	hens no longer exhibits the mothering in	4JR
61	developed a novel breed of	genetically engineered	pigs that are 30 percent more efficient an	4JR
62	sociated with the release of	genetically engineered	organisms into the environment in a spec	4JR
63	lly — to assess the effect of	genetically engineered	human growth hormone on short-statured	4JR
64	ale release of thousands of	genetically engineered	life forms into the environment cause ire	4JR
65	ld not insure the release of	genetically engineered	organisms into the environment against	4JR
66	ill be exposed to a range of	genetically engineered	drugs, vaccines, industrial enzymes, an	4JR
67	waste. A new generation of	genetically engineered	organisms is being developed to convert	4JR
68	children. The introduction of	genetically engineered	human growth hormone (hGH) has trans	4JR
69	reat posed by the release of	genetically engineered	organisms is likely to be compounded —	4JR

70	invention? or stem cells? Or	**genetically engineered** onco-mice? None of them have been as	4JR
71	dying cancer. Several other	**genetically engineered** animals have been patented since, and n	4JR
72	cians and family physicians,	**genetically engineered** growth hormone could be used by up to n	4JR
73	uch study scientists planted	**genetically engineered** potatoes containing an antibiotic-resistant	4JR
74	ts. In 1997, farmers planted	**genetically engineered** soy on more than 8 million acres and gen	4JR
75	Organization has produced	**genetically engineered** sheep that grow 30 percent faster than n	4JR
76	ature. For all these reasons,	**genetically engineered** organisms may pose far greater long-ter	4JR
77	irtually impossible to recall	**genetically engineered** organisms back to the laboratory, especi	4JR
78	ready under way to release	**genetically engineered** animals into the environment, including p	4JR
79	g-term impacts of releasing	**genetically engineered** organisms into the environment. At the ti	4JR
80	w gene-spliced substitutes.	**Genetically engineered** human insulin has virtually eliminated th	4JR
81	Unlike nuclear technologies,	**genetically engineered** organisms can be cheaply developed an	4JR
82	lished a study showing that	**genetically engineered** soybeans containing a gene from a Brazil	4JR
83	sgivings about releasing the	**genetically engineered** ice-minus bacteria in a letter published in	4JR
84	r-expanding market for the	**genetically engineered** hormone, both Genentech and Eli Lilly ha	4JR
85	e that cows treated with the	**genetically engineered** hormone have a statistically greater chan	4JR
86	hope to raise millions of the	**genetically engineered** bollworms to adulthood and then release	4JR
87	ried. Even in field tests, the	**genetically engineered** gene had killed only 80 percent of the bol	4JR
88	e somatotropin (BST). The	**genetically engineered** product, produced by Monsanto under the	4JR
89	he United States. While the	**genetically engineered** hormone is now injected into cows in biw	4JR
90	ng them protection for their	**genetically engineered** products. Global corporations went a lon	4JR
91	uries. While many of these	**genetically engineered** organisms will be benign, sheer statistica	4JR
92	benefits of introducing this	**genetically engineered** organism appeared impressive. It's only	4JR
93	of people are already using	**genetically engineered** drugs and medicines to treat heart disea	4JR
94	es. Researchers are using	**genetically engineered** fungi, bacteria, and algae as "biosorption	4JR
134	nly reject an approval for a	**genetically engineered** organism if they are able to provide stron	6LA
135	nsidering the production of a	**genetically engineered** enzyme that could clear up the effluent f	6LA
136	en fixation in the soil, and a	**genetically engineered** growth hormone (rBST/rBGH) designed t	6LA
137	quences of the release of a	**genetically engineered** microorganism called Klebsiella planticol	6LA
138	hich had beer coated with a	**genetically engineered** microorganism in the hope that this woul	6LA
139	ation to make a series on a	**genetically engineered** hormone called rBST (also called rBGH).	6LA
140	an patent which covered all	**genetically engineered** soybeans. Rival companies, including M	6LA
141	h Europe and the US on all	**genetically engineered** cotton. * Plant Genetic Systems, a biote	6LA
142	A cancel registration of all	**genetically engineered** Bt plants, cease any new approvals and	6LA
143	t in the United States for all	**genetically engineered** plants containing the Bt toxin. A patent h	6LA
144	nting of patents covering all	**genetically engineered** varieties of a species... puts in the hands	6LA
146	ssed. Engineering animals.	**Genetically engineered** animals, including fish, are produced by	6LA
147	nded effects that may arise.	**Genetically engineered** food may, for example, contain unexpec	6LA
149	that those who want to ban	**genetically engineered** crops are undermining the position of sta	6LA
150	ng a people' petition to ban	**genetically engineered** foods, deliberate releases of GE organis	6LA
151	Oilseed rape has now been	**genetically engineered** to produce lauric acid, which is tradition	6LA
158	merican consumers believe	**genetically engineered** food should be labelled. 58% of the peo	6LA
159	the United States, contains	**genetically engineered** ingredients. Although there are powerful	6LA
160	ed food in Europe contains	**genetically engineered** ingredients from soya and maize, the m	6LA
162	to realise they were eating	**genetically engineered** food without their knowledge or consent,	6LA
163	y the end of 1998, eighteen	**genetically engineered** products had been granted marketing ap	6LA
164	any of them now excluding	**genetically engineered** ingredients from their own-brand produc	6LA
165	the field. In one experiment,	**genetically engineered** rape, blacknustard, thorn-apple and swe	6LA
166	'FlavrSavr' tomato, the first	**genetically engineered** whole food approved for commercial sal	6LA
167	lude embryos and foetuses,	**genetically engineered** human tissues, cells and genes. In 1976	6LA
168	cember 1998, the following	**genetically engineered** products had received approval in the U	6LA
169	ran high after a test site for	**genetically engineered** maize was planted 275m from an organi	6LA
170	ited States will come from	**genetically engineered** techniques". —Val Giddings, Vice Presid	6LA
171	en enzymes produced from	**genetically engineered** microorganisms, such as chymosin, a ve	6LA
172	t traits are transferred from	**genetically engineered** crops to other plants via cross-pollination	6LA

173	route for gene transfer from	genetically engineered crops. In 1994, scientists based at Orego	6LA
174	le surveyed also said that if	genetically engineered foods were labelled they would avoid pur	6LA
175	idues of these chemicals in	genetically engineered food. * Monsanto, for example, has alrea	6LA
176	organisms and any trade in	genetically engineered seeds. “It is clear that it will not be easy t	6LA
177	that that any plans to label	genetically engineered food were unacceptable and could jeopar	6LA
178	for segregating and labeling	genetically engineered food could disrupt $4-5 billion in annual U	6LA
179	guarantee markets for new	genetically engineered crops. This, together with sweeping pate	6LA
181	the 27.8 million hectares of	genetically engineered crops planted worldwide in 1998, 71% w	6LA
182	used by the introduction of	genetically engineered organisms. The world’s second largest re	6LA
183	asingly frequent releases of	genetically engineered bacteria, animals, insects and microorga	6LA
184	rable to the development of	genetically-engineered cocoa butter substitutes. * Vanilla accou	6LA
185	to approve new varieties of	genetically engineered crops in Europe for at least 18 months.	6LA
186	iser, is that there are a lot of	genetically engineered crops being grown in the neighbouring a	6LA
187	at, on average, the yields of	genetically engineered soybeans were 4% lower than conventio	6LA
188	owered fertility. * In a trial of	genetically engineered insect-resistant maize, there was an un	6LA
189	diversity. Some releases of	genetically engineered organisms pose the same risks to biodiv	6LA
190	m a widely grown variety of	genetically engineered corn; and just a week before this book w	6LA
191	ers, said that the growing of	genetically engineered crops could reduce the value of agricultu	6LA
192	nse to the EPA’s approval of	genetically engineered Bt cotton, maize and potatoes, in Februa	6LA
193	ng and burning field trials of	genetically engineered cotton, which they believed to have been	6LA
194	ce showing that residues of	genetically engineered hormone are left in the milk of treated co	6LA
195	tted destroying a test site of	genetically engineered maize, and who faced up to ten years in	6LA
196	opposing the introduction of	genetically engineered food and crops Gas been the establish	6LA
197	all commercial releases of	genetically engineered organisms and any trade in genetically e	6LA
198	he commercial cultivation of	genetically engineered crops that have wild relatives in Europe,	6LA
199	st” has proven the safety of	genetically engineered products. In reality, the US Congress m	6LA
200	and safety assessment of	genetically engineered organisms. The US refused to accept the	6LA
201	ee why the development of	genetically engineered food is so attractive to the life science ind	6LA
202	to allow for the patenting of	genetically engineered plants, seeds and plant tissue. A patent,	6LA
203	t this means in the case of	genetically engineered crops, for example, is that farmers have t	6LA
204	try) to promote the sales of	genetically engineered oilseed rape. It aims to bring about “the c	6LA
205	ing from the introduction of	genetically engineered crops in food and agriculture. Much of th	6LA
206	states were two varieties of	genetically engineered carnation: one with ‘improved vase life’, a	6LA
207	This would raise the cost of	genetically engineered ingredients, potentially making them une	6LA
208	se in herbicide residues on	genetically engineered soybeans in Europe and the United Stat	6LA
209	lds of Green Revolution ? or	genetically-engineered crops are calculated. * In the late 1970s,	6LA
210	rements that apply to other	genetically engineered food, and are used widely by the proces	6LA
211	have been keen to promote	genetically engineered food. Numerous surveys, however, have	6LA
212	to cause allergic reactions,	genetically engineered foods in the US do not require a pre-mar	6LA
213	already started to remove	genetically engineered food from school menus, and with susta	6LA
214	d local councils to remove	genetically engineered ingredients from — school meals. This h	6LA
217	r survival... The truth is that	genetically engineered crops will provide a ‘better way forward’	6LA
218	the plants. It is argued that	genetically engineered crops are more likely to generate new vi	6LA
219	of farmers concerned that	genetically engineered crops planted nearby could cross-pollina	6LA
220	d legislation proposing that	genetically engineered food could be labelled as ‘organic’. In sp	6LA
221	nce’ was used to argue that	genetically engineered food was ‘equivalent’ food produced by	6LA
222	hat the company hurried the	genetically engineered cotton the market without letting them te	6LA
223	mendments containing the	genetically engineered Klebsiella could kill or impair crops and	6LA
224	monitoring showed, that the	genetically engineered microorganisms were out-competing mic	6LA
225	rchers found that when the	genetically engineered Klebsiella was added to a small microc	6LA
226	lore these changes, and the	genetically engineered soybeans have been passed by the regu	6LA
227	s. The toxin in many of the	genetically engineered crops, however, is in an active form, and	6LA
228	ined with the vi DNA in the	genetically engineered plant to form a no viral strain. In another	6LA
229	stry argued that most of the	genetically engineered DNA would be destroyed when food is p	6LA
230	destroyed all batches of the	genetically engineered bacteria. It is also known that Showa De	6LA

231	three-year period after the	genetically engineered seed has been purchased. A freephone	6LA
232	y Organisation. Most of the	genetically engineered crops already on the market have been	6LA
233	er who is unhappy with the	genetically engineered soybeans. He quotes statistics from yiel	6LA
234	tract consumers back to the	genetically engineered foods they have so far rejected. Chapter	6LA
235	oly: farmers who grow their	genetically engineered soybeans sign a contract which opens th	6LA
236	g with a new process using	genetically engineered: bacteria. Through the use of genetic eng	6LA
237	nd pig and rabies vaccines.	Genetically engineered ingredients already in European shops in	6LA
242	temala, for example, where	genetically engineered 'FlavrSavr' tomatoes were recently grown	6LA
243	day, whereas those fed with	genetically engineered soybeans produced 1.29 kg — an increa	6LA
244	er was forced to withdraw	genetically engineered soya from its foods in the UK, after cons	6LA
254	Star, "If you put a label on a	genetically engineered food, you might as we put a skull and cro	7IB
255	it. For example, as long as a	genetically engineered, herbicide-resistant sugar beet seems lik	7IB
256	the world's first patent of a	genetically engineered animal was granted to Harvard College fo	7IB
257	fter all, remarkable to see a	genetically engineered potato plant resolutely repel the assault o	7IB
258	eef could kill you, couldn't a	genetically engineered soybean also do the job? One thing was	7IB
259	that BST seems to pose. A	genetically engineered bovine booster hardly seems necessary	7IB
260	when scientists unfurled a	genetically engineered version of the "town and country mice". T	7IB
261	nt or industry to regulate a	genetically engineered future. She shudders at the thought of h	7IB
262	e seeds of a revolution —a	genetically engineered canola that promises mastery over the w	7IB
263	ada will be endowed with a	genetically engineered immunity to herbicides. The year 1996 w	7IB
264	ed percent certainty that a	genetically engineered food is safe. For example, testing on volu	7IB
265	h hormone (BGH). BST is a	genetically engineered drug that when injected into a cow can el	7IB
266	ternational wanted to test a	genetically engineered microorganism, Bradyrhizobium japonica	7IB
267	was attempting to design a	genetically engineered microorganism, called Klebsiella planticol	7IB
268	has led the charge against	genetically engineered soybeans and other test-tube foods. Gre	7IB
269	clared it would eliminate all	genetically engineered sources from its products. H. J. Heinz qu	7IB
270	cal land mines. In theory, all	genetically engineered foods or food ingredients must be assess	7IB
271	iously motivated to avoid all	genetically engineered foods as they view the production of the	7IB
272	ents for human testing of all	genetically engineered foods, there are no assurances that histo	7IB
273	comprehensive testing of all	genetically engineered foods. Fagan, like many scientists who h	7IB
274	uropean regulators to allow	genetically engineered canola into Europe. Canada's segregatio	7IB
275	d poultry animals. Although	genetically engineered foods like canola, soybeans, and potatoe	7IB
276	ir governments to stop any	genetically engineered food from delivering the same kind of ha	7IB
278	ommercial marketplace. As	genetically engineered foods began appearing on grocery store	7IB
279	belling will help them avoid	genetically engineered foods. It won't." According to The Guard	7IB
280	s into its "Campaign to Ban	Genetically Engineered Foods," but its broader political objecti	7IB
285	ith the unit that considered	genetically engineered foods, she said the tone in the depart	7IB
286	not "force-feed" consumers	genetically engineered foods. And the United States and Can	7IB
287	ck revealed they contained	genetically engineered soybeans. Much to the laughter of obs	7IB
288	label all products containing	genetically engineered soybeans and corn if the European Uni	7IB
289	to baby formula— contains	genetically engineered soybeans. In the first decades of the ne	7IB
290	nch farmers from cultivating	genetically engineered corn. This was a blow to corporate biote	7IB
292	was growing, was the first	genetically engineered crop on the Canadian market, leading a	7IB
293	specific chemicals. The first	genetically engineered crops were designed resistant to be res	7IB
294	$25 billion a year. The first	genetically engineered whole food to appear on store shelves, i	7IB
295	w that consumer support for	genetically engineered meat animals is low. The area in which t	7IB
296	dred patents are issued for	genetically engineered inventions each year in the U.S. In 1995,	7IB
297	re herbicide resistance from	genetically engineered crops, rather than becoming less fertile,	7IB
298	repercussions, if any, from	genetically engineered organisms, leaving the proprietors to cap	7IB
299	(Jurassic Park) and future	genetically engineered societies where embryos are perfectly do	7IB
300	side London, reported it had	genetically engineered tomatoes with four times the normal leve	7IB
302	e reassured himself that his	genetically engineered crop had been reviewed and approved b	7IB
303	research to determine how	genetically engineered plants will react in differing environments	7IB
304	Europe; when it introduced	genetically engineered canola but kept it separate, total sales dr	7IB
305	gued that any effort to keep	genetically engineered soybeans separate would cost millions —	7IB

306	ion. Whether or not to label	genetically engineered foods would become an issue for the fut	7IB
307	hat there is no need to label	genetically engineered food, that gene splicing is no different fro	7IB
308	Drug Administration to label	genetically engineered foods. They argued that the FDA's decisi	7IB
310	onsanto develop the latest	genetically engineered canola hybrid. "We have to stars moving f	7IB
311	ed officials not to allow live,	genetically engineered microbes such as yeasts or those found i	7IB
312	dures by introducing a new,	genetically engineered bacterium called Strain V. Showa Denko	7IB
313	roducing herbicides or new,	genetically engineered seeds. She is more involved in seeking c	7IB
314	ure had approved only nine	genetically engineered foods for import, and no manipulated cro	7IB
315	he laughter of observers, no	genetically engineered foods were served in the U.K. House of C	7IB
317	eating healthfully. For now,	genetically engineered functional foods remain only wishful think	7IB
318	n North America, labeling of	genetically engineered food is required only if the nutritional valu	7IB
319	1997 demanding labeling of	genetically engineered foods. And by late 1998, the government	7IB
320	the farm. The recent use of	genetically engineered BST in U.S. dairy farms is one example.	7IB
321	xistence. The first wave of	genetically engineered foods and crops began to quietly appear	7IB
322	es to release thousands of	genetically engineered products into the environment each year.	7IB
323	tany from growing a trial of	genetically engineered corn on neighboring land. Watson lost hi	7IB
324	testing for the presence of	genetically engineered foods in early 1998, starting with identific	7IB
325	as the deliberate release of	genetically engineered organisms and the patenting of life. Gen	7IB
326	lling and or segregation of	genetically engineered products. It would make it virtually impos	7IB
327	e, wading into field trials of	genetically engineered plants, scythes in hand. The Mothers for	7IB
328	ged that the introduction of	genetically engineered organisms should proceed cautiously to e	7IB
329	ture? Will the proponents of	genetically engineered crops be held accountable? "Will society	7IB
330	le objection to the import of	genetically engineered, herbicide-resistant soybeans into Euro	7IB
331	to pose in front of a field of	genetically engineered soybeans and decry in heavily accented	7IB
332	oduction and importation of	genetically engineered soybeans, even though that cut off the su	7IB
333	destruction of field trials of	genetically engineered crops has become routine right across E	7IB
334	-five percent of field trials of	genetically engineered crops around the world in 1995 were test	7IB
335	e way for the introduction of	genetically engineered soybeans. He ruefully told the press in J	7IB
336	o regulate whole classes of	genetically engineered creatures". (In September 1997, the EPA	7IB
337	suggest that the release of	genetically engineered crops into the environment has been pre	7IB
338	re complete segregation of	genetically engineered crops if the U.S. did not act voluntarily. By	7IB
339	called for a moratorium on	genetically engineered food and declared that more independen	7IB
340	its approval to three other	genetically engineered, long-lasting tomatoes. The DNA Plant	7IB
341	about researchers trying out	genetically engineered plants. As evidence of how rooted in the	7IB
342	ment urged farmers to plant	genetically engineered crops so France would not lose its compe	7IB
343	rbicides and, more recently,	genetically engineered herbicide-resistant crops. The sustaina	7IB
344	governments to deliver safe	genetically engineered food. Ninety percent said no. Less than t	7IB
345	re's May issue that showed	genetically engineered corn could ravage the Monarch butterfly.	7IB
346	genetic engineering. Since	genetically engineered crops first began being tested in 1984, t	7IB
347	eir space-age genes, some	genetically engineered plants and animals will inevitably spread	7IB
350	industrialized farm systems.	Genetically engineered, extra-hardy animals will mean savings	7IB
351	es not declare globally that	genetically engineered food is hazardous to human health. Inste	7IB
352	led with how to ensure that	genetically engineered foods were safe. Investors began to drift	7IB
353	. Many ecologists fear that	genetically engineered organisms could function as exotic speci	7IB
354	present died. It seems the	genetically engineered organism killed the life-giving organisms	7IB
355	6 already showed that the	genetically engineered herbicide-resistant trait crossed from a E	7IB
356	m. He will simply spray the	genetically engineered canola with its tailor-made herbicide Libe	7IB
357	edly demonstrated that the	genetically engineered microbes were outcompeting the indigen	7IB
358	d to release samples of the	genetically engineered bacteria. The FDA officials reported: "The	7IB
359	resolutely supportive of the	genetically engineered hormone supplement. She had not yet or	7IB
360	study for Canada. When the	genetically engineered bovine booster appeared on the America	7IB
361	attle had been born with the	genetically engineered immunity to shipping fever, showing no o	7IB
362	es are able to claim that the	genetically engineered, herbicide-resistant crops are good for	7IB
363	full-use registration of their	genetically engineered crops. Before approval, companies are r	7IB
364	that arrival. None of these	genetically engineered foods or seeds were produced by the Ca	7IB

365	or a hundred years and this	genetically engineered	rendition had been field tested for four ye	7IB
366	egin. About three thousand	genetically engineered	foods are said to be lined up for approval	7IB
367	pel insects. Although three	genetically engineered	tomatoes had been approved in Canada,	7IB
371	tions that vowed not to use	genetically engineered	products. It launched a series of court ch	7IB
372	right to market its version.	Genetically engineered	BST must be injected into cows on a reg	7IB
375	nd the question of whether	genetically engineered	foods are safe for human consumption. E	7IB
376	is no way to predict which	genetically engineered	foods may cause an allergic reaction. Re	7IB
377	look into a future in which	genetically engineered	functional foods are not adequately legis	7IB
378	ecretary Dan Glickman with	genetically engineered	soybeans and then peeled off their cloth	7IB
379	among landscape workers.	Genetically engineered	herbicide resistance presumes that wee	7IB
380	in 1996. That was the year	genetically engineered	crops were first made available to farme	7IB
424	onsanto was working on a	genetically engineered	canola that it claims increases by 10 perc	8BL
425	ad supported release of a	genetically engineered	corn product. The Commission’s decision	8BL
426	troubled the locals; it was a	genetically engineered	microbe that Monsanto wanted to test in t	8BL
427	n. Dairy farmers are using a	genetically engineered	hormone that induces cows to give more	8BL
428	a fence-busting wild boar. A	genetically engineered	vaccine preserved the rest of the herd. “T	8BL
429	of the first outdoor use of a	genetically engineered	vaccine. About fifteen hundred of Tommy	8BL
430	story’s first outdoor test of a	genetically engineered	plant. They drove across the Mississippi	8BL
431	company wanted to spray a	genetically engineered	organism that retards frost on strawberri	8BL
432	a February 22 story about a	genetically engineered	dairy hormone, asked, “Is Frankenstein’s	8BL
433	nsed, open-air release of a	genetically engineered	bacteria. St. Charles wouldn’t back down.	8BL
434	or so, massed to threaten a	genetically engineered	crop. Never has a band of agricultural sa	8BL
435	Gargan also worried about	genetically engineered	soybeans arriving from America. He oper	8BL
436	or identified as “Darina Allen	Genetically Engineered	” appeared on the screen wearing huge g	8BL
438	for an instant how a baked,	genetically engineered	potato that had been stored in mothballs	8BL
446	espread crossing between	genetically engineered	crops and their wild relatives? What wea	8BL
447	d people” in its drive to bring	genetically engineered	crops and food to the Continent. “Becau	8BL
448	Cry9C news conference by	Genetically Engineered	Food Alert, I received a telephone call p	8BL
450	uppliers to cease delivering	genetically engineered	potatoes, those invincible spuds for all s	8BL
451	chnology and its derivative,	genetically engineered	food, the solution to solving world hungE	8BL
452	claring the Cry9C discovery,	Genetically Engineered	Food Alert demanded a recall of the taco	8BL
453	tim to weeds and diseases,	genetically engineered	herbicide tolerance can appeal to a farm	8BL
454	d from genetic engineering.	Genetically Engineered	Food Alert is an alliance of seven advoc	8BL
455	had something new to fear:	genetically engineered	crops. The tolling bell for the family farm	8BL
456	Flavr Savr became the first	genetically engineered	product to reach U.S. supermarkets. By t	8BL
457	mercially launching its first	genetically engineered	crop, the disease-resistant potato. Amon	8BL
458	on’t yet have nitrogen-fixing	genetically engineered	plants because nitrogen fixing is not a sin	8BL
459	mong them are the flouring	genetically engineered	plants in my backyard, which shook off t	8BL
460	ment to tighten its rules for	genetically engineered	food. The company said that the govern	8BL
461	ting laws were adequate for	genetically engineered	products. In the spring of 1984, a new D	8BL
462	02 are wearing cotton from	genetically engineered	plants. Our genetically engineered food	8BL
463	identify clothing made from	genetically engineered	cotton. Stores responded that there’s no	8BL
464	ing of food that comes from	genetically engineered	plants… We believe that products that c	8BL
465	o: our milk from cows given	genetically engineered	growth hormone; our soft drinks with syr	8BL
466	al world. Instead of growing	genetically engineered	plants in a petri dish, they needed to spr	8BL
467	I let it slip that I am growing	genetically engineered	plants. It must have been the wine, beca	8BL
470	n when we feed the hungry	genetically engineered	food.” Hunger is an affliction that few Am	8BL
471	gricultural inputs…. Even if	genetically engineered	food has some yet-to-be-discovered intri	8BL
472	nted every inch that year in	genetically engineered	seeds. He didn’t answer the question un	8BL
473	American soybeans sown in	genetically engineered	seed had increased to about 54 percenT	8BL
474	ement of billions of dollars in	genetically engineered	products around the world. (With a top li	8BL
477	planning to conduct with its	genetically engineered	tomatoes. There had been signals from	8BL
478	s canola crop was one of its	genetically engineered	varieties. “It’s just too much,” he said. O	8BL
479	mer advocates calling itself	Genetically Engineered	Food Alert made a discovery they anno	8BL
480	Allen says, “is that so many	genetically engineered	foods are in the foods we eat. It worries	8BL

481	it would look into the matter.	Genetically Engineered Food Alert had already succeeded on t	8BL
482	dom of companies to move	genetically engineered foods around the world absent restrictio	8BL
483	smic melons can control my	genetically engineered soybeans. Just to be safe, I planted the	8BL
484	. The Roundup worked. My	genetically engineered soybeans remained green and hearty, al	8BL
485	als, in which I am testing my	genetically engineered soybeans against conventional ones. Of	8BL
486	ecome fond of watching my	genetically engineered soybeans grow. I see why the Chinese c	8BL
487	wife, Sandra, looked at my	genetically engineered soybeans for the first time. Her hands we	8BL
488	it, not my skill. Already, my	genetically engineered beans and the conventional beans are h	8BL
489	the drawing board for a new	genetically engineered hormone that induced cows to give more	8BL
490	xteen months earlier of new	genetically engineered crops — the Monsanto and Novartis hyb	8BL
491	to begin federal oversight of	genetically engineered fish. The prospect of faster-growing salm	8BL
492	s likely to end the spread of	genetically engineered crops. But in Europe, the new technology	8BL
493	a law banning the raising of	genetically engineered fish outside of enclosed ponds. A few we	8BL
494	about China's vast fields of	genetically engineered crops, first tobacco and now cotton. I had	8BL
495	llow commercial planting of	genetically engineered soybeans. American farmers had found t	8BL
496	with regard to his choice of	genetically engineered crops, before inviting me back to the farm	8BL
497	to plants awaiting sprays of	genetically engineered bacteria by University of California scienti	8BL
498	does not require labeling of	genetically engineered foods. Nor were there mechanisms in the	8BL
499	d I walked through fields of	genetically engineered crops to see for myself the seedlings of c	8BL
500	100 million into research on	genetically engineered crops. An agricultural ecologist who work	8BL
501	iculture, where field trials on	genetically engineered plants are recorded. Here, alongside des	8BL
502	02 are wearing cotton from	genetically engineered plants. Our genetically engineered food is	8BL
503	e just supposed to eat our	genetically engineered veggies and like it?" Kucinich had come t	8BL
504	broad authority to oversee	genetically engineered plants and animals. Federal agencies wer	8BL
505	nt, my two rows of pirated,	genetically engineered soybeans and my remaining row of conve	8BL
506	eered soybeans — pirated	genetically engineered seeds, to be exact — in my own backyard	8BL
507	al. Moments ago, I planted	genetically engineered soybeans — pirated genetically engineer	8BL
509	us when it comes to putting	genetically engineered crops into mass food production. "From t	8BL
510	d door with a sign that read:	GENETICALLY ENGINEERED ORGANISMS: AUTHORIZED PER	8BL
511	we have a choice to refuse	genetically engineered foods — without paying higher prices at w	8BL
512	oves approach in regulating	genetically engineered plants. On June 2, 1987, Rob Horsch, Ro	8BL
513	ed the import of Monsanto's	genetically engineered Roundup Ready soybeans. European ne	8BL
515	company in the world to sell	genetically engineered cotton, an insect-resistant variety called	8BL
516	orative, had been sprouting	genetically engineered sweet potatoes in a greenhouse in Kenya	8BL
517	tinational companies to stop	genetically engineered food while they still can. "We've never do	8BL
518	plied for permission to test	genetically engineered sugar beets in Irish fields. Watson, who h	8BL
519	ilities producing and testing	genetically engineered organisms will resume." PLANTINGS FO	8BL
520	ventional crops rather than	genetically engineered varieties. "What we are concerned about	8BL
521	dreams." Reddy knows that	genetically engineered crops are being tested in his country, and	8BL
522	nsumers won't demand that	genetically engineered food be labeled. Block labeling. Squelch t	8BL
523	DAY" ALL AROUND. The	genetically engineered NewLeaf Potato, as Monsanto called it, m	8BL
524	rbicide tolerance. Of all the	genetically engineered seeds planted in the world during the first	8BL
525	n about U.S. exports of the	genetically engineered StarLink corn tainted with a protein that c	8BL
526	ouse built in Bangalore, the	genetically engineered crops that the company says will feed Ind	8BL
527	s the flames rising from the	genetically engineered cotton in the photo showed. Their attack,	8BL
529	ecessary to see what these	genetically engineered soybeans are about. 16. IN CYBERSPAC	8BL
530	k are associated with these	genetically engineered crops. You can talk about losing Bt. Clear	8BL
531	as huge for the team: They	genetically engineered cotton, soybeans, potatoes, flax, and alfal	8BL
532	uch time stumbling through	genetically engineered plants or watching Colorado potato beetle	8BL
533	are in some ways unique to	genetically engineered plants because no other technology can b	8BL
534	to, which is working toward	genetically engineered remedies. Recently, Monsanto has taken	8BL
535	rley breeders intend to use	genetically engineered varieties in beer. Scanning the patchwork	8BL
537	rst spring since 1996, when	genetically engineered crops had become legal, sales of the new	8BL
538	f acres in Canada sown with	genetically engineered Roundup Ready canola seeds. In Watling	8BL
539	, eating food processed with	genetically engineered soybeans. When it comes to transformati	8BL

725	d to make cheese is often a	genetically engineered	version. Aspartame, the diet sweetener, i	10JS
726	Showa Denko introduced a	genetically engineered	strain that likely produced more contamin	10JS
727	that would suggest that any	genetically engineered	foods that have been allowed for human u	10JS
732	y had found its poster child,	genetically engineered	rice that makes its own beta-carotene — a	10JS
733	of L-tryptophan created from	genetically engineered	bacteria. This would explain why research	10JS
734	ing of food that comes from	genetically engineered	plants…. We believe that products that co	10JS
735	t the FDA is not regulating	GE [genetically engineered	] foods at all… It declared that the FD	10JS
736	e. Vanillin can also be GM. “	Genetically engineered	bacteria and fungi are routinely used as s	10JS
737	cted, accidental changes in	genetically engineered	plants justifies a limited traditional toxicolo	10JS
738	has now been observed in	genetically engineered	bacteria, yeast, plants, and animals with t	10JS
740	or of the Campaign to Label	Genetically Engineered	Foods, they used fear and distortion. For	10JS
741	volved. Currently, the major	genetically engineered	crops are soy, cotton, canola, and corn. O	10JS
742	bout the safety of their new	genetically engineered	products at least 120 days before they ar	10JS
743	he farmer had tried the new,	genetically engineered	soybeans. And you can see exactly wher	10JS
744	ed legitimate. In the area of	genetically engineered	food regulation, the ‘competent’ agencies	10JS
745	ee that Monsanto’s push of	genetically engineered	foods has been a failure. The company’s	10JS
746	tural Law and co-author of	Genetically Engineered	Foods: Are They Safe? You Decide, deli	10JS
747	the potential allergenicity of	genetically engineered	constructs, I posed the question: When y	10JS
748	ogy. “This proposal is full of	genetically engineered	baloney,” said Kucinich, who described t	10JS
749	verseeing the expansion of	genetically engineered	food was given to the enthusiastic Rober	10JS
750	ing tests on a new variety of	genetically engineered	potatoes that the Scottish Ministry had h	10JS
751	esent this sensitive issue of	genetically engineered	L-tryptophan to the lawmakers. They kne	10JS
752	otes regarding regulation of	genetically engineered	foods. The documents were submissions	10JS
753	knew about the dangers of	genetically engineered	foods. The story of Arpad Pusztai made	10JS
754	safety and acceptability of	genetically engineered	food, and give some credence to the ma	10JS
755	ation of the FDA’s policy on	genetically engineered	food. According to Druker, records show	10JS
756	ministration’s new policy on	genetically engineered	food: “The reforms we announce today w	10JS
757	n immediate moratorium on	genetically engineered	foods. The biotech companies assure the	10JS
758	e field with Roundup Ready	[genetically engineered	] beans had been planted to conventional	10JS
759	y reviewed the recombinant	(genetically engineered	) bovine growth hormone (rbGH), which,	10JS
760	as not focused on removing	genetically engineered	foods per se, by taking out the vending m	10JS
761	y also removed Monsanto’s	genetically engineered	artificial sweetener aspartame from their	10JS
762	ylor, approved Monsanto’s	genetically engineered	bovine growth hormone — which no oth	10JS
763	ainly Archer knew about the	genetically engineered	bacteria. In fact, in 2001, when I mention	10JS
764	l beans on one side and the	genetically engineered	beans, untouched by the geese, on the o	10JS
765	amycin] gene marker in the	genetically engineered	tomatoes. I know this could have serious	10JS
766	ry, Searle — makers of the	genetically engineered	sweetener aspartame. Mitch Daniels, dir	10JS
767	ners with Monsanto on the	genetically engineered	bovine growth hormone. Tommy Thomps	10JS
768	Lies about the Safety of the	Genetically Engineered	Foods You’re Eating. Fairfield, Iowa: Ye	10JS
769	lt from other varieties of the	genetically engineered	Bt crops still on the market. According to	10JS
770	quences might arise….. The	genetically engineered	crops now being grown represent a mas	10JS
771	y studies conducted on the	genetically engineered	bovine growth hormone (rbGH). Accordi	10JS
772	method of production: They	genetically engineered	their bacteria to dramatically increase yi	10JS
773	d industries with respect to	genetically engineered	foods.” Some small amount of StarLink	10JS
774	nts.” They warned, “‘unless	genetically engineered	plants are evaluated specifically for thes	10JS
776	Cornell University’s website	Genetically Engineered	Organisms, Public Issues Project (GEO	10JS
778	ds of foods produced with	genetically engineered	cooking agents, food additives, and enz	10JS
779	have products made without	genetically engineered	ingredients.’ Other, even larger U.S.-bas	10JS

Genetically modified (257)

103	etically modified organ, or a	genetically modified	whole animal. Is a pancreas or kidney pate	4JR
104	val of this first field test of a	genetically modified	organism in the 1980s, scant attention had	4JR
105	to patenting a cell line, or a	genetically modified	organ, or a genetically modified whole anim	4JR
106	the pollution generated by	genetically modified	organisms is so different from the pollution	4JR
107	scientific knowledge of how	genetically modified	organisms interact, once introduced into the	4JR
108	e, and nearly two hundred	genetically modified	animals, including pigs, cows, and sheep,	4JR

109	from the bacteria. This new	**genetically modified** P. syringae microbe is called ice-minus. Sc	4JR
110	ale commercial releases of	**genetically modified** organisms are now being approved for the f	4JR
111	d expedient introduction of	**genetically modified** organisms into the environment, always mi	4JR
112	assure the safe release of	**genetically modified** organisms. For the most part, the media an	4JR
113	ousands of introductions of	**genetically modified** organisms could well exceed the damage th	4JR
114	by the deliberate release of	**genetically modified** organisms into the environment. A subsequ	4JR
115	ial dangers in the release of	**genetically modified** organisms. Developing a Predictive Ecology	4JR
116	of protocols for field tests of	**genetically modified** organisms. The so called “field tests” were	4JR
117	or for that matter, any other	**genetically modified** organism into the open environment. The go	4JR
118	dverse impacts of releasing	**genetically modified** organisms into the biosphere. Playing Ecolo	4JR
119	mpanies anxious to supply	**genetically modified** animal organs to tens of thousands of patie	4JR
120	troduced into the cells. The	**genetically modified** cells were then reintroduced back into the c	4JR
121	cial advantage in using this	**genetically modified** enzyme to clean up the effluent from paper	4JR
390	any wants to grow or self a	**genetically modified** crop in Europe, it must first apply to a single	7IB
391	ld force countries to accept	**genetically modified** foods, even if their consumers did not want	7IB
392	all products containing any	**genetically modified** food. The directive was seen as an importa	7IB
393	not just of seed, but of any	**genetically modified** food or feed to be subject to their regulator	7IB
395	, and baby foods contained	**genetically modified** ingredients. Consumer anxiety was fueled	7IB
396	ing to the damaging effects	**genetically modified** potatoes had on the immune systems and	7IB
397	modification and GMO for	**genetically modified** organisms became part of everyday langu	7IB
398	ers agreed to an inquiry into	**genetically modified** food. Also increasingly in 1999, internation	7IB
399	aw European efforts to label	**genetically modified** foods as equivalent to a non-trace tariff bar	7IB
400	ms and the patenting of life.	**Genetically modified** foods were also rejected by a laypeople’s c	7IB
401	feel reassured with the new	**genetically modified** labelling regime. It is a curate’s egg, design	7IB
402	o laws on the distribution of	**genetically modified** products, while laws exist on agricultural ch	7IB
403	dared to restrict the sale of	**genetically modified** foods. “As long as these products prove sa	7IB
404	lly no tests on the effects of	**genetically modified** foods on mammals and humans clone any	7IB
405	search and development of	**genetically modified** crops in Canada.” The biosafety protocol w	7IB
406	tain even trace amounts of	**genetically modified** organisms. Processors like Unilever and N	7IB
407	rgest grocery chains pulled	**genetically modified** products from their in-house brands. Zenec	7IB
408	ting companies to separate	**genetically modified** crops from conventional grains. Corporate	7IB
409	that by early 1998, only two	**genetically modified** organisms (GMOs) had been legally cleare	7IB
410	they would ban unlabeled,	**genetically modified** foods despite a European Union agreemen	7IB
411	tschland pledged not to use	**genetically modified** soybeans. The British supermarket chains A	7IB
412	anies had to state whether	**genetically modified** soy or corn had been used in their foodstuff	7IB
545	d for its pale yellow tint, is a	**genetically modified** variety that produces extra levels of beta-ca	8BL
546	happen. Suspicions about	**genetically modified** food would be reinforced and, rightly or wro	8BL
547	m because concerns about	**genetically modified** food were running so high. Corn exports to	8BL
548	s not to issue rulings about	**genetically modified** food or to adjudicate complaints about Euro	8BL
549	ere.” When Paul talks about	**genetically modified** crops, it seldom has anything to do with effi	8BL
550	s I suspected, to talk about	**genetically modified** food. The subject has consumed us both of	8BL
551	to force the world to accept	**genetically modified** food. Yet these days, wherever I traveled o	8BL
552	ition had coalesced against	**genetically modified** organisms, or GMOs as Europe had begun	8BL
553	t to reopen the rules to allow	**genetically modified** foods to be classified as organic. “It’s clear	8BL
554	ns. Outside North America,	**genetically modified** farming thrives most where democracy thri	8BL
555	y the U.S. government and	**genetically modified** food giant Monsanto.” The story went on to	8BL
556	includes animal cloning and	**genetically modified** foods, is the biggest threat to mankind since	8BL
557	port for biotechnology and	**genetically modified** food,” he had written. The battle over GMOs	8BL
558	nited States had approved	**genetically modified** crops, farmers had planted them on more th	8BL
559	ad: It aimed not only to ban	**genetically modified** crops but also prohibit the breeding of livest	8BL
560	sserted that Iceland banned	**genetically modified** ingredients “because we refuse to produce f	8BL
562	cover commodities, chiefly	**genetically modified** grain shipments from the United States. Th	8BL
563	y potent issue. COLLAPSE.	**Genetically modified** food is challenging the structure of the Eur	8BL
564	any foods found to contain	**genetically modified** ingredients in tests sponsored by Consume	8BL
565	s around the world contain	**genetically modified** ingredients, most often modified soybeans. I	8BL

566	ages of food that contained	genetically modified ingredients. “If they resist strongly enough, it	8BL
567	re do you store the damn	genetically modified seeds?” Riesel demanded of a worker. Six	8BL
568	e laboratory race to design	genetically modified food, deploy its Washington connections to	8BL
569	North Americans are eating	genetically modified foods regularly, but they don’t know which o	8BL
570	le don’t know they’re eating	genetically modified food — and the FDA says that labeling isn’t	8BL
571	rice, will be bred from a few	genetically modified varieties — unless pressure dictates otherw	8BL
572	rvest seasons after the first	genetically modified seeds were sown commercially in the Unite	8BL
573	iotechnology companies fits.	Genetically modified foods stalled on the way to the global mark	8BL
574	troduction of new foodstuffs-	genetically modified organisms … They have refused to inform	8BL
575	gotiations to write rules for	genetically modified organisms collapsed Wednesday amid de	8BL
576	an tell you, GMO stands for	genetically modified organism, which is what you get when you	8BL
577	’s patchwork regulations for	genetically modified food. Cry9C is one of a family of crystalline	8BL
578	ed 1998 as a pivotal year for	genetically modified food. Led by Monsanto, life-science compa	8BL
579	ing the dumping grounds for	genetically modified organisms,” he said, over a plate of beans	8BL
580	of ground into factories for	genetically modified food. I’d like to know why they got in cahoo	8BL
581	new and toughened rules for	genetically modified food, a step toward ending the de facto mo	8BL
582	hers against Frankenfood —	genetically modified food — and agricultural interests of Europe	8BL
583	ealth threat to humans from	genetically modified food. Even so, from now on, they want citiz	8BL
584	the United States grew from	genetically modified seeds, and by the new century, nearly two-	8BL
585	edicts lasting damage from	genetically modified seeds. “Contamination of the soil is irrevers	8BL
586	ere to save the seeds from	genetically modified plants, they would avoid the “technology fe	8BL
587	consumed soy sauce from	genetically modified soybeans grown in the United States. In Ch	8BL
588	crying “global food rot” from	genetically modified ingredients. In her view, the rotting of soybe	8BL
589	at its regulations governing	genetically modified foods were unassailable. A Japanese telev	8BL
590	g of gene-altered plants. In	genetically modified food, Ireland’s warring factions found a com	8BL
591	al treaty to regulate trade in	genetically modified products failed this morning when the Unite	8BL
592	re of my broader interest in	genetically modified food, Neill told me that he was concerned a	8BL
593	s was also about culture. In	genetically modified food, many skeptics see not just the threat o	8BL
594	s. His projects didn’t involve	genetically modified seeds because Monsanto didn’t, as he put I	8BL
595	hat really gets him going is	genetically modified seed. I happen to have a bag of them with	8BL
597	ency for permits to plant its	genetically modified sugar beets at ten more farms around the c	8BL
598	-to-plate” demands to label	genetically modified products from before they sprout until the ti	8BL
599	an issue roil the waters like	genetically modified food. In Britain, Mad Cow Disease had ignit	8BL
600	arch aimed at selling more	genetically modified soybeans in the seventy countries where it	8BL
601	mmission approvals of new	genetically modified crops. Early in this new century, the morato	8BL
602	aolo four months before. No	genetically modified crops could be legally planted in Brazil — th	8BL
603	w& live on, whether or not	genetically modified crops flourish. My only decision is how muc	8BL
604	as slowing the expansion of	genetically modified agriculture. In addition, the inherent needs	8BL
605	s its doors. The lushness of	genetically modified crops is displayed at Monsanto Company’s	8BL
606	th about the deployment of	genetically modified seeds. There indeed may be costs to plant	8BL
607	r payback arrived in bags of	genetically modified seeds unloaded at British docks. In 1999, th	8BL
608	desirable consequences of	genetically modified crops. Farmers wouldn’t care to see the ne	8BL
609	condemning the prospect of	genetically modified food wearing the organic label. Another 40,	8BL
610	ng: in the middle of a field of	genetically modified soybeans. DINNER. With a few phone calls	8BL
611	turn determine the future of	genetically modified food in all of Europe. And around the world,	8BL
612	d the world on the arrival of	genetically modified food. In the waning years of the 1990s, Mo	8BL
613	rotesters attacking a field of	genetically modified crops. Environmentalists complained to BB	8BL
614	s students to steer clear of	genetically modified ingredients. 13. IN FRANCE, DEMOCRAC	8BL
615	but tempestuous history of	genetically modified food. The white-clad attackers no longer w	8BL
616	e brief but stormy history of	genetically modified food, late 1998 to early 1999 was the perio	8BL
617	districts included swaths of	genetically modified crops already planted for export. For them,	8BL
618	embly to require labeling of	genetically modified foods. In California, at the Mill Valley home	8BL
619	and the modern architect of	genetically modified foods, never would sit with me for an interv	8BL
620	Until recently, the arrival of	genetically modified food in Europe looked like a fait accompli.	8BL
621	the environment, the risk of	genetically modified food seems, to an outsider, dwarfed by the	8BL

622	wing out of the business of	**genetically modified** potatoes. With Monsanto holding iron-fiste	8BL
623	concluded that the future of	**genetically modified** foods was, at that moment, grim. It didn't m	8BL
624	head off growing criticism of	**genetically modified** seeds. But the effort seemed only to throw	8BL
625	fied so soon, the creators of	**genetically modified** food have led us to believe that the march	8BL
626	any slaps onto each bag of	**genetically modified** seeds and the binding contracts with farme	8BL
627	stein's monster; the fate of	**genetically modified** food remains uncertain. The transnationals	8BL
628	te in favor of the release of	**genetically modified** organisms on foot of lobbying from the U.S.	8BL
629	ssages about the safety of	**genetically modified** crops and food." There was more at work	8BL
630	les. In Seattle, the place of	**genetically modified** food in the modern environmental movem	8BL
631	g them to fight the critics of	**genetically modified** food. "We have to take to the streets ours	8BL
632	ths earlier torched fields of	**genetically modified** cotton and anointed their attacks with a chill	8BL
633	around 71.8 million acres of	**genetically modified** soybeans and corn in 1999-72 percent of th	8BL
634	aid of the pending arrival of	**genetically modified** seeds. Unfortunately for Monsanto, the Ter	8BL
635	pting to regulate the flow of	**genetically modified** products. 20. THE BATTLE OF SEATTLE.	8BL
636	s on what I'm told is a plot of	**genetically modified** cotton in the Bellary district in the state of K	8BL
637	emerged that a producer of	**genetically modified** crops has given money to the Labor Party."	8BL
638	the country. The advance of	**genetically modified** food had stalled, and perhaps not just in Eu	8BL
639	aution — and labeling — of	**genetically modified** foods. Those anti-GMO feelings could well	8BL
640	the unknown. In the case of	**genetically modified** food, that means preventing products from	8BL
641	pen as far as acceptance of	**genetically modified** food in the world. But standing in this field o	8BL
642	. But standing in this field of	**genetically modified** corn, I am able to see that the future holds	8BL
643	st knowledgeable critics of	**genetically modified** farming. She believes that genetic enginee	8BL
644	talk about another wave of	**genetically modified** products is folly. "I had a meeting with a top	8BL
645	n with the foremost critic of	**genetically modified** food had run full circle. "If I were making a b	8BL
646	f billions of dollars' worth of	**genetically modified** products. Like K Street lobbyists outside the	8BL
647	nsider better regulations of	**genetically modified** food. "This issue will be around for years a	8BL
648	s for mandatory labeling of	**genetically modified** foods; and farmers concerned about multin	8BL
649	ill handle the shipments of	**genetically modified** commodities. Any shipment containing "livin	8BL
650	hest level defense to date of	**genetically modified** food. In his speech, the president promised	8BL
651	pplications to begin work on	**genetically modified** rice, corn, and sugarcane, I am told. If Mon	8BL
652	um for global decisions on	**genetically modified** food shifted to Montreal as policy makers p	8BL
653	world's colliding policies on	**genetically modified** food. As a United States trade official put it,	8BL
654	g chasm dividing nations on	**genetically modified** food — seemed the appropriate résumé. R	8BL
655	e European Commission on	**genetically modified** crops. Later, a National Security Council off	8BL
656	get Sound for the forum on	**genetically modified** food, police had kept us standing outside in	8BL
657	alled for a five-year ban on	**genetically modified** foods. The authoritative Guide ran an edito	8BL
658	id, submitted his speech on	**genetically modified** food to the White House for the usual vetting	8BL
659	to have abandoned him on	**genetically modified** food." In May, I found myself on the fringes o	8BL
660	d that the road to a treaty on	**genetically modified** food twisted through Seattle, where the Worl	8BL
661	ree to the working group on	**genetically modified** food. For two years, as activists and Europe	8BL
662	ganic farming or fertilizers or	**genetically modified** food. She is trying to feed her children. Let	8BL
663	ds had not heard of Shiva or	**genetically modified** crops. Several I met in the south India villa	8BL
664	long and say 'here it is, our	**genetically modified** food, put it in your lunch today and like it.' T	8BL
665	Internet. The debate over	**genetically modified** foods began in earnest just as the number	8BL
666	epticism in the debate over	**genetically modified** food. On the next-to-last day of negotiations	8BL
667	policy in the world war over	**genetically modified** food. Glickman had fought as a warrior for	8BL
668	what the global debate over	**genetically modified** food is about. For India, the potential risk o	8BL
669	e consultative process over	**genetically modified** foods by voting in line with the lobbying whi	8BL
670	early 1999, the debate over	**genetically modified** foods was as much a part of British culture	8BL
671	ing the global impasse over	**genetically modified** crops and thus carry the world toward the	8BL
672	he would consider planting	**genetically modified** seeds again, he paused only briefly before	8BL
673	ten their quest to produce	**genetically modified** food that is more nutritious — or more appe	8BL
674	a government that promoted	**genetically modified** foods in word and deed. "We can't shove it	8BL
675	gton) is green with rapeseed	**genetically modified** to resist AgrEvo's Liberty herbicide. In othe	8BL
676	treaty proposed to regulate	**genetically modified** food is suffering a similar fate near the spot	8BL

677	dministration, in regulating	genetically modified food. They knew from working with farmers	8BL
678	o scientist Stephen Rogers.	GENETICALLY MODIFIED FOOD is part of the fabric of America	8BL
679	ll sides. The protesters say	genetically modified crops must be proved safe in field tests. But	8BL
680	ons that they were sneaking	genetically modified soybeans into the European food chain. The	8BL
681	e of years ago. I grew some	genetically modified potatoes in my otherwise organic garden, to	8BL
682	g other than fallen soufflés:	genetically modified food. With few exceptions, you don’t find pr	8BL
683	ploded over its plans to sow	genetically modified crops. Even proposals for field tests on tiny	8BL
684	science companies will sow	genetically modified seeds in Indian soil. Genetic technologies, a	8BL
685	ded and potentially sowing	genetically modified crops. Pat Mooney was quoted widely as sa	8BL
686	ident Bill Clinton to support	genetically modified food. Blair and genetic modified food proved	8BL
687	out Monsanto’s plan to test	genetically modified sugar beets in Ireland. After Monsanto’s first	8BL
688	and the growing sense that	genetically modified food has nothing to offer people who equate	8BL
689	inois farm. He believes that	genetically modified seeds “have made a lot of bad farmers good	8BL
690	cals. Nor is he hopeful that	genetically modified plants will ease the plight of farmers in the f	8BL
691	op breeding. “The view that	genetically modified organisms pose new or greater dangers to	8BL
692	o the industry’s promise that	genetically modified plants would cut the use of farm chemicals.	8BL
693	was about to announce that	genetically modified foods would be prohibited from proudly bea	8BL
694	lobe with the message that	genetically modified crops are dangerous to farmers in the devel	8BL
695	The people at the top of the	genetically modified food chain think about science and farming	8BL
696	n’t have to worry about their	genetically modified seeds being filched, they would be more lik	8BL
698	go-ahead to sell nearly thirty	genetically modified foods, beginning with Calgene’s Flavr Savr	8BL
699	ifert was an early convert to	genetically modified crops, and he’ll plant any gene-altered new	8BL
700	governance. Resistance to	genetically modified food, the world saw in Seattle, was a unifier	8BL
701	rmanently ill, was linked to	genetically modified food, a Labor MP claimed in a Commons d	8BL
702	the efforts of opponents to	genetically modified food. “Now, we strike back.” This is not a w	8BL
703	too late. Europe was lost to	genetically modified plantings for the foreseeable future, and Eu	8BL
704	oping country’ that is using	genetically modified crops is China, and they have very rapidly a	8BL
705	tivists in the mid-1990s was	genetically modified food, and the Internet brought them togeth	8BL
707	on the turbulent times when	genetically modified food was introduced to the world. He replied	8BL
708	es of globalization, of which	genetically modified food is a symptom. The chaos in the streets	8BL
709	val of a new politics in which	genetically modified food is at once a crucible for change and a	8BL
710	pected the unfamiliarity with	genetically modified food — even from neighbors who read hig	8BL
711	would remove products with	genetically modified ingredients from their shelves. McDonald’s	8BL
712	l feelings toward foods with	genetically modified ingredients have grown dramatically more	8BL
713	diation? If it were grown with	genetically modified seeds? Up to then, never had the Agricultu	8BL
714	have filled increasingly with	genetically modified grains since 1996, the year they were first p	8BL
715	from the git-go, not just with	genetically modified seeds. He and his father, Ed, invent farm m	8BL
716	of a poll and these words:	“Genetically modified fruits and vegetables are an increasingly c	8BL
717	l seeds. In an average year,	genetically modified seeds will produce the same or more as reg	8BL
784	vironmental impact. Once a	genetically modified organism is released into the environment, I	10JS
785	was the FDA’s first look at a	genetically modified food-related product. As such, there was a l	10JS
786	ays both heard the news. A	genetically modified corn product called StarLink, which contain	10JS
787	ted both natural corn and a	genetically modified Bt variety on his farm in Maurice, Iowa. Cur	10JS
790	rces. In addition, there are	genetically modified food additives, enzymes, flavorings, and pro	10JS
794	” 13. Risks from Breathing	Genetically Modified DNA. In the summer of 2003, thirty-nine peo	10JS
795	t case of contamination by	genetically modified material because it happened in the place of	10JS
796	nts. There’s a list of current	genetically modified enzymes in appendix B, describing how eac	10JS
797	ur queasiness about eating	genetically modified food, kids in the third world will go blind.” “Y	10JS
798	to introduce the world’s first	genetically modified food crop: the FlavrSavr Tomato. Gifted with	10JS
799	the absence of labeling for	genetically modified products,” write Rampton and Stauber in Tr	10JS
800	t animal feeds derived from	genetically modified plants present unique animal and food safe	10JS
801	nt of processed foods have	genetically modified ingredients, seem, as yet, unconcerned.” R	10JS
802	made to work for us. And if	genetically modified food will be shown to be safe then we have	10JS
805	panies to consider labeling	genetically modified food to help prevent consumer fears from s	10JS
807	elatively large proportion of	genetically modified DNA survived the passage through” the sm	10JS

808	nderstood in the science of	**genetically modified** crops. They said: "Controversies and know	10JS
809	all but shut out criticism of	**genetically modified** (GM) food and crops from their opinion pag	10JS
810	showdown. U.S. exports of	**genetically modified** corn and soy are down, and hungry African	10JS
811	has focused on the issue of	**genetically modified** food. It has not looked at gene therapy or g	10JS
812	moratorium on the sale of	**genetically modified** crops. The controversy was re-ignited in ful	10JS
813	st's opinion on the safety of	**genetically modified** foods and were particularly keen to hear fro	10JS
814	the serious health risks of	**genetically modified** (GM) foods. It was barely mentioned, howe	10JS
815	l 27, 2002: "Safety tests on	**genetically modified** maize currently growing in Britain were flaw	10JS
816	not changed their stance on	**genetically modified** food adopted in 1992," which states that th	10JS
817	t looked at gene therapy or	**genetically modified** medicine. There are fundamental differenc	10JS
818	ch we are producing for our	**genetically modified** potatoes. I actually believe that this technol	10JS
819	sion of the controversy over	**genetically modified** organisms (GMOs) until May 1999. But tha	10JS
820	remove, as far as possible,	**genetically modified** soy and maize (corn) from all food products	10JS
822	effects on the health of rats.	**Genetically modified** potatoes were already being sold and cons	10JS
823	ng blocs. All those who see	**genetically modified** food as a scary prospect —'Frankenstein fo	10JS
825	o create a model for testing	**genetically modified** (GM) foods, verifying that they were safe to	10JS
826	he scientific community that	**genetically modified** food is no different from conventional food."	10JS
827	ment. This should mean that	**genetically modified** Bt crops are immune to scrambling. Bt cro	10JS
828	sed on the assumption that	**genetically modified** foods were stable. Nutrient levels were not	10JS
829	p, for example, warned that	**genetically modified** plants could "contain unexpected high conc	10JS
830	mmune system. One of the	**genetically modified** potatoes, after 110 days, made rats less re	10JS
831	turned their noses up at the	**genetically modified** FlavrSavr tomato that scientists were so an	10JS
832	ly difference being that the	**genetically modified** variety also had Roundup Ready genes. Th	10JS
833	mans, or are mixed with the	**genetically modified** variety in milk, the FDA assures us that ther	10JS
834	ate to demonstrate that the	**genetically modified** foods described were safe for human or an	10JS
835	ignificant percentage of the	**genetically modified** Roundup Ready variety. The fact that GM s	10JS
836	Or consider the case of the	**genetically modified** artificial sweetener aspartame: About 165	10JS
837	sfortune to eat one of these	**genetically modified** wonders, the Bt, which was manufactured b	10JS
838	is possible that some of this	**genetically modified** version finds its way into the milk along with	10JS
839	End Hunger in Africa using	**genetically modified** (GM) foods. He also blamed Europe's "unfo	10JS
840	de it clear that in their view,	**genetically modified** crops were assumed to be safe and to offer	10JS
246	vine somatotropin milk and	**genetically modified** crops is littered with the company buying its	6LA
247	t result from the release of	**genetically modified** viruses; every virus construct, every host a	6LA

Genetically altered (18)

1	le commercial release of a	**genetically altered** organism were to result in a catastrophic en	4JR
2	gainst both an extract from	**genetically altered** soybeans containing a gene from the Brazil n	4JR
3	slavery. On the other hand,	**genetically altered** human embryos and fetuses as well as huma	4JR
4	ing that the transplanting of	**genetically altered** animal organs into humans could result in ani	4JR
5	direct effects of releases of	**genetically altered** organisms is vindicated.... Dr. Steven Lindow,	4JR
7	eadly Chagas disease. The	**genetically altered** bacteria produce an antibiotic that kills the dise	4JR
249	unmodified plants next to a	**genetically altered** crop. These so-called "refuges" are supposed	7IB
250	uce section, the shelf life of	**genetically altered** tomatoes will be measured in months rather t	7IB
251	lergy reacted strongly to the	**genetically altered** soybeans. Skin-prick tests on three subjects p	7IB
414	Flavr Savr tomato in 1994.	**Genetically altered** soybeans harvested in the first two years of c	8BL
415	ensed, open-air testing of a	**genetically altered** microorganism. But fear also was taking root.	8BL
416	operations with pollen from	**genetically altered** corn blowing in the wind. It is not an unreason	8BL
417	d concert toward the field of	**genetically altered** rapeseed. At an opening along the perimeter o	8BL
418	sting by the government of	**genetically altered** food. Nor in America, biotech incubator of the	8BL
419	adline "Canadians Wary of	**Genetically Altered** Foods" showed that two-thirds of people surv	8BL
420	d all these seeds to sprout,	**genetically altered** food would take root on European soil once a	8BL
421	, abortion has given way to	**genetically altered** food as the hot topic. She's heard that nobody	8BL
721	bly the greatest threat from	**genetically altered crops**." He says that laboratory research dem	10JS

Genetically manipulated (5)

383	hicken will come from birds	**genetically manipulated** not to mind their otherwise intolerable c	7IB

384	ning that they could contain	**genetically manipulated** organisms. In an effort to satisfy the app	7IB
386	he most cursory policing of	**genetically manipulated** crops and animals. They are much busi	7IB
387	reproductive capabilities of	**genetically manipulated** organisms to produce large quantifies o	7IB
388	owth. But by 1996, a flood of	**genetically manipulated** crops were approved in North America f	7IB
389	s confident it can control the	**genetically manipulated** life it unleashes into the ecosystem. Ser	7IB
		Others (5)	
381	who produce and regulate	**genetically engineering** food: "Don't trust them. Period." 12. MA	7IB
543	t have a taste for regulating	**genetically engineering** foods." STUNG. Four days after the Cry9	8BL
719	e of naturally occurring and	**genetically mutated** seeds would, if allowed to germinate, create	8BL
780	to as a molecular biologist,	**genetically engineering** food. I chewed slowly and considered m	10JS
783	expected to conclude [that]	**genetically improved** corn poses negligible harm to the monarch	10JS

Table 8.25: *Concordance of 'Genetically + adjective + Noun' in the soc corpus.*

GENÉTICAMENTE (sci corpus) (211)			
Modificados genéticamente (119)			
10	n la planta **modificada**	**genéticamente**. Además, su presencia podría afectar,	1ER
11	había sido **modificada**	**genéticamente** de modo que servía para limpiar los v	1ER
12	, la planta **modificada**	**genéticamente** debe examinarse con el mismo cuidad	1ER
13	a bacteria **modificada**	**genéticamente** para comerse el petróleo vertido en el	1ER
14	llevar ADN **modificado**	**genéticamente** al interior las células. También se está	1ER
15	un animal **modificado**	**genéticamente** fue concedida al presidente y a los mi	1ER
16	ganismos **modificados**	**genéticamente** (bacterias, virus y plantas) ha empeza	1ER
17	ganismos **modificados**	**genéticamente** debe examinar, en primer lugar, la pr	1ER
18	ganismos **modificados**	**genéticamente** debe detenerse hasta que tengamos	1ER
19	rganismos **modificados**	**genéticamente** es que están vivos. Si se descubre que	1ER
20	animales **modificados**	**genéticamente**. • La modificación de genes en la línea	1ER
21	rganismos **modificados**	**genéticamente** podría producir problemas ambientale	1ER
31	vegetales **modificadas**	**genéticamente** que depende de la presencia de un ge	2SA
33	productos **modificados**	**genéticamente** como el tomate Flavr Savr deberían lle	2SA
34	rganismos **modificados**	**genéticamente**. Sin embargo, sigue habiendo mucha	2SA
72	caracteres **modificados**	**genéticamente** con éxito. Los investigadores han desc	3EG
133	a del suelo **modificada**	**genéticamente**, y que se creía que era por completo	5MH
134	nsgénicas **modificadas**	**genéticamente** para obtener resistencia viral mediant	5MH
135	nsgénicas **modificadas**	**genéticamente** para ser resistentes al virus del mosai	5MH
137	de cultivo **modificadas**	**genéticamente** que en este momento se emplean en	5MH
138	de cultivo **modificadas**	**genéticamente** (véase el capítulo 8). Las bacterias pu	5MH
139	corratón», **modificado**	**genéticamente** para desarrollar cáncer, ya patentado	5MH
142	os de soja **modificados**	**genéticamente** con un gen de la nuez brasileña eran	5MH
143	us cultivos **modificados**	**genéticamente**. En marzo, conocí unos granjeros enc	5MH
144	e cultivos **modificados**	**genéticamente**. Estos no alimentarán al mundo; por e	5MH
145	e cultivos **modificados**	**genéticamente**. Estos no alimentarán al mundo; por e	5MH
146	alimentos **modificados**	**genéticamente** fue iniciada en mayo de 1998 por una	5MH
148	alimentos **modificados**	**genéticamente**: la agricultura de ingeniería genética e	5MH
149	on cerdos **modificados**	**genéticamente** mediante un gen de la hormona de cr	5MH
151	r, ratones **modificados**	**genéticamente** para adquirir la enfermedad de Lesch	5MH
152	productos **modificados**	**genéticamente**; pero la sociedad civil se resiste y la ci	5MH
153	productos **modificados**	**genéticamente**. Y la resistencia continúa difundiendo	5MH
186	da con STB **modificada**	**genéticamente**, las frutas cultivadas con bacterias ice	5MH
187	llas de soja **modificada**	**genéticamente**, ni de cualquier otro cultivo protegido	5MH
188	quimosina **modificada**	**genéticamente**, no requiere un etiquetado que lo dife	5MH
189	erecedera **modificada**	**genéticamente** que llegó al mercado. Un informe det	5MH
190	unidense, **modificada**	**genéticamente**, que desarrolló Monsanto en colabora	5MH
191	vina (STB) **modificada**	**genéticamente**, una hormona del crecimiento que las	5MH
192	mezclada, **modificada**	**genéticamente** y no modificada, llegó al aeropuerto b	5MH
194	bacterias **modificadas**	**genéticamente**, en detrimento de la producida por el	5MH
195	ariedades **modificadas**	**genéticamente**. Es probable que los cultivos resistent	5MH
196	las sojas **modificadas**	**genéticamente**. Esta patente contemplaba toda la soj	5MH
197	bacterias **modificadas**	**genéticamente** fabrican fármacos y suplementos alim	5MH
198	as plantas **modificadas**	**genéticamente** han de transportarse en contenedore	5MH
199	ir de sojas **modificadas**	**genéticamente** no tenían por qué ser distintos de los	5MH

200	levaduras **modificadas**	**genéticamente**	para producir queso, cerveza y pan c	5MH
201	s patatas, **modificadas**	**genéticamente**	para que sus células mueran si result	5MH
202	y verduras **modificadas**	**genéticamente**	para lograr una mayor durabilidad ant	5MH
203	cterísticas **modificadas**	**genéticamente**	. Si continúan las tendencias de 1996 y	5MH
204	evaduras **modificadas**	**genéticamente**	también se han utilizado en repostería	5MH
205	semillas **modificadas**	**genéticamente**	y el incremento en las ventas de herb	5MH
206	alimento **modificado**	**genéticamente**	. Asimismo, Monsanto solicitó, por me	5MH
208	de algodón **modificado**	**genéticamente**	, con independencia de las técnicas o g	5MH
209	rado maíz **modificado**	**genéticamente**	de un modo informal. En 1997, Ciba-G	5MH
211	e material **modificado**	**genéticamente**	en los productos. Esto implicaba que,	5MH
212	organismo **modificado**	**genéticamente**	en sí mismo. En la elaboración de cerv	5MH
213	organismo **modificado**	**genéticamente**	en un ecosistema agrícola. Se aisló una	5MH
215	el Pacífico, **modificado**	**genéticamente**	para que deje de emigrar cada año del	5MH
217	imer aceite **modificado**	**genéticamente**	que se comercializó de la canola con m	5MH
218	un tomate **modificado**	**genéticamente**	que no se reblandece al madurar. Calg	5MH
221	aculovirus **modificado**	**genéticamente**	(véase el capítulo 5). En 1989, la Royal	5MH
222	d del maíz **modificado**	**genéticamente**	y el riesgo de transmisión a los seres h	5MH
223	e cultivos **modificados**	**genéticamente**	: 1,2 millones de hectáreas de soja, alg	5MH
224	rganismos **modificados**	**genéticamente**	. A pesar de todo, muchos países en de	5MH
226	redientes **modificados**	**genéticamente**	; así, por ejemplo, sólo la soja se emple	5MH
228	microbios **modificados**	**genéticamente**	. Calgene (Monsanto en la actualidad),	5MH
229	aculovirus **modificados**	**genéticamente**	como instrumentos análogos a los ins	5MH
230	roductos **modificados**	**genéticamente**	, como insulina humana y la vacuna de	5MH
231	productos **modificados**	**genéticamente**	, como sucedió cuando Wisconsin y Mi	5MH
232	nizados» **modificados**	**genéticamente**	con genes humanos, para que los órga	5MH
233	e cultivos **modificados**	**genéticamente**	, con combinaciones génicas diferente	5MH
234	vegetales **modificados**	**genéticamente**	, con comités consultivos formados po	5MH
235	e cultivos **modificados**	**genéticamente**	con toxinas insecticidas es el potencial	5MH
236	tomates **modificados**	**genéticamente**	consta con toda claridad su procedenc	5MH
237	ubérculos **modificados**	**genéticamente**	. Constituyó la primera plantación imp	5MH
238	ganismos **modificados**	**genéticamente**	en Estados Unidos se realiza a través	5MH
239	aracteres **modificados**	**genéticamente**	en estos cultivos cabe destacar la mej	5MH
240	s modelo **modificados**	**genéticamente**	en el medio ambiente. Las plantacione	5MH
241	za o maíz **modificados**	**genéticamente**	en los alimentos procesados (o que, a	5MH
242	s cultivos **modificados**	**genéticamente**	enseguida resultan aceptables para la	5MH
243	ganismos **modificados**	**genéticamente**	. Esta nueva directiva contempla todas	5MH
244	ganismos **modificados**	**genéticamente**	». Estados Unidos ha juzgado poco raz	5MH
245	animales **modificados**	**genéticamente**	están concebidos para una agricultura	5MH
246	s cultivos **modificados**	**genéticamente**	están empezando a hacer importantes	5MH
247	ganismos **modificados**	**genéticamente**	, genes y procesos de manipulación ge	5MH
248	ganismos **modificados**	**genéticamente**	. La directiva fue objeto de muchas en	5MH
249	ganismos **modificados**	**genéticamente**	(liberación intencional)», ambos de 19	5MH
250	rganismos **modificados**	**genéticamente**	(libre de OMG; véase la nota 16). En e	5MH
251	ganismos **modificados**	**genéticamente**	, lo que incrementa el riesgo de que los	5MH
252	s cultivos **modificados**	**genéticamente**	. Los alelos también pueden perderse c	5MH
253	s cultivos **modificados**	**genéticamente**	llegaron con la promesa de reducir el	5MH
254	génicos o **modificados**	**genéticamente (MG)**	se habían introducido en la diet	5MH

255	vegetales **modificados**	**genéticamente** no deben considerarse igual que las v	5MH
256	ganismos **modificados**	**genéticamente (OMG)**. Entretanto, los acuerdos inter	5MH
257	roductos **modificados**	**genéticamente** para la agricultura, pero dificultó más	5MH
258	s cultivos **modificados**	**genéticamente** para lograr resistencia a plagas y enfe	5MH
259	celulares **modificados**	**genéticamente** para producir monelina, una proteína	5MH
260	nológicos **modificados**	**genéticamente** para la agricultura. Sólo la compañía	5MH
261	ganismos **modificados**	**genéticamente** persisten en el medio ambiente. Lejo	5MH
262	microbios **modificados**	**genéticamente** persistieran en el medio ambiente. Co	5MH
263	o granos **modificados**	**genéticamente**. Plant Genetic Systems, como condició	5MH
264	ganismos **modificados**	**genéticamente**, que puede tardar hasta dos años. Se	5MH
265	roductos **modificados**	**genéticamente** que se utilizó en la agricultura. Posilac	5MH
266	ganismos **modificados**	**genéticamente** que se comercializaron de forma gene	5MH
267	e tomates **modificados**	**genéticamente** que contenían el gen Flavr SavrTM. Fu	5MH
268	anismos **modificados**	**genéticamente** realizarán experimentos en países que	5MH
269	anismos **modificados**	**genéticamente** se expiden siguiendo las recomendacio	5MH
270	ganismos **modificados**	**genéticamente** se les aplica un conjunto adicional de	5MH
271	culovirus **modificados**	**genéticamente** se inició en el Institute of Virology and	5MH
272	edientes **modificados**	**genéticamente**. Sin embargo, las directrices sobre eti	5MH
273	ganismos **modificados**	**genéticamente** son similares a los que se dan en los p	5MH
274	cultivos **modificados**	**genéticamente** tenía como objetivo producir cultivos	5MH
275	anismos **modificados**	**genéticamente** u organismos que hayan adquirido el	5MH
276	ganismos **modificados**	**genéticamente**. Una protesta social masiva podría re	5MH
277	ganismos **modificados**	**genéticamente** (utilización confinada)» y «Organismo	5MH
278	redientes **modificados**	**genéticamente** (véase la nota 15). Los alimentos no r	5MH
279	ganismos **modificados**	**genéticamente** viables («vivos»), incluían ingrediente	5MH
280	os como **modificados**	**genéticamente** y, en consecuencia, se muestra contra	5MH
282	merciales **modificados**	**genéticamente**, y otros organismos, también ha avan	5MH
283	s cultivos **modificados**	**genéticamente** ya abundan en estos mercados occide	5MH

Genéticamente modificado/s (46)

29	caso del primer animal	**genéticamente modificado** que va a ser patentado d	2SA
37	roducción de tomates	**genéticamente modificados**, que se conservan mucho	2SA
38	las plantas de algodón	**genéticamente modificadas**. Los científicos que traba	3EG
44	nueva cepa bacteriana	**genéticamente modificada** y alteraron sus procedim	3EG
46	ente sobre las bacterias	**genéticamente modificadas** para digerir petróleo qu	3EG
47	para producir bacterias	**genéticamente modificadas** (figura 2.5). Colocar AD	3EG
48	ladas emplea bacterias	**genéticamente modificadas**. Las bacterias que viven	3EG
54	ueron el primer cultivo	**genéticamente modificado** para resistir a las plagas q	3EG
74	ntes de los organismos	**genéticamente modificados** y el papel de la ciencia y l	3EG
78	se desarrollaron píceas	**genéticamente modificadas** para resistir a las orugas.	3EG
80	describe cómo plantas	**genéticamente modificadas** de la familia de las crucífe	3EG
81	perimentos con plantas	**genéticamente modificadas** estaba relacionado con la	3EG
84	s de crecimiento rápido	**genéticamente modificados**, plantados específicamen	3EG
85	patente sobre ratones	**genéticamente modificados** fue aprobada por la Unit	3EG
86	maño entre un salmón	**genéticamente modificado** (arriba) y uno normal (aba	3EG
94	ado activo. Las vacunas	**genéticamente modificadas** son más seguras, ya que	3EG
95	diante vectores víricos	**genéticamente modificados**, las células empezaron a	3EG
97	s y productos agrícolas	**genéticamente modificados** estén basados en ciencia	5MH

98	de productos agrícolas	**genéticamente modificados**, ya sea por rotulación di		5MH
99	modificada. El alimento	**genéticamente modificado** podría compararse con t		5MH
100	mesas de los alimentos	**genéticamente modificados**. La biotecnología agrícol		5MH
101	ormente los alimentos	**genéticamente modificados** habían sido rechazados p		5MH
102	ialización de alimentos	**genéticamente modificados**, y exige pruebas apropia		5MH
103	¿Pueden los alimentos	**genéticamente modificados** alimentar al mundo? La		5MH
104	de semillas de canola	**genéticamente modificadas**, después de que los ensa		5MH
107	eguridad de los cultivos	**genéticamente modificados**. No lo es. A menos que s		5MH
111	alquier especie exótica,	**genéticamente modificada** o no. Sin embargo, en el c		5MH
126	aba un microorganismo	**genéticamente modificado**, fueron relacionadas con e		5MH
128	ón de microorganismos	**genéticamente modificados** es especialmente peligro		5MH
129	cos y microorganismos	**genéticamente modificados**; los vectores artificiales d		5MH
130	al de microorganismos	**genéticamente modificados (GMM** en inglés) liberan		5MH
156	pondiente al organismo	**genéticamente modificado** que, entonces, la transmi		5MH
157	«¡No a los Organismos	**Genéticamente Modificados**!» provino de los consum		5MH
158	e campo de organismos	**genéticamente modificados**: marco para la toma de		5MH
159	liberado de organismos	**genéticamente modificados** y el patentamiento de la		5MH
160	«¡No a los Organismos	**Genéticamente Modificados**!» provino de los consum		5MH
161	al entre los organismos	**genéticamente modificados** y las cepas obtenidas po		5MH
162	la detección. Una papa	**genéticamente modificada**, con groseras alteracione		5MH
163	ación de los productos	**genéticamente modificados**, especialmente en Estad		5MH
164	solicitud de productos	**genéticamente modificados** a partir de abril de 1998.		5MH
165	sobre si el Rhizobium	**genéticamente modificado** era eficaz para mejorar e		5MH
173	os cultivos transgénicos	**genéticamente modificados** pudiesen generar nuevas		5MH
177	es de drogas y vacunas	**genéticamente modificadas**. Conclusiones. La biotecn		5MH
179	ia entre las variedades	**genéticamente modificadas** y las logradas por métod		5MH
180	cia entre las variedades	**genéticamente modificadas** y las logradas por métod		5MH
42	na especie de animales	**genéticamente modificados** fue controvertida. En pri		3EG
		Manipulado/s genéticamente (19)		
8	ganismos **manipulados**	**genéticamente**. Cuando se introdujeron los conejos		1ER
9	ganismos **manipulados**	**genéticamente**, ¿podrían destruir nuestro entorno e		1ER
61	semillas **manipuladas**	**genéticamente** con él. El primer aviso llegó en el vera		3EG
62	emillas **manipuladas**	**genéticamente** con el Bt puede ser invitado, o incluso		3EG
63	tróleo no **manipuladas**	**genéticamente**. Tras pruebas sobre el terreno a gran		3EG
64	cultivos **manipulados**	**genéticamente** con Bt puedan desarrollar parásitos re		3EG
118	Calgene, **manipulado**	**genéticamente** para mejorar su tiempo de permanen		5MH
119	el algodón **manipulado**	**genéticamente**, y el gobierno de la India revocó la sol		5MH
120	ganismos **manipulados**	**genéticamente** al ambiente, aun cuando las cepas qu		5MH
121	alimentos **manipulados**	**genéticamente**, así como el lanzamiento deliberado d		5MH
122	tomates, **manipulados**	**genéticamente** con el fin de prolongar su tiempo de e		5MH
123	roductos **manipulados**	**genéticamente**. Mientras la oposición aumentaba en		5MH
124	ganismos **manipulados**	**genéticamente (o «transgénicos»)** que se liberan de		5MH
125	roductos **manipulados**	**genéticamente** son «seguros», especialmente a la luz		5MH
181	s plantas **manipuladas**	**genéticamente** para presentar resistencia a un deter		5MH
182	cterianas **manipuladas**	**genéticamente** y cultivadas en una cubeta de ensayo.		5MH
183	n cultivos **manipulados**	**genéticamente** en Austria; y no a las patentes de la v		5MH
184	cultivos **manipulados**	**genéticamente** en Europa entre 1992 y 1995 tuvieron		5MH

185	s cultivos **manipulados**	**genéticamente** para conferirles resistencia a los herbi	5MH
		Genéticamente manipulado/s (9)	
51	des números de células	**genéticamente manipuladas** en el torrente sanguíne	3EG
52	ados. Encontrar células	**genéticamente manipuladas** en un cultivo de cientos	3EG
55	los animales y cultivos	**genéticamente manipulados** irán adquiriendo un pap	3EG
45	utilización de bacterias	**genéticamente manipuladas** en la producción del tri	3EG
60	son moléculas híbridas	**genéticamente manipuladas**, que se combinan con o	3EG
73	e se liberen organismos	**genéticamente manipulados** en la Naturaleza sin que	3EG
77	células de médula ósea	**genéticamente manipuladas** pueden convertirse en u	3EG
82	los primeros productos	**genéticamente manipulados** disponibles para los gan	3EG
96	ienen proteínas o ADN	**genéticamente manipulados**; los aditivos y enzimas e	5MH
		Alterado/s genéticamente / genéticamente alterado/s (8)	
39	s pueden ser **alteradas**	**genéticamente** y reintroducidas en el cuerpo median	3EG
40	s pueden ser **alterados**	**genéticamente** para ampliar el número de materiales	3EG
49	ra, la vida de las células	**genéticamente alteradas** tenía la misma duración qu	3EG
53	orazones de los cerdos	**genéticamente alterados** fueron trasplantados luego	3EG
57	les. La fuga de especies	**genéticamente alteradas** y el vertido de fármacos en	3EG
67	e patentar? Microbios	**genéticamente alterados**, tales como bacterias, hong	3EG
68	l entorno de microbios	**genéticamente alterados**. En experimentos sobre ter	3EG
69	utilización de microbios	**genéticamente alterados** más allá de la hermética seg	3EG
		Transformado genéticamente (4)	
26	o se han **transformado**	**genéticamente** células humanas, principalmente por r	1ER
27	ha sido **transformado**	**genéticamente**, introduciéndole un oncogén, es decir,	1ER
172	algodón **transformado**	**genéticamente**. En la Oficina Europea de Patentes se	5MH
286	material **transformado**	**genéticamente** en detrimento del no transformado. L	5MH
		Others (6)	
43	atente de una bacteria	**genéticamente diseñada** para digerir manchas de pe	3EG
75	tras que los organismos	**genéticamente novedosos** van ocupando un lugar en l	3EG
87	continuada de semillas	**genéticamente mejoradas**. Este método presenta el p	3EG
88	. Las primeras semillas	**genéticamente tratadas** para resistir a los herbicidas c	3EG
108	or parte de los cultivos	«**genéticamente mutilados**» de Monsanto con la inva	5MH
127	e los microorganismos	**genéticamente lisiados** que se manipulaban para su u	5MH

Table 8.26. *Concordance of ‘noun + adjective + genéticamente’ and ‘noun + genéticamente + adjective’ in the sci corpus.*

GENÉTICAMENTE (soc corpus) (466)				
***Modificado/s genéticamente* (248)**				
20	. de esta enzima	**modificada genéticamente**	para la depuración de los vertidos de las fábricas d	4JR
21	otro organismo	**modificado genéticamente**	, en el medioambiente abierto. El gobierno, los biól	4JR
22	e un organismo	**modificado genéticamente**	en el decenio de 1980, apenas si se había prestad	4JR
23	obio P. syringae	**modificado genéticamente**	se llama «sin hielo». A los científicos les apasiona	4JR
24	s de animales	**modificados genéticamente**	a decenas de miles de pacientes que necesiten tr	4JR
25	e organismos	**modificados genéticamente**	en la biosfera a las que se han entregado los críti	4JR
26	s organismos	**modificados genéticamente**	en el medio ambiente. Una demanda judicial post	4JR
27	os organismos	**modificados genéticamente**	es muy diferente de la resultante de la emisión de	4JR
28	e organismos	**modificados genéticamente.**	Hacia una ecología predictiva. Se celebraron, de	4JR
29	os organismos	**modificados genéticamente.**	Las llamadas «pruebas de campo» se concibiero	4JR
30	ntos animales	**modificados genéticamente**	, perros, vacas, ovejas, esperan que se aprueben	4JR
31	e organismos	**modificados genéticamente**	podría muy bien exceder el daño causado por la l	4JR
32	animal entero,	**modificados genéticamente.**	¿Se pueden patentar un páncreas o un riñón sim	4JR
33	s organismos	**modificados genéticamente**	serán introducidos rápidamente y sin miramientos	4JR
34	os organismos	**modificados genéticamente**	sería segura. Los medios de comunicación y la pr	4JR
35	os organismos	**modificados genéticamente**	una vez introducidos en el entorno. Una de las as	4JR
36	e organismos	**modificados genéticamente**	ya se está empezando a aprobar. Dejando a un l	4JR
52	cultivan su soja	**modificada genéticamente**	deben firmar un contrato que les obliga a usar sól	6LA
53	ento con la soja	**modificada genéticamente.**	Él cita estadísticas de los rendimientos en Misso	6LA
54	sato) en la soja	**modificada genéticamente**	en Europa y Estados Unidos, de seis partes por	6LA
55	de la hormona	**modificada genéticamente**	están presentes en la leche de las vacas tratadas	6LA
56	iral en la planta	**modificada genéticamente**	formando una nueva variedad de virus. En otro e	6LA
57	" de la hormona	**modificada genéticamente.**	La controversia no se ha limitado a la FDA. La se	6LA
58	bre la hormona	**modificada genéticamente**	llamada rBST o rBGH, conocida como somatotrop	6LA
59	boratorio colza	**modificada genéticamente**	, mostaza negra, manzana y guisantes dulces, tod	6LA
60	na levadura fue	**modificada genéticamente**	para aumentar la fermentación. Un metabolito tóx	6LA
61	a colza ha sido	**modificada genéticamente**	para producir ácido láurico, que tradicionalmente	6LA
62	a (una bacteria	**modificada genéticamente**	para digerir el petróleo) podía patentarse. El resp	6LA
63	de una enzima	**modificada genéticamente**	para destruir la lignina, la sustancia orgánica que	6LA
64	n EE UU la soja	**modificada genéticamente**	por Monsanto para ser resistente a su herbicida d	6LA
65	del crecimiento	**modificada genéticamente**	(RBST / RBGH, siglas en inglés de la somatotrop	6LA
66	do de semillas	**modificadas genéticamente**	a precios fijos sin suficientes pruebas de segurida	6LA
67	ndo bacterias	**modificadas genéticamente.**	A través del uso de técnicas de la ingeniería gen	6LA
68	con bacterias	**modificadas genéticamente**	, aceptaron como evidencia de seguridad, datos q	6LA
70	las variedades	**modificadas genéticamente.**	Como sabemos por la experiencia con algunas e	6LA
71	de Monsanto,	**modificadas genéticamente**	con la toxina Bt, se plantaron en tres regiones de	6LA
72	as variedades	**modificadas genéticamente**	de una especie... pone en manos de un solo inven	6LA
73	s de las sojas	**modificadas genéticamente**	eran un 4% inferiores a las variedades convención	6LA
74	. Las enzimas	**modificadas genéticamente**	no están etiquetadas ni se ven afectadas por los r	6LA
75	de las semillas	**modificadas genéticamente.**	También se ha creado un teléfono gratuito para a	6LA
76	con bacterias	**modificadas genéticamente.**	También se sabe que Showa Denko redujo a la m	6LA
77	de las semillas	**modificadas genéticamente**	y por todas las semillas que produzcan las plantas	6LA
78	nsayo de maíz	**modificado genéticamente**	a sólo 275 metros de una granja biológica. "Totne	6LA
80	primer alimento	**modificado genéticamente**	autorizado para la venta comercial. Fue modificad	6LA
81	uier otro animal	**modificado genéticamente**	con genes que causen el cáncer. En 1997, ya se	6LA
82	icroorganismo	**modificado genéticamente**	con la esperanza de que esto aumentaría la fijaci	6LA
83	ltivada de maíz	**modificado genéticamente.**	En julio, un informe escrito por el Deutsche Bank,	6LA
84	icroorganismo	**modificado genéticamente**	llamado Klebsiella planticola. La bacteria, que tam	6LA
85	icroorganismo	**modificado genéticamente**	llamado Klebsiella se añadió a un pequeño macro	6LA
86	ico, el producto	**modificado genéticamente**	no necesita ser analizado rigurosamente, partiend	6LA
87	tón es un ratón	**modificado genéticamente**	para predisponerle a desarrollar cáncer, él y todos	6LA
88	fico está siendo	**modificado genéticamente**	para que pueda vivir y engendrar en el océano, en	6LA
89	des de algodón	**modificado genéticamente.**	* Plant Genetic Systems, una empresa de biotecn	6LA

90	en el Klebsiella **modificado**	**genéticamente** puedan matar o dañar los cultivos y los microorgan		6LA
91	po de algodón **modificado**	**genéticamente**, que según ellos habían sido plantados ilegalment		6LA
92	parte del ADN **modificado**	**genéticamente** se destruiría al procesar los alimentos. Las encues		6LA
93	e un organismo **modificado**	**genéticamente** si puede proporcionar una clara “evidencia científi		6LA
94	risa el algodón **modificado**	**genéticamente** sin haberles permitido realizar las pruebas necesa		6LA
95	ades de clavel **modificado**	**genéticamente**: una que “alarga la vida en el jarrón”, y otra con c		6LA
96	de los cultivos **modificados**	**genéticamente** a otras plantas por la vía de la polinización cruzad		6LA
97	os organismos **modificados**	**genéticamente**. * A finales de los años setenta, se plantaron inme		6LA
98	n ingredientes **modificados**	**genéticamente**. Aunque hay intereses comerciales muy poderosos		6LA
99	ación de virus **modificados**	**genéticamente**; cada virus, cada huésped y cada ecosistema gen		6LA
100	jidos humanos **modificados**	**genéticamente**, células y genes. En 1976 un paciente de leucemi		6LA
101	s ingredientes **modificados**	**genéticamente** comercializa dos en Europa están la soja, maíz y		6LA
102	roorganismos **modificados**	**genéticamente**, como la quimosina, que es un cuajo vegetal usad		6LA
104	e organismos **modificados**	**genéticamente**, como bacterias, animales, insectos y microorgan		6LA
105	o de sustitutos **modificados**	**genéticamente** de la manteca de cacao. * La vainilla representa e		6LA
106	cho productos **modificados**	**genéticamente**. De éstos, los únicos que recibieron la aprobación		6LA
107	s ingredientes **modificados**	**genéticamente** de todos los comedores escolares. Esta iniciativa		6LA
108	n ingredientes **modificados**	**genéticamente** de la soja y el maíz, la mayoría de los cuales son		6LA
109	s ingredientes **modificados**	**genéticamente** de sus propios productos. Esto afectó incluso a la		6LA
110	r los alimentos **modificados**	**genéticamente** de los menús escolares, y debido a la presión sos		6LA
111	los alimentos **modificados**	**genéticamente** deben ser etiquetados. El 58% de las personas e		6LA
112	os organismos **modificados**	**genéticamente**. EE UU se negó a aceptar el tratado porque los in		6LA
113	los productos **modificados**	**genéticamente**. En realidad, el Congreso de EE UU adoptó una d		6LA
114	íz y patatas Bt **modificados**	**genéticamente**, en febrero de 1999 la Federación Internacional d		6LA
115	de los cultivos **modificados**	**genéticamente**. En otro experimento, Gebhard y Smalla encontrar		6LA
116	es de cultivos **modificados**	**genéticamente** en la Unión Europea durante al menos 18 meses.		6LA
117	, los alimentos **modificados**	**genéticamente** en EE UU no requieren un proceso de aprobación		6LA
118	uchos cultivos **modificados**	**genéticamente** en las áreas vecinas y el polen de éstos es transp		6LA
119	tes productos **modificados**	**genéticamente**: entre los resistentes a los herbicidas, la colza, ma		6LA
120	r los alimentos **modificados**	**genéticamente** era inaceptable y podría amenazar las relaciones		6LA
121	los productos **modificados**	**genéticamente** eran una inversión ruinosa y desaconsejable. Los		6LA
122	los alimentos **modificados**	**genéticamente** es tan atractivo para la industria de la ciencia de l		6LA
123	roorganismos **modificados**	**genéticamente** estaban sueltos, compitiendo con los microorganis		6LA
124	ibir los cultivos **modificados**	**genéticamente** están minando la situación de las personas hambri		6LA
125	uevas cultivos **modificados**	**genéticamente**. Esto, junto con las patentes y los acuerdos contra		6LA
126	los productos **modificados**	**genéticamente**. Fuera, en las calles de Seattle, donde miles de m		6LA
127	ntos y cultivos **modificados**	**genéticamente** ha sido la creación de “zonas libres de transgénic		6LA
128	de los cultivos **modificados**	**genéticamente** hoy comercializados son resistentes a los herbicid		6LA
129	re los árboles **modificados**	**genéticamente**, la producción comercial podría empezar en el añ		6LA
130	e organismos **modificados**	**genéticamente**. La segunda mayor empresa mundial de reasegur		6LA
131	r los alimentos **modificados**	**genéticamente**, las liberaciones de organismos transgénicos y las		6LA
132	los alimentos **modificados**	**genéticamente**. * Monsanto, por ejemplo, ya ha obtenido los perm		6LA
133	los alimentos **modificados**	**genéticamente**. Numerosos estudios, sin embargo, han resaltado		6LA
134	y nemátodos **modificados**	**genéticamente** para una variedad de propósitos. Estas criaturas		6LA
135	e. Los cultivos **modificados**	**genéticamente** para resistir a los herbicidas, insectos y enfermed		6LA
137	as de cultivos **modificados**	**genéticamente** plantados a nivel mundial en 1999, el 71% eran re		6LA
138	r los alimentos **modificados**	**genéticamente** podría suponer una caída de las exportaciones ag		6LA
139	ue los cultivos **modificados**	**genéticamente** pudieran cruzarse con las plantas silvestres y oca		6LA
140	de los cultivos **modificados**	**genéticamente** puede reducir el valor de las tierras agrícolas y po		6LA
141	Los alimentos **modificados**	**genéticamente** pueden, por ejemplo, contener nuevas moléculas		6LA
142	ue los cultivos **modificados**	**genéticamente** serán ‘la mejor manera’ de aumentar los benefici		6LA
143	en los cultivos **modificados**	**genéticamente**, sin embargo, está en una forma más activa, y pu		6LA
144	ndo alimentos **modificados**	**genéticamente** sin su conocimiento o autorización, comenzaron		6LA
145	e organismos **modificados**	**genéticamente** suponen los mismos riesgos para la biodiversidad		6LA
146	idos vegetales **modificados**	**genéticamente**. Una patente, que normalmente dura de 17 a 20 a		6LA

147	s ingredientes **modificados**	**genéticamente**, y probablemente los haría antieconómicos para la	6LA
148	ión de cultivos **modificados**	**genéticamente** y los alimentos transgénicos. En mayo de 1999, p	6LA
174	no utilizar soja **modificada**	**genéticamente**. La cadenas de supermercados británicas ASDA	7IB
175	de alimentos **modificados**	**genéticamente**, diciendo, entre otras cosas: «Mientras se siga de	7IB
176	los productos **modificados**	**genéticamente**. Tienen cosas buenas, pero también cosas malas,	7IB
252	e la agricultura **modificada**	**genéticamente**. Además, las necesidades inherentes de los cultiv	8BL
253	o crece mi soja **modificada**	**genéticamente**. Entiendo por qué los chinos la llaman «joya amar	8BL
254	ca. Una vacuna **modificada**	**genéticamente** libró de correr la misma suerte al resto de la piara.	8BL
255	mercial de soja **modificada**	**genéticamente**. Los granjeros norteamericanos se habían visto e	8BL
256	o «Darina Allen **Modificada**	**Genéticamente**» llevaba unas gafas descomunales, con cristales	8BL
257	a, la agricultura **modificada**	**genéticamente** medra sobre todo donde la democracia goza de m	8BL
258	del crecimiento **modificada**	**genéticamente**; nuestros refrescos, que contienen sirope procede	8BL
260	n una hormona **modificada**	**genéticamente** que induce a sus vacas a dar más leche. Esta lec	8BL
261	e una hormona **modificada**	**genéticamente** que induciría a las vacas a dar más leche. Mi artíc	8BL
262	tes de plantas **modificadas**	**genéticamente** a sus parientes vegetales se encuentra entre las a	8BL
263	as variedades **modificadas**	**genéticamente**, a menos que las presiones dicten otro curso de a	8BL
264	ue las plantas **modificadas**	**genéticamente** alivien los problemas de los agricultores en el futu	8BL
265	de las patatas **modificadas**	**genéticamente**. Como Monsanto mantenía un férreo control sobre	8BL
266	n las semillas **modificadas**	**genéticamente**. Da la casualidad de que yo llevo conmigo un sac	8BL
267	ivando plantas **modificadas**	**genéticamente**. Debió de ser el vino, porque no había planeado d	8BL
268	lar las plantas **modificadas**	**genéticamente**. El 2 de junio de 1987, Rob Horsch, Robb Fraley y	8BL
269	on las semillas **modificadas**	**genéticamente**. Él y su padre, Ed, inventan maquinaria agrícola, c	8BL
270	millas de soja **modificadas**	**genéticamente** en los 70 países en los que tiene mercado. Un obj	8BL
271	las variedades **modificadas**	**genéticamente** en la producción de cerveza. Observando ese puz	8BL
272	e las semillas **modificadas**	**genéticamente** «han convertido a un montón de malos granjeros e	8BL
273	las variedades **modificadas**	**genéticamente**. «Lo que nos preocupa es que algunas empresas	8BL
274	plear semillas **modificadas**	**genéticamente**. Me dijo algo más, que luego recordé mientras av	8BL
275	ue las patatas **modificadas**	**genéticamente** para hacerlas resistentes a las plagas perjudicaba	8BL
276	a las semillas **modificadas**	**genéticamente**. Pero parece ser que el esfuerzo sólo contribuyó a	8BL
277	a esas patatas **modificadas**	**genéticamente**, presentan riesgos para la salud humana». Sólo el	8BL
278	as las semillas **modificadas**	**genéticamente** que se plantaron en el mundo durante la primera t	8BL
279	ue las plantas **modificadas**	**genéticamente** reducirían el empleo de sustancias químicas. Otros	8BL
280	eras semillas **modificadas**	**genéticamente** se sembrasen comercialmente en los Estados Uni	8BL
282	ue las semillas **modificadas**	**genéticamente** tendrán a largo plazo unos efectos perniciosos. —	8BL
283	zar las plantas **modificadas**	**genéticamente**. Un ejemplo famoso es el de la mariposa monarca,	8BL
284	lantas de soja **modificadas**	**genéticamente**. Y lo hizo poniendo los brazos en jarras. Cuando le	8BL
285	e revolucionario **modificado**	**genéticamente** en los Estados Unidos, un tipo de soja de la empre	8BL
286	te al herbicida, **modificado**	**genéticamente**, especialidad de los Estados Unidos, con un toque	8BL
287	u primer cultivo **modificado**	**genéticamente**, la batata resistente a la enfermedad. Entre aquell	8BL
289	mento de grano **modificado**	**genéticamente** procedente de los Estados Unidos. Desde mi punt	8BL
290	de un microbio **modificado**	**genéticamente** que Monsanto quería experimentar en sus tierras.	8BL
291	ica «organismo **modificado**	**genéticamente**», que es lo que uno obtiene cuando hace que los	8BL
292	a ingredientes **modificados**	**genéticamente**. 13. FRANCIA: LA DEMOCRACIA AL ESTILO E	8BL
293	de los cultivos **modificados**	**genéticamente**. Algunos con los que contacté en la aldea sureña	8BL
294	ión de cultivos **modificados**	**genéticamente**, antes de invitarme a acudir a su granja para el re	8BL
295	los alimentos **modificados**	**genéticamente**. Aun así, a partir de ese momento, quieren que lo	8BL
296	e ingredientes **modificados**	**genéticamente**. Bajo su punto de vista, la decadencia de la soja e	8BL
297	r los alimentos **modificados**	**genéticamente**. Blair y la comida transgénica demostraron ser un	8BL
298	de productos **modificados**	**genéticamente**. Como los «grupos K» de presión política fuera de	8BL
299	: los alimentos **modificados**	**genéticamente**. Con pocas excepciones, no se encuentran polític	8BL
300	en productos **modificados**	**genéticamente**». (Con una introducción como ésa, me temía que	8BL
301	tes de cultivos **modificados**	**genéticamente**... Creemos que los productos biotecnológicos son	8BL
302	brotes de soja **modificados**	**genéticamente** cultivados en los Estados Unidos. En China, cient	8BL
303	(organismos **modificados**	**genéticamente**). Del mismo modo que existen muchas preguntas	8BL
304	nos alimentos **modificados**	**genéticamente**.» El hambre es un azote que pocos norteamerican	8BL

305	los alimentos	modificados	genéticamente, el período entre finales de 1998 y principios de 19	8BL
306	los alimentos	modificados	genéticamente. El penúltimo día de las negociaciones, los ministr	8BL
307	los alimentos	modificados	genéticamente empezó en serio cuando se disparó el número de	8BL
308	los alimentos	modificados	genéticamente. En Gran Bretaña, la enfermedad de las vacas loc	8BL
309	oducir cultivos	modificados	genéticamente en la producción masiva de alimentos. —Desde el	8BL
310	los alimentos	modificados	genéticamente. En la primavera de 2000, en Washington, cuando	8BL
311	os y alimentos	modificados	genéticamente en el continente. —Como pensábamos que nuest	8BL
312	los alimentos	modificados	genéticamente. En los últimos años de la década de los noventa,	8BL
313	los alimentos	modificados	genéticamente. En California, en el Mill Valley, hogar de Bill Grah	8BL
314	los alimentos	modificados	genéticamente en toda Europa. Y en el resto del mundo, hay muc	8BL
315	los alimentos	modificados	genéticamente enraizarían en tierras europeas de una vez y para	8BL
316	los alimentos	modificados	genéticamente era un factor unificador en la política del nuevo m	8BL
317	los alimentos	modificados	genéticamente, es la mayor amenaza para la humanidad desde l	8BL
318	de productos	modificados	genéticamente es una soberbia tontería. —La semana pasada, e	8BL
319	los alimentos	modificados	genéticamente», escribió. La batalla sobre los OMG se extendía	8BL
320	r los alimentos	modificados	genéticamente está padeciendo un destino similar al de Blas de L	8BL
321	Los alimentos	modificados	genéticamente están desafiando la estructura de la Comunidad E	8BL
322	los alimentos	modificados	genéticamente. Éste es un tema que últimamente nos tiene agota	8BL
323	los alimentos	modificados	genéticamente, esto conlleva impedir que los productos lleguen al	8BL
324	Los alimentos	modificados	genéticamente forman parte del tejido de la vida norteamericana.	8BL
325	de productos	modificados	genéticamente fracasaron esta mañana, cuando los Estados Unid	8BL
326	los alimentos	modificados	genéticamente fracasaron el miércoles debido a las profundas div	8BL
327	nza de peces	modificados	genéticamente fuera de los estanques de las piscifactorías. Poca	8BL
328	los alimentos	modificados	genéticamente. Glickman había luchado como defensor de la biot	8BL
329	tor de cultivos	modificados	genéticamente había dado dinero al partido laborista». La historia	8BL
330	organismos	modificados	genéticamente... Han rehusado informar al público, se han negad	8BL
331	los alimentos	modificados	genéticamente. «Hemos de tomar las calles nosotros mismos. Si	8BL
332	los alimentos	modificados	genéticamente, incluso los vecinos que leen revistas científicas y	8BL
334	eral, los peces	modificados	genéticamente. La propuesta de crear unos salmones que crecie	8BL
335	n ingredientes	modificados	genéticamente. La cadena McDonald’s y otros distribuidores de a	8BL
336	bre alimentos	modificados	genéticamente, la policía nos había obligado a permanecer un cu	8BL
337	los alimentos	modificados	genéticamente. La exportación de maíz a Japón cayó en picado, y	8BL
338	los alimentos	modificados	genéticamente, las facciones irlandesas en eterna lucha han enco	8BL
339	erir alimentos	modificados	genéticamente, lo cual es un problema, porque la soja y el maíz q	8BL
340	los alimentos	modificados	genéticamente. Los atacantes, vestidos de blanco, ya no caminan	8BL
341	uevos cultivos	modificados	genéticamente (los híbridos de Monsanto y Novartis de maíz resis	8BL
342	los alimentos	modificados	genéticamente. Mairie se ha enterado de que en los Estados Unid	8BL
343	e los cultivos	modificados	genéticamente. Más tarde, un oficial del Consejo de Seguridad N	8BL
344	de alimentos	modificados	genéticamente. Me gustaría saber, en primer lugar, por qué se ha	8BL
345	r los alimentos	modificados	genéticamente, muchos escépticos no sólo perciben la amenaza	8BL
346	los alimentos	modificados	genéticamente no podrían ostentar con orgullo la etiqueta certific	8BL
347	los alimentos	modificados	genéticamente, para que los vigilantes de la política y los abogado	8BL
348	los alimentos	modificados	genéticamente parece una nimiedad comparado con los riesgos p	8BL
349	nte alimentos	modificados	genéticamente, pero no saben cuáles son, porque, a diferencia de	8BL
350	e los cultivos	modificados	genéticamente. Pero en Europa esa expansión se detuvo. En febr.	8BL
351	os organismos	modificados	genéticamente.» PLANTACIÓN CUATRO. No soy agricultor, pero	8BL
352	los alimentos	modificados	genéticamente poseen un beneficio intrínseco, aún por descubrir,	8BL
353	os organismos	modificados	genéticamente presentan unos peligros nuevos o más graves par	8BL
354	las de cultivos	modificados	genéticamente que ya estaban plantados, listos para su exportaci	8BL
355	2, los cultivos	modificados	genéticamente que la compañía afirma que alimentarán a las pers	8BL
356	de los cultivos	modificados	genéticamente, raras veces sus palabras se refieren a la eficienci	8BL
357	los alimentos	modificados	genéticamente sigue siendo incierto. Las empresas transnacional	8BL
358	rían alimentos	modificados	genéticamente, sino que los cultivarían. El cultivo en cuestión era	8BL
359	los alimentos	modificados	genéticamente. Tal y como lo expresó un funcionario estadounide	8BL
360	r los alimentos	modificados	genéticamente. Tienen miedo de que esto acelere el advenimient	8BL

361	e organismos **modificados**	**genéticamente** tras ser presionado por el gobierno estadounidense	8BL
362	os organismos **modificados**	**genéticamente**, u OMG, como habían empezado a llamarlos los e	8BL
363	ndo alimentos **modificados**	**genéticamente** (y la FDA decía que la especificación de esta cual	8BL
364	los alimentos **modificados**	**genéticamente** y, correcta o incorrectamente, cesaría el vacilante	8BL
365	unos cultivos **modificados**	**genéticamente**, y se ha enterado de su capacidad para protegerse	8BL
366	de alimentos **modificados**	**genéticamente**, y granjeros preocupados por el hecho de que las	8BL
367	los alimentos **modificados**	**genéticamente** y un nuevo régimen para el comercio mundial de	8BL
474	utilizar su cepa **modificada**	**genéticamente.** Así pues, tiene que haber otra causa que no sea l	10JS
475	una variedad Bt **modificada**	**genéticamente.** Con la curiosidad de saber cómo iban a reacciona	10JS
476	con la variedad **modificada**	**genéticamente** de la leche, la FDA nos asegura que no hay riesgo	10JS
478	ue esta versión **modificada**	**genéticamente** se abra camino hasta la leche junto con la varieda	10JS
479	utilizar su cepa **modificada**	**genéticamente...** tendría que haber otra causa que no fuera la me	10JS
482	en las plantas **modificadas**	**genéticamente** justifica un estudio toxicológico al uso». La Divisio	10JS
483	ad de patatas **modificadas**	**genéticamente** que el ministerio escocés tenía esperanzas de co	10JS
486	os que estaba **modificado**	**genéticamente**». Sin embargo, en lugar de arriesgarse a la repuls	10JS
487	ntiosa del ADN **modificado**	**genéticamente** sobrevivía al viaje a través» del intestino delgado	10JS
488	los alimentos **modificados**	**genéticamente** atentan contra los principios fundamentales de su	10JS
489	los alimentos **modificados**	**genéticamente** con el objeto de verificar si su ingesta entrañaba o	10JS
490	los alimentos **modificados**	**genéticamente** descritos no entrañaban riesgo para el consumo h	10JS
491	dificados y no **modificados**	**genéticamente.** Durante un período de nueve semanas, los raton	10JS
492	los productos **modificados**	**genéticamente** —escriben Rampton y Stauber en Trust Us We're	10JS
493	de alimentos **modificados**	**genéticamente.** La controversia se encendió de nuevo. En un ar	10JS
494	ue los cultivos **modificados**	**genéticamente** no representaban riesgo alguno y que suponían s	10JS
495	n ingredientes **modificados**	**genéticamente**». Otras compañías alimentarias estadounidenses,	10JS
496	ates estaban **modificados**	**genéticamente** para prolongar su tiempo de durabilidad antes de	10JS
497	de maíz y soja **modificados**	**genéticamente** se han venido abajo y las pauperizadas naciones	10JS
498	los cultivos Bt **modificados**	**genéticamente** son inmunes a los mezcladores del código. Los c	10JS
499	los alimentos **modificados**	**genéticamente** y más que dispuestos a escuchar lo que Pusztai t	10JS
500	de productos **modificados**	**genéticamente** y que estos se vendan y consuman sin una evalua	10JS
501	e, soja y maíz **modificados**	**genéticamente...** y que lo habían estado haciendo durante casi d	10JS

Genéticamente modificado/s (136)

152	tuviesen cualquier alimento	**genéticamente modificado.** La directriz fue vista como un paso i	7IB
156	sobre la vida. Los alimentos	**genéticamente modificados** también fueron rechazados en una	7IB
161	vender en Europa un cultivo	**genéticamente modificado**, primero tiene que presentar su solicit	7IB
163	s que separasen los cultivos	**genéticamente modificados** de los granos convencionales. La bi	7IB
164	tro por ciento de los cultivos	**genéticamente modificados** ya habían sido autorizados por Esta	7IB
165	ón y el desarrollo de cultivos	**genéticamente modificados** en Canadá». El protocolo sobre la bi	7IB
167	tos alimenticios soja o maíz	**genéticamente modificados**, pero la normativa las eximía de dec	7IB
180	rtaciones de dos organismos	**genéticamente modificados (OGMs).** Éstos eran las semillas de	7IB
181	ades ínfimas de organismos	**genéticamente modificados.** Empresas procesadoras de aliment	7IB
183	la distribución de productos	**genéticamente modificados**, mientras que hay leyes sobre los p	7IB
188	n los estantes de un tomate	**genéticamente modificado** se medirá en meses, en vez de en d	7IB
189	ás eruditas de la agricultura	**genéticamente modificada.** Ella cree que la ingeniería genética p	8BL
190	onfeccionadas con algodón	**genéticamente modificado.** Las tiendas respondieron que no exi	8BL
191	t (Alerta contra los alimentos	**genéticamente modificados**) hizo un descubrimiento que proced	8BL
192	us leyes sobre los alimentos	**genéticamente modificados.** La compañía dijo que el gobierno t	8BL
193	. El avance de los alimentos	**genéticamente modificados** se había detenido, y quizá no sólo	8BL
194	vazados sobre los alimentos	**genéticamente modificados.** El Cry9C pertenece a una familia d	8BL
195	dversarios de los alimentos	**genéticamente modificados—.** Ahora nos toca contraatacar. Est	8BL
196	s cultivos y de los alimentos	**genéticamente modificados**». Lo que estaba en juego era algo	8BL
197	ermitiendo que los alimentos	**genéticamente modificados** pudieran clasificarse como orgánic	8BL
236	al aire libre de una bacteria	**genéticamente modificada.** Los habitantes de St. Charles no pen	8BL
237	rno que promovía la comida	**genéticamente modificada** tanto en sus palabras como en sus o	8BL
238	s, para amenazar un cultivo	**genéticamente modificado.** Nunca antes una banda de sabotead	8BL
239	la investigación de cultivos	**genéticamente modificados.** Siendo como es un ecologista agríc	8BL

240	ros conversos a los cultivos	genéticamente modificados	, y piensa plantar toda semilla transg	8BL
241	do, medren o no los cultivos	genéticamente modificados	. Mi única decisión consiste en saber	8BL
242	lanes para sembrar cultivos	genéticamente modificados	. Incluso las simples propuestas de h	8BL
243	asociados con esos cultivos	genéticamente modificados	. Podemos hablar lo que queramos s	8BL
244	n de brotar, muchas de ellas	genéticamente modificadas	. El poeta Carl Sandburg dijo que los	8BL
248	peligros de cultivar un maíz	genéticamente modificado	para que produzca sus propios insect	8BL
372	nde se leía: ORGANISMOS	GENÉTICAMENTE MODIFICADOS	. SÓLO PERSONAL AUTORI	8BL
373	utizó Monsanto, una patata	genéticamente modificada	, puede ser tan agresiva que incluso m	8BL
376	s sólo se dan en las plantas	genéticamente modificadas	, porque ninguna otra tecnología pue	8BL
377	gar de hacer crecer plantas	genéticamente modificadas	en una cubeta de cristal, tenían que	8BL
379	cuaban o no a los productos	genéticamente modificados	. En la primavera de 1984, un nuevo	8BL
382	ía de su variedad de semilla	genéticamente modificada	. «Eso es demasiado», decía. En la z	8BL
385	bre la utilización de semillas	genéticamente modificadas	. Ciertamente, plantar los OMG pue	8BL
386	e que les birlen sus semillas	genéticamente modificadas	, se mostrarán más dispuestas a ex	8BL
387	a pensar en plantar semillas	genéticamente modificadas	, hizo una breve pausa antes de res	8BL
390	cesados con brotes de soja	genéticamente modificados	, tanto si les gustaba como si no. En	8BL
392	rillo pálido, es una variedad	genéticamente modificada	que produce unos niveles más altos	8BL
393	Los riesgos de respirar ADN	genéticamente modificado	. Durante el verano de 2003, 39 perso	10JS
394	el primer cultivo alimentario	genéticamente modificado	: los tomates FlavrSavr. Dotados de g	10JS
395	os con agentes alimentarios	genéticamente modificados	, con aditivos y enzimas además de	10JS
396	expansión de los alimentos	genéticamente modificados	recayó en Robert Shapiro, quien «d	10JS
397	a identificación de alimentos	genéticamente modificados	. En él encontrará un boletín informa	10JS
398	ración Bush sobre alimentos	genéticamente modificados	: «Las reformas que hoy anunciamos	10JS
399	e la utilización de alimentos	genéticamente modificados	(GM). También recriminó a los europ	10JS
400	s inherentes a los alimentos	genéticamente modificados	. La historia de Arpad Pusztai ocupó	10JS
401	n alimentaria y los alimentos	genéticamente modificados	están a la vanguardia de los cambio	10JS
402	el de eliminar los alimentos	genéticamente modificados	, cuando retiró las maquinas expend	10JS
403	erencias entre los alimentos	genéticamente modificados	y los modificados por medio de las p	10JS
404	sugieran que los alimentos	genéticamente modificados	y que han sido aprobados para el co	10JS
405	en el tema de los alimentos	genéticamente modificados	es que se intenta silenciar de forma	10JS
406	para etiquetar los alimentos	genéticamente modificados	, utilizaron el miedo y la distorsión. Po	10JS
407	ente a regular los alimentos	genéticamente modificados	. Los documentos eran propuestas de	10JS
408	de etiquetado de alimentos	genéticamente modificados	y que ello infringía la Food, Drug and	10JS
409	afe? You Decide (Alimentos	genéticamente modificados	: ¿son seguros? tú decides) recogió	10JS
410	aversión a comer alimentos	genéticamente modificados	, los niños del tercer mundo se queda	10JS
411	nzamiento de los alimentos	genéticamente modificados	que efectuó Monsanto, ha resultado	10JS
412	regulación de los alimentos	genéticamente modificados	, las agencias “competentes” pocas v	10JS
413	puesto de que los alimentos	genéticamente modificados	eran estables. Se entendía que los n	10JS
414	ica que seguir en alimentos	genéticamente modificados	. Según Druker, los registros demuest	10JS
415	emuestra que los alimentos	genéticamente modificados	son seguros, entonces les habremos	10JS
416	d de etiquetar los alimentos	genéticamente modificados	para prevenir que los temores de los	10JS
417	actitud hacia los alimentos	genéticamente modificados	desde 1992», prueba de que no cree	10JS
418	eptabilidad de los alimentos	genéticamente modificados	, y dan crédito a los muchos consumi	10JS
419	lud debidos a los alimentos	genéticamente modificados	(GM). En cambio, apenas si apareci	10JS
420	preventiva de los alimentos	genéticamente modificados	. Las compañías biotecnológicas ase	10JS
421	ha centrado en los alimentos	genéticamente modificados	. No ha tratado la terapia genética ni	10JS
422	ntífica de que los alimentos	genéticamente modificados	no se diferencian de los alimentos c	10JS
423	on respecto a los alimentos	genéticamente modificados	». Cierta cantidad de StarLink estará	10JS
424	o un buen reclamo, el arroz	genéticamente modificado	que fabrica su propio betacaroteno, p	10JS
425	azucarera, el lino y el arroz	genéticamente modificados	, jamás llegaron a comercializarse pe	10JS
426	mo, un edulcorante artificial	genéticamente modificado	: en 1995 se realizaron aproximadame	10JS
427	izado tres cepas de bacteria	genéticamente modificada	, además de la cepa V relacionada co	10JS
428	al corriente de las bacterias	genéticamente modificadas	. De hecho, en 2001, cuando le menc	10JS
429	creado a partir de bacterias	genéticamente modificadas	, lo cual explicaría por qué los científi	10JS
430	mona de crecimiento bovino	genéticamente modificada	. Tommy Thompson, secretario de sani	10JS

431	mona de crecimiento bovino	genéticamente modificada	que ningún otro país industrializado h	10JS
432	as variedades de cultivos Bt	genéticamente modificados	que siguen en el mercado. Según H	10JS
433	owa Denko introdujo la cepa	genéticamente modificada	que probablemente produciría más c	10JS
434	e un principio que las cepas	genéticamente modificadas	tenían un papel determinante en la e	10JS
435	e biólogo molecular; comida	genéticamente modificada.	Consideré la situación mientras me p	10JS
436	ona bovina del crecimiento	genéticamente modificado	(rbGH, por sus siglas en inglés). Seg	10JS
438	as a los alimentos y cultivos	genéticamente modificados	en sus páginas de opinión». Según	10JS
439	a que presentan los cultivos	genéticamente modificados».	Cummins sostiene que las investig	10JS
440	n día, la mayoría de cultivos	genéticamente modificados	son la soja, el algodón, el aceite de c	10JS
442	ó al mercado el edulcorante	genéticamente modificado,	aspartamo. Mitch Daniels, director de	10JS
443	suprimieron el edulcorante	genéticamente modificado	de Monsanto, el aspartamo, de entre	10JS
444	parece una lista de enzimas	genéticamente modificadas	y se describe cómo son utilizadas. A	10JS
445	del maíz estadounidense es	genéticamente modificado,	la nueva generación obtenida con su	10JS
449	lergénico de las estructuras	genéticamente modificadas,	plantee la siguiente pregunta: —Cu	10JS
451	ológicas de los cultivos GM	(genéticamente modificados),	y una serie de desoladores ejempl	10JS
452	te. «Las bacterias y hongos	genéticamente modificados	se utilizan con frecuencia como fuen	10JS
453	eta. Las bacterias y hongos	genéticamente modificados	se vienen utilizando desde la década	10JS
454	cesados tienen ingredientes	genéticamente modificados,	parece estar, como mínimo, despreo	10JS
455	mercializadas fueran de las	genéticamente modificadas	y patentadas. Luego, Arthur Andersen	10JS
457	soja natural a un lado y los	genéticamente modificados	al otro, totalmente intactos. El veterano	10JS
458	elicado tema del L-triptófano	genéticamente modificado.	Sabían que la FDA estaba decidida a	10JS
459	nitud del riesgo que el maíz	genéticamente modificado	suponía para la población de maripos	10JS
460	s científicos de que el maíz	genéticamente modificado	era más seguro de lo que se temía, m	10JS
461	res. Un montón era de maíz	genéticamente modificado	y el otro era natural. El montón GM se	10JS
462	ridad realizadas con el maíz	genéticamente modificado	que se cultiva en Gran Bretaña, eran	10JS
463	tarlink, un producto de maíz	genéticamente modificado	que contenía un alérgeno potencial y	10JS
464	ea posible, la soja y el maíz	genéticamente modificados	de todos los productos alimentarios	10JS
469	r una de aquellas maravillas	genéticamente modificadas,	la toxina Bt, que producía cada célu	10JS
470	enética ni los medicamentos	genéticamente modificados.	Las diferencias son esenciales. A a	10JS
504	o ambiente. Si un organismo	genéticamente modificado	es introducido en el medio, ya no pod	10JS
505	ucation Project [Organismos	genéticamente modificados	— Proyecto de educación sobre as	10JS
506	os prohíben los organismos	genéticamente modificados	(OGMs) y sus derivados. Dicha proh	10JS
507	troversia de los organismos	genéticamente modificados	(OGM) hasta mayo de 1999. Todo f	10JS
508	a observado en organismos	genéticamente modificados	tales como bacterias, levaduras, pla	10JS
509	y consumiendo las patatas	genéticamente modificadas.	Su ADN se había empalmado a un	10JS
510	etemos a nuestras patatas	genéticamente modificadas.	Realmente creo que esta tecnologí	10JS
511	10 días, una de las patatas	genéticamente modificadas	hizo que las ratas respondieran men	10JS
512	del maíz, algodón y patatas	[genéticamente modificados]—	pueden provocar efectos perjudic	10JS
513	iensos derivados de plantas	genéticamente modificadas	y dedicados a consumo animal pres	10JS
514	r que se evalúen las plantas	genéticamente modificadas	en busca de estos cambios», éstos	10JS
515	lo, avisó de que las plantas	genéticamente modificadas	«contenían una concentración impre	10JS
517	yen y acepten los productos	genéticamente modificados.	Teniendo esto en cuenta, todo lo pr	10JS
518	ad de sus nuevos productos	genéticamente modificados	al menos 120 días antes de que fue	10JS
519	dentificasen a los productos	genéticamente modificados.	El argumento para esta política no i	10JS
520	ontaminación por productos	genéticamente modificados	del que en el mundo se tenga notici	10JS
521	sario que nuevos productos	genéticamente modificados	tuvieran que someterse a las mism	10JS
522	a variedad Roundup Ready,	genéticamente modificada.	Los investigadores no pasaron por a	10JS
523	o la hormona recombinante	(genéticamente modificada)	de crecimiento bovino (rbGH), que,	10JS
524	o de los cuales habrá de ser	genéticamente modificado.	Grandes planes: la modificación gen	10JS
530	esgos potenciales de la soja	genéticamente modificada	y entonces redujo un cuarto la cantid	10JS
531	la empresa el maíz y la soja	genéticamente modificados.	Las tiendas de la cadena repartieron	10JS
532	de los tomates, maíz y soja	genéticamente modificados	habría pasado por alto. El profesor J	10JS
533	para cocinar, están también	genéticamente modificados.	Cerca del 75 por ciento de estos cu	10JS
534	ban el hocico ante el tomate	genéticamente modificado	FlavrSavr que los científicos ansiaban	10JS
535	[kanamycin] en los tomates	genéticamente modificados.	Estoy seguro de que esto podría ten	10JS

536	ta está plagada de tonterías	**genéticamente modificadas**», afirmó Kucinich, quien describió la	10JS
537	estribara en que la variedad	**genéticamente modificada** tuviese también genes Roundup Rea	10JS

Manipulado/s genéticamente (11)

46	bios, y la soja **manipulada**	**genéticamente** fue aprobada por las autoridades como apta para	6LA
47	tadas con soja **manipulada**	**genéticamente** producían 1,29 kg — un aumento de más del 8%.	6LA
50	los alimentos **manipulados**	**genéticamente** en la sociedad.” Había, dijo el informe, “grandes f	6LA
171	r organismos **manipulados**	**genéticamente.** En un esfuerzo por satisfacer el apetito de produc	7IB
172	os y animales **manipulados**	**genéticamente.** Están mucho más ocupados en promocionar la n	7IB
173	nes de cerdo, **manipulados**	**genéticamente** para que resistiesen el rechazo, pudieron sobreviv	7IB
249	rimer producto **manipulado**	**genéticamente** que se infiltró en los supermercados norteamerica	8BL
250	o los cultivos **manipulados**	**genéticamente**, las ventas de la nueva maravilla vegetal se había	8BL
465	os de plantas **manipuladas**	**genéticamente**, en concordancia con la política seguida en 1992”.	10JS
467	e los cultivos **manipulados**	**genéticamente.** Dicen: «Las controversias y lagunas en el conoci	10JS
468	s, maíz y soja **manipulados**	**genéticamente** que, aún sin evaluarse, estaban en los supermerc	10JS

Genéticamente manipulado/s (18)

153	tiqueten o no los alimentos	**genéticamente manipulados** será un asunto del futuro. Mientras	7IB
154	etiquetado de los alimentos	**genéticamente manipulados** una simple cuestión del derecho q	7IB
155	l no etiquetar los alimentos	**genéticamente manipulados**, los vegetarianos y quienes respeta	7IB
158	il obtener plantas y animales	**genéticamente manipulados**, y mucho más crear alimentos que	7IB
159	, los pollos vendrán de aves	**genéticamente manipuladas**, idiotizadas para que no se percate	7IB
160	o Canadá introdujo la colza	**genéticamente manipulada**, pero la mantuvo separada, las venta	7IB
177	ayo, la venta de organismos	**genéticamente manipulados** y las patentes sobre la vida. Los al	7IB
178	io para todos los organismos	**genéticamente manipulados.** De alguna forma, Europa había lo	7IB
179	ductoras de los organismos	**genéticamente manipulados** para producir grandes cantidades d	7IB
162	ación, un torrente de cultivos	**genéticamente manipulados**, que ahora era ofrecido a los agricul	7IB
166	cto para desarrollar un maíz	**genéticamente manipulado** que fuese inmune a la fusiarosis, un	7IB
186	a las importaciones de soja	**genéticamente manipulada** para hacerla resistente a los herbicid	7IB
187	96, las plantaciones de soja	**genéticamente manipulada** para hacerla resistente al herbicida	7IB
245	o tendría una patata hervida,	**genéticamente manipulada**, después de haberla almacenado en	8BL
388	he plantado semillas de soja	**genéticamente manipulada** (para ser exactos, una soja alterada	8BL
389	Calgene. Los brotes de soja	**genéticamente manipulados** durante los dos primeros años de p	8BL
437	onsecuencias... Los cultivos	**genéticamente manipulados** que ahora se desarrollan suponen u	10JS
529	abía probado la nueva soja,	**genéticamente manipulada.** Era fácil determinar exactamente do	10JS

Alterado/s genéticamente (38)

1	hagas. La bacteria **alterada**	**genéticamente** produce un antibiótico letal en el tracto digestivo	4JR
3	a de un organismo **alterado**	**genéticamente** produjese una catástrofe medioambiental, la intro	4JR
4	anos de animales **alterados**	**genéticamente** a los seres humanos podría hacer que los virus de	4JR
5	ón de organismos **alterados**	**genéticamente**... El doctor Steven Lindow, el investigador de la U	4JR
6	un feto humanos **alterados**	**genéticamente** son en principio patentables, con lo que queda ab	4JR
182	or de los cultivos de plantas	**genéticamente alteradas** para que sirviesen de barreras. Se sup	7IB
198	libre de una planta **alterada**	**genéticamente.** Cruzaron el río Mississippi y Alton, Illinois, para ll	8BL
199	co. Nuestra comida **alterada**	**genéticamente** es nueva, tan nueva que el 6 de septiembre de 19	8BL
200	domonas bacteria, **alterada**	**genéticamente.** Sus precauciones enviaron mensajes confusos a	8BL
201	e utilizar semillas **alteradas**	**genéticamente.** Así que, «¿cómo pueden USTEDES tener el cin	8BL
202	lantas de algodón **alteradas**	**genéticamente.** Ellos afirmaban que su ataque era parte de la «O	8BL
203	Roundup Ready, **alteradas**	**genéticamente.** En Watlington, aquel campo que ha atraído a acti	8BL
204	dades de cultivos **alteradas**	**genéticamente** no se distinguían de las convencionales. El desac	8BL
205	plantas de colza **alteradas**	**genéticamente** para sobrevivir al herbicida Liberty, de AgrEva. En	8BL
206	ían unas semillas **alteradas**	**genéticamente** para que, en la práctica, produzcan su propio inse	8BL
207	s jodidas semillas **alteradas**	**genéticamente**? —preguntó Riesel a un trabajador. Seis meses d	8BL
208	cosechas enteras **alteradas**	**genéticamente** se transplantaron de los laboratorios a la tierra de	8BL
211	n microorganismo **alterado**	**genéticamente.** Pero el miedo también estaba echando raíces. Aq	8BL

212	ste campo de maíz **alterado**	**genéticamente**, sí que veo que el futuro trae consigo una época tu	8BL
214	ias de los cultivos **alterados**	**genéticamente**. A los granjeros no les interesaba que este rasgo i	8BL
215	e nuevos cultivos **alterados**	**genéticamente**. A principios del nuevo siglo, la moratoria sigue vi	8BL
216	r con sus tomates **alterados**	**genéticamente**. Ciertos reguladores habían dejado entrever que e	8BL
217	r los ingredientes **alterados**	**genéticamente** de todos los productos con la etiqueta de su empr	8BL
218	de los alimentos **alterados**	**genéticamente**, e Internet los puso a todos en contacto, porque p	8BL
219	te a los alimentos **alterados**	**genéticamente**». En mayo, me encontré en el mismísimo filo de u	8BL
220	con ingredientes **alterados**	**genéticamente**. Éstas son las instrucciones que la industria biotec	8BL
221	e los ingredientes **alterados**	**genéticamente** ha ido siendo cada vez más negativo, lo cual cons	8BL
222	uevo: los cultivos **alterados**	**genéticamente**. La campana de alarma para las granjas familiare	8BL
223	ienen ingredientes **alterados**	**genéticamente**; la mayoría de las veces se trata de soja transgén	8BL
224	basen los cultivos **alterados**	**genéticamente**, los granjeros los habían plantado en más de 32	8BL
225	nuevos productos **alterados**	**genéticamente**. Pero un grupo de trabajo tenía un beneficio más	8BL
226	roducir alimentos **alterados**	**genéticamente** que sean más nutritivos (o atractivos en cualquier	8BL
227	de los alimentos **alterados**	**genéticamente**, se negaba a reunirse conmigo para entrevistarle.	8BL
228	e que los cultivos **alterados**	**genéticamente** son peligrosos para los campesinos de los países	8BL
229	n que los cultivos **alterados**	**genéticamente** suponen un escaso riesgo para el medio ambient	8BL
230	nían ingredientes **alterados**	**genéticamente**. Tal y como me había sugerido Gene, la ingenierí	8BL
231	ular los alimentos **alterados**	**genéticamente**». ¡TOCADO! Cuatro días antes de la conferencia	8BL
232	diseñar alimentos **alterados**	**genéticamente**, usaba sus contactos en Washington para conven	8BL
		Genéticamente alterado/s (9)	
235	rvisar las plantas y animales	**genéticamente alterados**. A las agencias federales se les encarg	8BL
246	febrero sobre una hormona	**genéticamente alterada** destinada a las lecherías, preguntaba: «	8BL
247	baba la plantación del maíz	**genéticamente alterado** de Monsanto y de tres otras variedades	8BL
371	alifornia, con un organismo	**genéticamente alterado** que retarda la formación de escarcha so	8BL
374	a trompicones entre plantas	**genéticamente alteradas** o viendo cómo los escarabajos de la pa	8BL
381	r sus semillas de remolacha	**genéticamente alterada** en diez granjas más repartidas por el pa	8BL
383	ny, creadora de las semillas	**genéticamente alteradas**, y que advertía de que la empresa pen	8BL
384	n nada que ver con semillas	**genéticamente alteradas**, porque, tal y como me dijo, Monsanto	8BL
391	mericanas del maíz StarLink	**genéticamente alterado**, contaminado con una proteína que podr	8BL
		Others (6)	
12	es de animales, **diseñados**	**genéticamente** por encargo y producidos en serie, como fábricas	4JR
441	tata experimental **diseñada**	**genéticamente** para producir una toxina conocida, ¿qué pasaba?	10JS
43	er alimentos **contaminados**	**genéticamente**, o que no quieran que sus cultivos sean contamin	6LA
251	te de alimentos **mejorados**	**genéticamente** y que revolucionarán el mundo de la alimentación.	8BL
471	cluya que el maíz **mejorado**	**genéticamente** representa un perjuicio insignificante para la pobla	10JS
516	ntos (como los **producidos**	**genéticamente**) «requieren la misma calidad y cantidad de prueba	10JS

Table 8.27. *Concordance of 'noun + adjective + genéticamente' and 'noun + genéticamente + adjective' in the soc corpus.*

SEMANTIC PROSODY_*GENETICALLY*_SCI CORPUS (418 OCCURRENCES)					
Genetically modified + N (sci corpus) (261 occurrences) Neutral: 55; Regulation: 33; Favorable: 22; Concern: 62; Concern (-): 37; Unfavorable: 52					
No.	**R1 collocate**	**Co-text/context**	**Semantic set**	**Book**	**No.**
1.	Animal	Patented/Oncomouse, Harvard Univ/Oncogene	**Neutral**	2SA	1.
2.	Organisms	Release of, public fear	Concern (-)		2.
3.	Plant cells	Selection step, resistant to antibiotic kanamycin	Concern (-)		3.
4.	Products	Consumer pressure, labelled, Flavr Savrx	Concern (-)		4.
5.	Tomatoes	Production of, shelf-life	**Neutral**		5.
6.	Alfalfa	Improved freezing tolerance, testing	**Neutral**	3EG	6.
7.	Insect-resistant crop	Regulatory approval, commercialization, added bacterial genes	**Neutral**		7.
8.	Mice	Patent, approved	**Neutral**		8.
9.	Organisms	Patenting of, key issues, public attitudes	**Neutral**		9.
10.	Species	Escape of, release of	Concern (-)		10.
11.	Agricultural products	Barrier, discriminatory labeling, unacceptable	Unfavorable	5MH	11.
12.	Crops	No need for/feed the world	Unfavorable		12.
13.	Crops	No need for/feed the world/undermine	Unfavorable		13.
14.	Food	Regulations, international commerce, sound science, not just emotion	Unfavorable		14.
15.	Food	Perils, promises/feed the world/unsustainable/hazardous	Unfavorable		15.
16.	Food	Feed the world/poverty/unequal	Concern (-)		16.
17.	Foods	Rejected, Norway, Germany	Unfavorable		17.
18.	-				
19.	Micro-organisms (GMMs)	Release […] wastes, 'inactivation'	Concern (-)		18.
20.	Organism	Trait, transferring, pass on	**Neutral**		19.
21.	Organisms	Field Testing, no conceptual distinction, a priori	Concern (-)		20.
22.	Organisms	Deliberate release of, patenting of life, banning	Unfavorable		21.
23.	Products	Relaxation, regulation, field trials, safe	Concern (-)		22.
24.	- N			9SN	
25.	- N				
26.	- N				
27.	-				
28.	-				
29.	Animals	Transgenic crops, high-input, agriculture	Favorable		23.
30.	-				
31.	Bacteria	Using, produce/process	**Neutral**		24.
32.	Bacteria	Manufacture, production	**Neutral**		25.
33.	Baculovirus	Research, Oxford	**Neutral**		26.
34.	Baculovirus	View, insecticides/field trials	Concern (-)		27.
35.	Baculovirus	Release of/risk assessment	Concern (-)		28.
36.	Bovine somatotropin (BST)	Technique, hormone, produced/Increase	Favorable		29.
37.	BST	Milk, engineered, shelf-life	**Neutral**		30.
38.	Canola	High levels, Monsanto, fatty acids	Unfavorable		31.
39.	Characteristics	Estimated, crop seed	**Neutral**		32.
40.	Chymosin	Labelled, vegetarian cheese	**Neutral**		33.

41.	Content	Testing shipments, needle, haystack	Concern (-)		34.
42.	Cotton	Clothing, exported	**Neutral**		35.
43.	Crop	Planting, UK//transferred	**Neutral**		36.
44.	Crops	European food industry, disagree, segregated	Concern (-)		37.
45.	Crops	Policies, splits, European	Concern (-)		38.
46.	Crops	Patent rights, Agracetus/transfer/method	**Neutral**		39.
47.	Crops	Procedure, streamline	**Neutral**		40.
48.	Crops	Acceptable, most consumers, Monsanto	Concern (-)		41.
49.	Crops	Risks, pose, gene regulation	Concern		42.
50.	Crops	Promises, reductions, pesticide, critics	Concern		43.
51.	Crops	Foods, approval, range/Moratorium	Regulation		44.
52.	Crops	Research, resistant, reduce pesticide	Favorable		45.
53.	Crops	Variants, gene combinations, markers	**Neutral**		46.
54.	Crops	Plantings, occurred	**Neutral**		47.
55.	Crops	Experimental releases of, massive investment	Favorable		48.
56.	Crops	Breeding lines, patented, crossed, transgenes	**Neutral**		49.
57.	Crops	European Commission, European market	Regulation		50.
58.	Crops	Marketing, fear, obstacles	Concern		51.
59.	Crops	Potential risks	Concern		52.
60.	Crops	Contributions, food production	Favorable		53.
61.	Crops	Spread of progress, commercial, quicker	Favorable		54.
62.	Crops	Risk, gene spread, certain	Concern		55.
63.	Food	Explains, suddenly, diet/Issues	Concern		56.
64.	Food	Europe, clearance	Favorable		57.
65.	Food	Not opposed, non-genetically modified	Concern		58.
66.	Food	Benefits, resistance, modifications, consumers	Concern		59.
67.	Food	Growing opposition, concern, food production	Unfavorable		60.
68.	Food	Ethical, moral concerns, raised	Concern		61.
69.	Food	Public opposition, polls, Europe	Unfavorable		62.
70.	Food	Opposition, started, grew, Europe	Unfavorable		63.
71.	Food	Risks, public perception	Concern (-)		64.
72.	Food	Sale, benefit, development, companies	Favorable		65.
73.	Food	Selling, potential health, ecological risks	Concern (-)		66.
74.	Food	Ban, field-testing, moratorium	Unfavorable		67.
75.	Food	Issue, referendum, Austria, polls	Unfavorable		68.
76.	Food	Safety, reassure, public, food industry	Concern (-)		69.
77.	Food products	Marketing, European Parliament	Regulation		70.
78.	Food	Disapproval, chosen, supermarket	Concern		71.
79.	Food products	Range, marketing, herbicide-resistant	**Neutral**		72.
80.	Food	Labelling, European Parliament, legislation	Regulation		73.
81.	Food	How, entering, diet	Concern		74.
82.	Food	Marketing approvals, debate	Concern		75.
83.	Food	Marketing approval, Europe	Regulation		76.
84.	Food product	Product releases, approved, Europe, USA	Regulation		77.
85.	Food	Public opinion, hardening, European	Unfavorable		78.
86.	Food	Definition, labelling, imposed	Regulation		79.
87.	Foods	Risks, identified, spread, transgenes, environment	Unfavorable		80.
88.	Foods	Few, strongly opposed, poll, unease	Concern		81.
89.	Foods	'Moral taint', might, attached	Concern		82.

90.	Foods	Opposition, Europe, polls, Germany, Austria	Unfavorable		83.
91.	Foods	Ethical objections, consumers	Concern		84.
92.	Foods	Allergic reactions, resistance to antibiotics	Concern		85.
93.	Foods	Safeguards/ ACFNP, health aspects	Favorable		86.
94.	Foods	Opposition, Jeremy Rifkin, active, mobilizing	Unfavorable		87.
95.	Foods	Marketed, novelty value, healthy profits	Concern		88.
96.	Foods	Not stock, pledged, bans	Unfavorable		89.
97.	Foods	Unjustly stigmatize, labels	Concern		90.
98.	Foods	Become, quickly, diet/Supermarket	**Neutral**		91.
99.	Foods	Caught up, swing, attitude, against	Unfavorable		92.
100.	Foods	Promotes, Federation, launched, inform, public	Favorable		93.
101.	Foods	Promote, EuropaBio, public relations	Favorable		94.
102.	Foods	Producing, keen followers, opinion polls	Favorable		95.
103.	Foods	Bans, illegal, equivalent, US government	Concern		96.
104.	Foods	Bans, support of	Concern (-)		97.
105.	Foods	Labelling of, advantages, report	Concern		98.
106.	Foods	Public's perception, change	Concern		99.
107.	Foods	Cause, no favors, moral, Monsanto	Concern (-)		100.
108.	Foods	Polls, suspicious	Unfavorable		101.
109.	Foods	Labelling, for and against	Regulation		102.
110.	Foods	Cause of	Favorable		103.
111.	Foods	Public's acceptance, risks and benefits	Concern		104.
112.	Foods	Marketing approval, consumer groups, worried	Concern (-)		105.
113.	Foods	Production of, rapid advances, social policy	Regulation		106.
114.	Foods	Benefits, outweigh, risks	Concern		107.
115.	Foods	Mandatory labelling, consumer, pressure	Concern		108.
116.	Foods	Meaningful labelling, support	Concern		109.
117.	Foods	Introduction of, opposed, not be happy	Unfavorable		110.
118.	Foods	Development of, mandatory labeling, jeopardize, consumer resistance	Unfavorable		111.
119.	Foods	Voluntary labeling, started, Europe	Favorable		112.
120.	Foods	Full labeling, consumer calls, retail groups	Concern		113.
121.	Foods	Not apply, ruling, further problems	Concern		114.
122.	Foods	Labelling, food industry, resisted, equivalent	Concern		115.
123.	Foods	To develop, market, regulations, multinationals	Concern		116.
124.	Foods	To label, reluctance, health risks	Unfavorable		117.
125.	Foods	Potential in, sweet, effect/molecule of interest	**Neutral**		118.
126.	Foods	Crop plants, used	**Neutral**		119.
127.	Foods	Public confidence, restore	Concern (-)		120.
128.	Foods	To understand, quickly, part, diet	Concern		121.
129.	Foods	Direct risks, human health	Unfavorable		122.
130.	Foods	Here, to stay	**Neutral**		123.
131.	Foods	Modified, cheese production, transgenic yeast	**Neutral**		124.
132.	Foods	Labelling guidelines, FAC/Regulations	Regulation		125.
133.	Foods	Marketing approval, subject, next chapter	**Neutral**		126.
134.	Foods	Consideration for, label, applicants	Regulation		127.
135.	Foods	Marketing approvals, ingredients, processed	Regulation		128.
136.	Foods	National labeling laws, could impose	Regulation		129.
137.	Foods	Prospects/Polls, suspicious	Concern (-)		130.
138.	Foods	First, sold, UK, vegetarian cheese	**Neutral**		131.

139.	Foods	May, antibiotic resistance genes, concern	Concern		132.
140.	Foods	Mandatory labeling, effective, segregated	Concern		133.
141.	Foods	Poll, Germany, not want to eat	Unfavorable		134.
142.	Foods	Risks, antibiotic resistance, likely	Concern (-)		135.
143.	Foods	Refusing, buy, consumers, alternatives	Unfavorable		136.
144.	Foods	Approve, European market, reluctance, war	Unfavorable		137.
145.	Foods	Mandatory labelling, legislation, Europe	Regulation		138.
146.	Foods	Labelled, public, informed, purchasing	Concern		139.
147.	Foods	Mandatory labelling, thwart	Unfavorable		140.
148.	Foods	Mandatory labelling, hardened, consumer	Concern (-)		141.
149.	Foods	Full labelling, supported, Germany, Austria	Regulation		142.
150.	Foods	Stealth, bewilder	Unfavorable		143.
151.	Foods	Opinion polls, mainly against	Unfavorable		144.
152.	Foods	Germany, witnessed, against	Unfavorable		145.
153.	Foods	Inform, public, launch, initiative	Concern		146.
154.	Foods	Worried, Greenpeace	Unfavorable		147.
155.	Foods	Dispel concerns, nothing	Unfavorable		148.
156.	Foods	Latent public, unease, disturbing	Unfavorable		149.
157.	Fruit	First, reach, market	**Neutral**		150.
158.	(GM) crops	Transgenic, entered, diet, processed, discrete	Concern		151.
159.	-				
160.	-				
161.	Ingredients	Processed, diet, industrialized countries	**Neutral**		152.
162.	Ingredients	Aware, processed foods, calls, labelled	Concern		153.
163.	Ingredients	Rather, discrete food, consumers	Concern		154.
164.	Ingredients	Guaranteed free of, without	Favorable		155.
165.	Ingredients	Label, supermarket chains, soybean, USA	Favorable		156.
166.	Ingredients	Avoid labelling, Greenpeace	Unfavorable		157.
167.	Ingredients	Containing, labelling guidelines, voluntarily	Unfavorable		158.
168.	Ingredients	No benefit, health risks, not welcomed	Unfavorable		159.
169.	Ingredients	Potential contained, range, processed food	Concern		160.
170.	Ingredients	May contain, processed foods	Concern		161.
171.	Ingredients	Retailers, not knowing, which, frustrated	Unfavorable		162.
172.	Lines	Stability, confirm, ACNFP	Concern		163.
173.	Maize imports	Authorizing, condemned	Unfavorable		164.
174.	Maize	Reports, segregated, farmers	Concern		165.
175.	Maize kernel	Equipment, detect/altered	**Neutral**		166.
176.	Maize	Illegal, EC, imports	Unfavorable		167.
177.	Maize	Safety, serious doubts, risks of transmission, marker gene, resistant to antibiotics	Concern (-)		168.
178.	Maize	Illegal imports, occurred	Unfavorable		169.
179.	Maize	Testing, fears, reliability, twist, over	Concern (-)		170.
180.	Maize	Marketing of, authorize, labelled, EU market	Concern		171.
181.	Maize	Approval, European market, applied	**Neutral**		172.
182.	Maize	Formed, testing, distinguish	Concern		173.
183.	Material	Proportion, stated, could, also	Concern		174.
184.	Material	Labelled, ‘meaningless’, European	Unfavorable		175.
185.	Material	Products, contain, evidence	Concern		176.
186.	Micro-organism	Monitoring, knowledge, microbe’s ecology	**Neutral**		177.
187.	Microbes	Produced, shrinking, market, farmers	Unfavorable		178.

188.	Microbes	Concern, persist, environment	Concern (-)		179.
189.	Oil	First, sold, high-laurate, approved, Canadian	**Neutral**		180.
190.	Organism	Releases of, ice minus bacteria, application	**Neutral**		181.
191.	Organism	Permit, apply, field-testing, environmental release	**Neutral**		182.
192.	Organism	Application, term, 'plant pest', status	**Neutral**		183.
193.	Organisms	Approve, applications	**Neutral**		184.
194.	Organisms	Deliberate release, contained use, regulation	Regulation		185.
195.	Organisms	Releases, contained use, regulation	Regulation		186.
196.	Organisms	Releasing, unpredictable effects, environment, occurred	Unfavorable		187.
197.	Organisms	EPA, authority, acts	Regulation		188.
198.	Organisms	Patents, processes, genetic manipulation	**Neutral**		189.
199.	Organisms	Marketing approval, EU Directive	Regulation		190.
200.	Organisms	Releases of, needed, Secretary of State	Regulation		191.
201.	Organisms	Risk, likely, believe, OTA	Concern (-)		192.
202.	Organisms	Voluntary Releases, Directive, environment	Regulation		193.
203.	Organisms	Monitoring of, fears, receding	Concern		194.
204.	Organisms	Marketing of, experimental release, regulatory frameworks	Regulation		195.
205.	Organisms	Voluntary release, Directive, environment, GM	Regulation		196.
206.	Organisms (GMOs)	Biosafety of, labeling, drafting, agreement	Regulation		197.
207.	Organisms	Releases, issued, ACRE	Regulation		198.
208.	Organisms	Regulation of, agencies	Regulation		199.
209.	Organisms	Release of, damage, health, environment	Unfavorable		200.
210.	Organisms	Releases of, assessing risk, proposals, monitoring	Regulation		201.
211.	Organisms	Regulation, food products	Regulation		202.
212.	Organisms	Development of, consequences, uncertainty	Concern		203.
213.	Organisms	Range, techniques, patents/lucrative	Concern		204.
214.	Organisms (GMO-free)	Labelled, free, organic, EU	Regulation		205.
215.	Organisms	Ecological risks, possible, might lead, study	Concern (-)		206.
216.	Organisms	Releases of, environment, guidelines, control	Regulation		207.
217.	Organisms	Monitor, states, right	**Neutral**		208.
218.	Organisms	Model, risk assessment, field experiment	Concern		209.
219.	Organisms	Labelling, legislation, equivalent, ethical	Regulation		210.
220.	Organisms	Experiments, increases, risk, dispersed, environment	Concern (-)		211.
221.	Organisms	Contained, 'disabled'	Concern (-)		212.
222.	Organisms	Ecological risks, environment, persist, environment	Concern (-)		213.
223.	Organisms	Labelling, regulation, produced	Regulation		214.
224.	Organisms	First, ingredients, Monsanto, widely marketed	**Neutral**		215.
225.	Organisms	Transgenes, mechanism, genome	**Neutral**		216.
226.	Organisms	EU, regulations, labelled, contains	Regulation		217.
227.	Organisms	Contain, diet, estimated, processed food	**Neutral**		218.
228.	Organisms	Distinction, produced, contain, processes	**Neutral**		219.
229.	Organisms	Composition, shelf-life, labelled, processed	**Neutral**		220.
230.	Organisms	Potential, risks, clash, Third World	Concern (-)		221.
231.	Organisms	Release of, environment, major contributions	Favorable		222.

232.	Plants	Dealing with, review procedures, committees	**Neutral**		223.
233.	Plants	Features, suggest, differently	Concern		224.
234.	Plants	Selectable markers, feed	**Neutral**		225.
235.	Plants	US regulations, comply with, containers	**Neutral**		226.
236.	Produce	Produce, monitoring shipments	**Neutral**		227.
237.	-				
238.	Produce	Concern, lack, labeling, customers	Concern (-)		228.
239.	Products	Moratorium, happened	Concern (-)		229.
240.	Products	Patents, awarded, ensuring, strengthened	Favorable		230.
241.	Products	Ban, authorirized, EU, Norway	Unfavorable		231.
242.	Products	Stated, labeling	Concern		232.
243.	Products	Resolution, labelled, sold, separately	Concern		233.
244.	Russet Burbank	Popular, potato, Monsanto, produced, University	Favorable		234.
245.	Seed	Royalties, payable, patent, seed	Concern (-)		235.
246.	Seed	Labelling, seeds, whether	Concern		236.
247.	Seeds	Royalties, multinaltional, market	Concern		237.
248.	Seeds	Sale of, increased herbicide sales, worth	Favorable		238.
249.	Seeds	Companies, no reason why, treated, deemed	Concern		239.
250.	Sheep	Expressed, human proteins, milk, studies	**Neutral**		240.
251.	Soya	Nutritional value, safety, equivalent to	Concern		241.
252.	Soya	No possible, avoid, claim, consumer pressure	Concern		242.
253.	Soya	Development, discourages, patent	Unfavorable		243.
254.	Soya	Use, abandon, consumer pressure, Germany	Unfavorable		244.
255.	Soya	Boycott, launched, organizations	Unfavorable		245.
256.	Soya	Banned, Switzerland	Unfavorable		246.
257.	Soya	Consumers, not want	Unfavorable		247.
258.	Soya	Unaware, processed, rBST, not labelled	Concern (-)		248.
259.	Soya ingredients	Labels, food products, mention	Unfavorable		249.
260.	Soya	Accounted, figure, rise	**Neutral**		250.
261.	Soybean	Patent, covered, techniques	**Neutral**		251.
262.	Soybeans	Containing, unsegregated, exports, increased	Concern		252.
263.	Soybeans	Containing, labeling, processed, ‘dead’, not ‘substantially different’	Concern		253.
264.	Soybeans	Consumers, no choice, processed	Concern		254.
265.	Soybeans	Potentially contain, processed	Concern		255.
266.	Soybeans	Marketing approval, controversy	Concern		256.
267.	-				
268.	-				
269.	-				
270.	-				
271.	-				
272.	Tomatoes	Permission, granted, sell	**Neutral**		257.
273.	Tomatoes	Safety clearance, UK government	**Neutral**		258.
274.	Tomatoes	Labelled, voluntary, sales, good	Favorable		259.
275.	Varieties	Increased herbicide use, not, against	Favorable		260.
276.	Yeasts	Used, baking, bread-making	**Neutral**		261.

Genetically engineered + N (sci corpus) (136 occurrences) Neutral: 34; Regulation: 8; Favorable: 16; Concern: 50; Concern (-): 12; Unfavorable: 16					
No.	**R1 collocate**	**Co-text/context**	**Semantic set**	**Book**	**No.**
1.	Animal	Patent	Concern	1ER	1.
2.	DNA	vector	**Neutral**		2.
3.	Food	Harmful	Concern		3.
4.	Food	J.Rifkin, labelling	Concern		4.
5.	Gene	Risk	Concern		5.
6.	Genes	risk	Concern		6.
7.	Microbes	Release of /ethical issues	Concern (-)		7.
8.	Organism	Case, example	**Neutral**		8.
9.	Organisms	Release of / catastrophe	Concern (-)		9.
10.	Organisms	Risk assessment is nonsense	Concern		10.
11.	Organisms	cause envirnm probls	Concern		11.
12.	Organisms	Use/assessment of risk, sth going wrong	Concern		12.
13.	Organisms	Destroy environment	Concern		13.
14.	Plants	Ø/cause envirnm probls (previous sentence)	Concern		14.
15.	Plants	caution	Concern		15.
16.	Plasmids	Cure diseases	**Neutral**		16.
17.	-				
18.	Bovine somatotropin (BST)	Hormone boosts milk/significant contribution	Favorable	2SA	17.
19.	Chymosin	Obtain calf chymosin gene	**Neutral**		18.
20.	Chymosin	E.coli, host cell	**Neutral**		19.
21.	Chymosin	Production, key stages	**Neutral**		20.
22.	Chymosin	Great gene manipulation in the dairy industry	Favorable		21.
23.	Food	Unnatural	Concern		22.
24.	Food	Tough job convincing the public to buy products	Concern		23.
25.	Food	Safe, consumer	Favorable		24.
26.	Food	Flavr Savr, modified	Favorable		25.
27.	Foods	Threaten/antibiotic resistance, fortunately, satisfactory solution	Favorable		26.
28.	Plant cells	Modification process, Flavr Savr/no significant differences	Favorable		27.
29.	Plants	Natural pesticides/biotechnological solution	Favorable		28.
30.	Products	Safe objections/it has been argued that they may	Favorable		29.
31.	Products	Antibiotic genes/labelling	Favorable		30.
32.	Products	Express cells, very sucessful process	Favorable		31.
33.	Tomato plants	Posible/Satisfactory solution	Favorable		32.
34.	Vaccine	Human hepatitis B/talks about the process	**Neutral**		33.
35.	-			3EG	
36.	-				
37.	Bacteria	Contaminated tryptophan/impact on industry	Concern (-)		34.
38.	Bacteria	Procedure	**Neutral**		35.
39.	Bacteria	method	**Neutral**		36.
40.	Cotton plants	Controversial decisions,biotech company Agracetus/patents	Concern (-)		37.
41.	Foods	Cause health probls	Concern (-)		38.

42.	Hybrid molecules	Combine with proteins	**Neutral**		39.
43.	Microbes	Prohibit, US Congress and EPA	Concern		40.
44.	Oil-eating bacteria	Develop, patent	Concern		41.
45.	Organisms	Dangers of releasing, safety assessed	Concern		42.
46.	Organisms	conundrum (adivinanza), risk of releasing	Concern		43.
47.	Organisms	Develop	**Neutral**		44.
48.	Products	BST, BGH//controversy	**Neutral**		45.
49.	-				
50.	-				
51.	-				
52.	Vaccines	Safer, develop immunity	Favorable		46.
53.	Viral vectors	Produce	**Neutral**		47.
54.	-			5MH	
55.	-				
56.	Bovine growth hormone	To boost milk yield/provoke debate	Favorable		48.
57.	Canola seeds	Testing, patented, unexpected	Unfavorable		49.
58.	Cotton	Patent in India, industry Agracetus	Unfavorable		50.
59.	cotton	Revoke the patent of Agracetus, India	Unfavorable		51.
60.	Crop plants	Direct transfer of transgenes, released commercially into the environment	**Neutral**		52.
61.	Crops	Markets, biotech companies, angry farmers	Unfavorable		53.
62.	Crops	Releases of, moratorium/risk, hazards	Unfavorable		54.
63.	Crops	Safety of	Concern		55.
64.	Crops	Corporations, force	Favorable		56.
65.	Drugs	Testing, guinea pigs, uncontrolled, release of	Concern (-)		57.
66.	Drugs	Generations of, risk	Concern		58.
67.	food	Risk assessment, substantially equivalence	Concern		59.
68.	Foods	Unexpected	Concern		60.
69.	Foods	Unexpected	Concern		61.
70.	foods	Challenging the policy, safety testing, labelling	Concern		62.
71.	Foods	Banning of, deliberate release of	Concern (-)		63.
72.	Foods	Boycott, debate, greenpeace, trials	Concern		64.
73.	Foods	Marketing of, safety testing, FDA, challenge, unexpected	Concern		65.
74.	Foods	Imports of, labeling/ biotech industries	Concern		66.
75.	Foods	Health monitor unit/potential health problems	Concern		67.
76.	Foods	Accept, looking for an informed perspective	Concern		68.
77.	Foods	Accept/biotech industry (genetic-engineering agriculture is an assault on life)	Unfavorable		69.
78.	Foods	Need to know	Concern		70.
79.	-				
80.	Gene-transfer vectors	Horizontal gene transfer [procedure]	**Neutral**		71.
81.	Micro-organisms	Release of, hazardous	Unfavorable		72.
82.	Micro-organisms	Transgenic DNA/risk assessment, biotech industry	Unfavorable		73.
83.	Micro-organism	Biotech company, case/unexpected/safety	Unfavorable		74.
84.	Microorganisms	Patented/moratorium	Regulation		75.
85.	Nightmares	Future of agriculture/hazards	Unfavorable		76.
86.	-				

87.	-				
88.	Organisms	To release into the environment/biotech companies	Concern (-)		77.
89.	Organisms	Deliberate release, potentially much more hazardous/risks	Concern (-)		78.
90.	Organisms	Transfer of, biosafety protocol	Concern		79.
91.	Organisms	No essential difference/field tests	Regulation		80.
92.	Potato	Altered, deformed, tested, substantially equivalent	Concern		81.
93.	Products	Bans on, food companies /resistance	Unfavorable		82.
94.	Products	Ban on, food manufacturers, caused	Unfavorable		83.
95.	Products	Release, marketing, hazards, risks	Concern (-)		84.
96.	Products	Assessment of, safe	Concern		85.
97.	Products	Guinea pigs/hazardous to health	Unfavorable		86.
98.	Products	New applications for/Ban on	Unfavorable		87.
99.	Protein	Contain, to be labeled/unexpected/FDA	Concern		88.
100.	Rhizobium	Whether, effective, improving, yield/Hazards	Concern		89.
101.	Seeds	Rights, food giants, impunity	Concern		90.
102.	Soil bacterium	Inhibit the growth/ecological hazards	Concern		91.
103.	-				
104.	-				
105.	-				
106.	-				
107.	Varieties	No difference, field tests, monitored for safety	Concern		92.
108.	Varieties	Assumption, no difference, field tests, monitored for safety	Concern		93.
109.	Versions of drugs	No legal control, labelled	Regulation		94.
110.	-				
111.	World	New, multinational corporations, lives	Concern		95.
112.	-			9SN	
113.	-				
114.	Animals	Born/Process of artificial selection/Biomedical research	**Neutral**		96.
115.	Bacteria	Cheese production, chymosin	**Neutral**		97.
116.	Baculovirus	Gene, benefit to farmers	**Neutral**		98.
117.	Baculovirus	'crippled', experimental releases	Concern (-)		99.
118.	Biotechnology products	Agriculture/Monsanto/synthesise	**Neutral**		100.
119.	Cell cultures	Protein, University of California	**Neutral**		101.
120.	Cotton	Foreign genes, transgenic plants	**Neutral**		102.
121.	Cotton	Production of, patent	**Neutral**		103.
122.	Crop	Field tests/ safety information	**Neutral**		104.
123.	Crops	Ecological concerns, invasiveness, weeds	Concern		105.
124.	Crops	Increasing numbers of, potential risks	Concern		106.
125.	Crops	Patents, derived from	Regulation		107.
126.	Food	Not want, government/Field trials	Unfavorable		108.
127.	Food	Labelling, proportion	**Neutral**		109.
128.	Food	Benefit to consumers, risk perception/in secrecy, commercial interests	Concern		110.
129.	Food products	Processed foods, labeled	Regulation		111.
130.	Foods	Tested, FDA, cause allergic reaction/further	Concern		112.

		problems			
131.	Foods' stickers	Serve/Protesters, mobilize/Labelling	Concern		113.
132.	Foods	Mandatory labeling, antithesis, consumer groups	Concern		114.
133.	High-lauric canola	Crops, threatened, biotechnology produced alternatives	Concern		115.
134.	Ice minus bacteria	Gene expressing, protein	**Neutral**		116.
135.	Ingredients	Not want, customers/Labelling, under threat	Concern		117.
136.	-				
137.	Micro-organisms	Risks that need to be considered, negligible	Concern		118.
138.	Micro-organisms	Influence the behaviour of, into the environment	**Neutral**		119.
139.	Micro-organisms	Risk assessment, uncertainty, detection	Concern		120.
140.	Oil-seed rape	Antibiotic-resistant genes, experimental study	**Neutral**		121.
141.	Organism	End production/fermentation/production	**Neutral**		122.
142.	Organisms	Development, conduct experiments	**Neutral**		123.
143.	Plant	Patent, modified, technique, protein	**Neutral**		124.
144.	Plants	Field-test, APHIS, companies, institutions	**Neutral**		125.
145.	Plants	Increasing, regulation, competitive disadvantages	Favorable		126.
146.	Products	Recombinant, product, agriculture	**Neutral**		127.
147.	Products	Developed, E. coli, human insulin, Univ. CA	**Neutral**		128.
148.	Seed variety	Developing, cost of, investment	Favorable		129.
149.	-				
150.	-				
151.	-				
152.	Soya and maize	Labelling, processed foods, meeting	Regulation		130.
153.	Soya	Field of, activists, blocked, harvest, incident	Unfavorable		131.
154.	Soya	Patent laws, prevent farmers from saving, seeds	Concern (-)		132.
155.	Soya	Monopoly, patent	Regulation		133.
156.	Soybeans	Agracetus, patent, EPO	Regulation		134.
157.	-				
158.	Tomato	Patent, remains firm/financial consequences, companies	Concern		135.
159.	Vegetables	Reach the market/Genome, genetic manipulation techniques	**Neutral**		136.
160.	-				

Genetically altered + N (sci corpus) (18 occurrences)
Neutral: 10; Concern: 6; Favorable: 2

No.	**R1 collocate**	**Co-text/context**	**Semantic set**	**Book**	**No.**
1.	-			3EG	
2.	Animals	Patent, controversial	Concern		1.
3.	Bacteria	Clone, hormones	**Neutral**		2.
4.	Bacteria	Anxieties, dimished	Favorable		3.
5.	Cells	Isolate, stem cells	**Neutral**		4.
6.	Cells	Life span, T-cells	**Neutral**		5.
7.	Crop	Bt-expressing, required	**Neutral**		6.
8.	Food products	Label, requiered	Concern		7.
9.	Food	Less nutritional value	Concern		8.
10.	Members	Brassica plant, patent	**Neutral**		9.

11.	Microbes	Release of, concern, environment	Concern (-)		10.
12.	Microbes	Bacteria, patented	**Neutral**		11.
13.	Organisms	Safety, ecosystems/concern	Concern		12.
14.	Pigs	Transplanted	**Neutral**		13.
15.	Plants	Test, herbicide tolerance	Concern		14.
16.	Crops	Plantations, rapidly growing	**Neutral**		15.
17.	-				
18.	Stem cells	Source, healthy blood cells, can	Favorable		16.
19.	Strain of bacteria	Purification procedures	**Neutral**		17.
20.	TILs	Detectable, injection	**Neutral**		18.
Genetically manipulated + N (sci corpus) (3 occurrences) Neutral: 1; Concern (-): 1; Unfavorable: 1					
No.	**R1 collocate**	**Co-text/context**	**Semantic set**	**Book**	**No.**
21.	Organisms	Released, into, environment, discussion, risks	Concern (-)	1ER	1.
22.	Bacterial cells	Yield, protein, obtain, fermenter	**Neutral**	9SN	2.
23.	Crops	No field trials, no patents, Austria	Unfavorable	9SN	3.
Genetically * + N (sci corpus) (7 occurrences) The occurrences of this group are happax legomena. Therefore they were not analyzed for being considered unrepresentative					

Table 8.28: *Semantic sets of 'Genetically + adjective + noun' in the English sci corpus.*

SEMANTIC PROSODY_*GENETICALLY*_SOC CORPUS (706 OCCURRENCES)					
Genetically engineered + N (soc corpus) (426 occurrences) Neutral: 77; Regulation: 17; Favorable: 32; Concern: 80; Concern (-): 102; Unfavorable: 118					
No.	**R1 collocate**	**Co-text/context**	**Semantic set**	**Book**	**No.**
1.	Animals	Patented, approval, genetically modified	**Neutral**	4JR	1.
2.	Animals	To release, into the environment,	**Neutral**		2.
3.	Biological warfare agents	Deliberate release of, deadly, mundane, catastrophic	Unfavorable		3.
4.	Biological warfare agents	Threat, security, nuclear weapons	Concern (-)		4.
5.	Bollworms	Release, environment, to mate with	**Neutral**		5.
6.	Corn	Genetically engineered soy, acres	**Neutral**		6.
7.	Drug	Increased health problems, angry	Concern (-)		7.
8.	Drugs	Beginning, vast possibilities, researchers	Favorable		8.
9.	Drugs	Range, substances, untold consequences	Concern (-)		9.
10.	Drugs	Treat, disease, medicine	**Neutral**		10.
11.	Enzyme	Scientists, considering, destroy lignin	**Neutral**		11.
12.	Fish	To release, into the environment, experiments	**Neutral**		12.
13.	Fish	Ecologists, accidental escapes, unanticipated	Concern (-)		13.
14.	Food crops	Commercial reality, alarm bells	Unfavorable		14.
15.	Foods	FDA, label, against, might be potential allergens	Unfavorable		15.
16.	Foods	Labeling, not be required, protests	Concern (-)		16.
17.	Fungi	Researchers, “biosorption” systems	**Neutral**		17.
18.	Future	Critical concerns, raised, lock	Concern		18.
19.	Gene	Field tests, killed. Bollworms	**Neutral**		19.
20.	Germ warfare agents	Reagan, concerned, increasing interest	Concern		20.
21.	Growth hormone	Eclipsed, market expectations, best-selling	Favorable		21.
22.	Growth hormone	Companies, awarded patents, dwarfism	Favorable		22.
23.	Growth hormone	Assumptions, pediatricians, potential market	Concern		23.
24.	Hens	Breed, no longer, exhibits, instinct	**Neutral**		24.
25.	Hormone	Market, aggressive public relations	Concern		25.
26.	Hormone	Researchers, experimenting, transgenic, code	**Neutral**		26.
27.	Hormone	FDA, Monsanto, afflicted, warning label	Unfavorable		27.
28.	Human growth hormone (hGH)	hGH, hotly debated issue, public policy	Concern		28.
29.	Human growth hormone	Assess, research, suffer from	**Neutral**		29.
30.	Human insuline	Eliminated, suffering from diabetes	**Neutral**		30.
31.	Ice-minus bacteria	Releasing, misgiving, ecologists	Concern (-)		31.
32.	Insect	Predator mite, was released/Researchers	**Neutral**		32.
33.	Life form	Granting, patent, justices, in favor	Concern		33.
34.	Life forms	Release of, into, environment, cause, damage	Unfavorable		34.
35.	Microorganism	Patent, consume, PTO	Regulation		35.
36.	Mosquitoes	Experiments, scientists, altered salivary glands	**Neutral**		36.
37.	Mouse	Patent, justices, unlikely, closer to	Concern		37.
38.	Mouse	PTO, patent, predispose, developing cancer	**Neutral**		38.
39.	Multicellular living organisms	Potentially patentable, PTO, issued, ruling	Regulation		39.
40.	Onco-mice	Human invention, breast cancer gene	**Neutral**		40.

41.	Organism	Release of, investment / Risk assessment	Concern (-)		41.
42.	Organism	Released, environment, run amok	Concern		42.
43.	Organism	Potential impacts, ecosystems, assess	Concern		43.
44.	Organism	Release of, into environment, government-approved	**Neutral**		44.
45.	Organism	Invention, computers	**Neutral**		45.
46.	Organism	Released into the environment, poses, threat	Unfavorable		46.
47.	Organism	Benefits, appeared, impressive	Concern (-)		47.
48.	Organisms	Alive, environment, unpredictable	Concern (-)		48.
49.	Organisms	Differ from, important ways	Concern		49.
50.	Organisms	Introduce, into the environment, expected, companies/destructive, dangerous	Unfavorable		50.
51.	Organisms	Risks, biosphere, similar	Concern		51.
52.	Organisms	Raises, life-threatening human health issues	Concern		52.
53.	Organisms	Release of, raised, risk, environment, ecologists	Concern (-)		53.
54.	Organisms	New generation, toxic, benign/bioremediation	**Neutral**		54.
55.	Organisms	Release of, catastrophic, environmental damage	Unfavorable		55.
56.	Organisms	Release of, environmental threat, compounded	Unfavorable		56.
57.	Organisms	May pose, potential risks	Concern (-)		57.
58.	Organisms	Once released, virtually impossible, back	Concern (-)		58.
59.	Organisms	Releasing, environment, raised, devastating	Unfavorable		59.
60.	Organisms	Developed, less scientific expertise/weaponry	Concern (-)		60.
61.	Organisms	Benign, suggest, dangerous, destructive	Unfavorable		61.
62.	-				
63.	Pigs	Scientists, developed, university	**Neutral**		62.
64.	Potatoes	Scientists, planted, antibiotic-resistance gene	**Neutral**		63.
65.	Product	Monsanto, produced, increase, milk, marketed	**Neutral**		64.
66.	Products	Also, reproduce	**Neutral**		65.
67.	Products	Protection, impose, property regime	Concern		66.
68.	Sheep	Produced, Organization, transplanting, grow faster	**Neutral**		67.
69.	Soy	Result, unwelcome news	Concern		68.
70.	Soy	Planted, genetically engineered	**Neutral**		69.
71.	Soybeans	Concerns, heightened, published	Concern		70.
72.	"Super crops"	Insights, husbandry, more human	Concern		71.
73.	"Super animals"	Enhanced characteristics, researchers	Favorable		72.
74.	Sweet protein	University, plant, patent	**Neutral**		73.
75.	Tissue	Patents, alter, processes, exploit, resources	**Neutral**		74.
76.	-				
77.	-				
78.	-				
79.	Varieties	Warned, single inventor, patents	Unfavorable		75.
80.	Viruses	Deliberate release of, dangerous, concerned	Unfavorable		76.
81.	-				
82.	-			6LA	
83.	Animals	Produced, microinjection	**Neutral**		77.
84.	-				
85.	Bacteria	Releases of, environmental consequences	Concern (-)		78.
86.	Bacteria	Any definitive conclusions, Showa Denko / Controversial	Concern (-)		79.

87.	Bacteria	Company, process, Showa Denko	**Neutral**		80.
88.	Bt plants	Lawsuit, cease, approval, assessment	Regulation		81.
89.	Bt cotton	EPA's approval, lawsuit, Greenpeace	Regulation		82.
90.	-				
91.	Carnation	Varieties, approval, improved, altering	Regulation		83.
92.	Cocoa butter substitutes	Vulnerable, development, farmers	Concern (-)		84.
93.	Corn	Increased mortality, study, journal, Monarch, suffered from	Concern (-)		85.
94.	Cotton	Monsanto, patent, all	Regulation		86.
95.	Cotton	Field trials, planted illegally, campaign, Monsanto	Unfavorable		87.
96.	Cotton	Without, test, company, hurried	Concern (-)		88.
97.	Crops	Ban, starving people, Ethiopia, responding, scientist	Favorable		89.
98.	Crops	Route, gene transfer, soil	**Neutral**		90.
99.	Crops	Cross-pollination, herbicide-resistance	**Neutral**		91.
100.	Crops	Demise, independent seed industry, monopolies	Concern (-)		92.
101.	Crops	Problem, Mr. Schmeiser, pollen, everywhere	Concern (-)		93.
102.	Crops	Farmers, license fee, patent	Regulation		94.
103.	Crops	Block, attempt, approve	Unfavorable		95.
104.	Crops	Moratorium, French government, commercial	Concern (-)		96.
105.	Crops	Implications, highlight	Concern		97.
106.	Crops	Hectares, herbicide-resistant	**Neutral**		98.
107.	Crops	Reduce value, farmers, legal	Unfavorable		99.
108.	Crops	Loss, seldom, green Revolution	Concern		100.
109.	Crops	Likely, generate, it is argued, viruses, infected	Concern		101.
110.	Crops	Monsanto profits, backwards, world's poor	Unfavorable		102.
111.	Crops	Government, protect, interests, farmers	Concern		103.
112.	Crops	Toxin, may harm, insects	Concern (-)		104.
113.	Crops	Designed, resistant to herbicides	**Neutral**		105.
114.	DNA	Argued, destroyed, processed, industry	Concern		106.
115.	Enzyme	Scientists, production, destroying, lignin	**Neutral**		107.
116.	'Flavr Savr' tomatoes	Without the consent, knowledge, indigenous	Unfavorable		108.
117.	Food	May contain, unexpected new molecules, toxic	Concern (-)		109.
118.	Food	Poll, American consumers, should be labelled	Concern		110.
119.	Food	Without their knowledge, calls, labelling	Unfavorable		111.
120.	Food	Companies, increasing capacity, higher residues	Concern		112.
121.	Food	Warned, label, unacceptable, jeopardize	Unfavorable		113.
122.	Food	Representative, EU proposal, disrupt, exports	Concern		114.
123.	Food	Opposing, GE-free zones	Unfavorable		115.
124.	Food	Development, attractive, life science	Favorable		116.
125.	Food	GE enzymerase, regulatory requirements	Regulation		117.
126.	Food	Governments, industrialized, keen, promote	Concern		118.
127.	Food	LGA, councils, remove, school menus, pressure	Unfavorable		119.
128.	Food	Legislation, labelled	Regulation		120.
129.	Food	'Substantial equivalence', discriminatory, illegal	Concern		121.
130.	Foods	Ban, referendum, deliberate release of GE org	Unfavorable		122.
131.	Foods	Labelled, avoid purchasing it, surveyed	Unfavorable		123.

132.	Foods	[Not] Require, approval, labeling, allergic, US	Concern		124.
133.	Foods	Benefit, industry, 'nutraceuticals', attract, consumers, so far rejected	Unfavorable		125.
134.	-				
135.	-				
136.	-				
137.	Growth hormone (rBST/rBGH)	Designed, boost, milk production	**Neutral**		126.
138.	Hormone	Series, rBST, rBGH, award-wining reporters	**Neutral**		127.
139.	Hormone	Residues, considerable evidence, treated cows	Unfavorable		128.
140.	Human tissues	Amedment, embryos, not covered	Regulation		129.
141.	Ingredients	Most processed food, contain / ethical reasons	Concern		130.
142.	Ingredients	Much of the food, industrialised/opposition	Concern		131.
143.	Ingredients	Consumer pressure, staunch supporters	Unfavorable		132.
144.	Ingredients	Raise the cost, uneconomical	Unfavorable		133.
145.	Ingredients	Remove, school meals	Unfavorable		134.
146.	Ingredients	Europe, include, soybeans	**Neutral**		135.
147.	Insect-resistant maize	Trails, unexpected yield reduction, lower levels of copper	Unfavorable		136.
148.	Klebsiella	Researchers, killed plants/impair	Unfavorable		137.
149.	Klebsiella	Kill, impair, difficult to eliminate	Unfavorable		138.
150.	Maize	Feelings ran high, local campaigner, organic	Unfavorable		139.
151.	Maize	Destroying, test site, public opinion against	Unfavorable		140.
152.	Microorganism	Release of, potential ecological consequences	Concern (-)		141.
153.	Microorganism	Field trials, increase nitrogen fixation	Favorable		142.
154.	Microorganisms	Europe, include, soybeans	**Neutral**		143.
155.	Microorganisms	Monitoring, lived, soil	**Neutral**		144.
156.	Oilseed rape	Sales, FACTT project, granted, UK	**Neutral**		145.
157.	Organism	Approval, European, harm, reject, favorable	Favorable		146.
158.	Organisms	Releases of, Greek government, moratorium	Concern (-)		147.
159.	Organisms	Introduction of, liability for damage	Unfavorable		148.
160.	Organisms	Safety assessment, biosafety, US, blocked	Concern (-)		149.
161.	Organisms	Releases of, pose, risks, non-native	Unfavorable		150.
162.	Plant	Recombined, strain, laboratory	**Neutral**		151.
163.	Plants	Patent, granted, US	Regulation		152.
164.	Plants	PTO, patenting, plant tissue	Regulation		153.
165.	Products	Marketing approval, EU	Regulation		154.
166.	Products	Approval, US	Regulation		155.
167.	Products	Safety of, rigorous, test, process	Favorable		156.
168.	Rape	Experiment, antibiotic-resistance genes	**Neutral**		157.
169.	Seed	Forbidden, plant samples, purchased	Concern (-)		158.
170.	Seeds	Releases of, Greek government, moratorium	Concern (-)		159.
171.	-				
172.	-				
173.	Soya	Forced, withdraw, Unilever, consumer boycott	Unfavorable		160.
174.	Soybeans	Agracetus, awarded, patent, all	**Neutral**		161.
175.	Soybeans	Yields, lower than conventional	Unfavorable		162.
176.	Soybeans	Increase in herbicide residues, Monsanto	Concern (-)		163.
177.	Soybeans	Farmer, unhappy	Unfavorable		164.
178.	Soybeans	Passed, safe, consumption, authorities	Concern		165.
179.	Soybeans	Prosecution, Monsanto, contract	Unfavorable		166.

180.	Soybeans	Fed, produced, an increase, fat, Monsanto	Favorable		167.
181.	-				
182.	Techniques	Plant-derived food, United States, Val Giddings	Favorable		168.
183.	-				
184.	-				
185.	-				
186.	-				
187.	-				
188.	-				
189.	-				
190.	-				
191.	Varieties	Patents, single inventor, Geoffrey Hawtin	Favorable		169.
192.	Whole food	Flavr Savr, approved, commercial sale	**Neutral**		170.
193.	-			7IB	
194.	-				
195.	-				
196.	-				
197.	Animal	Patent, granted, Oncomouse	**Neutral**		171.
198.	-				
199.	Bacteria	To release, samples of, refused, company	Unfavorable		172.
200.	Bacterium	Altered, manufacturing procedures	Concern		173.
201.	Bovine booster	Hardly, seems, produce, more, need	Concern (-)		174.
202.	Bovine booster	Debate, safety, ethical	Concern (-)		175.
203.	BST	Recent use, US, farms/worsen	Concern (-)		176.
204.	BST	Injected, insulin, administered, diabetes	**Neutral**		177.
205.	Canola	Seeds, revolution, promises, mastery	Favorable		178.
206.	Canola	Convince, European regulators, Canadian gov.	Concern		179.
207.	Canola	Separate, sales dropped, plummeted	Concern		180.
208.	Canola hybrid	Frustration, develop, latest, research labs	Concern		181.
209.	Canola	Spray, tailor-made herbicide, Liberty	**Neutral**		182.
210.	Corn	France, banned, farmers, cultivating	Unfavorable		183.
211.	Corn	Trial, attempt, court, stop, neighbouring land	Concern (-)		184.
212.	Corn	Release of a scientific study, ravage, Monarch	Unfavorable		185.
213.	Creatures	Abandon, regulate, EPA, lacks, assess, risk	Unfavorable		186.
214.	Crop	Canadian, manipulates, herbicides, incoming wave of / unconfined release	Concern		187.
215.	Crop	Reassured, approved, Canadian gov. / Trials	Favorable		188.
216.	Crops	Designed, resistant, capable, killing / Field trials	Concern (-)		189.
217.	Crops	Acquire, fertile, pass on, traits / Worst fears	Unfavorable		190.
218.	Crops	Destruction of field trials, routine / Monsanto	Concern (-)		191.
219.	Crops	Field trials of, OECD, herbicide tolerance	**Neutral**		192.
220.	Crops	Warning, segregation, European, US	Unfavorable		193.
221.	Crops	Proponents, held accountable / Mess	Concern (-)		194.
222.	Crops	Release of, premature, ill-advised	Unfavorable		195.
223.	Crops	Government, urged, farmers, competitive	Concern (-)		196.
224.	Crops	Being tested, approve, field trials / Not allow	Concern (-)		197.
225.	Crops	Policy, corporations, full-use registration	Regulation		198.
226.	Crops	International export markets, closing the door	Unfavorable		199.
227.	Crops	First, available to farmers, test-tube foods	Concern (-)		200.
228.	Drug	BST, elevate, milk production	**Neutral**		201.

229.	Extra-hardy animals	Savings, farmers, improved health, less risk	Favorable		202.
230.	Food	Label, skull, crossbones, Asgrow Seed company	Unfavorable		203.
231.	Food	Cannot guarantee, safe, certainty	Concern (-)		204.
232.	Food	Consumers, trust, governments, harm	Unfavorable		205.
233.	Food	Nutritionists, no need, label, biotech gospel	Concern		206.
234.	Food	Labelling, toxic level, significantly altered	Concern (-)		207.
235.	Food	Moratorium, safe, safety, independent study	Concern (-)		208.
236.	Food	Safe, government, trust, participants	Concern (-)		209.
237.	Food	Hazardous, human health, not declare	Concern		210.
238.	Food	Benefits, ephemeral	Concern		211.
239.	Foods	Moratorium, most dangerous	Unfavorable		212.
240.	Foods	Motivated, avoid, population	Unfavorable		213.
241.	Foods	No assurances, repeat, requirements	Concern		214.
242.	Foods	Assessed, Europe standards, in theory	Concern		215.
243.	Foods	Test-tube, manipulated animals, marketplace	Concern		216.
244.	Foods	Grocery, manipulated, touted jobs, benefits	Concern		217.
245.	Foods	Avoid, conned, politicians, shoppers, labeling	Unfavorable		218.
246.	Foods	Ban, undermine, credibility	Unfavorable		219.
247.	Foods	Tone, department, work, same	Concern		220.
248.	Foods	Warned, Monsanto, “force-feed”, bankroll	Concern (-)		221.
249.	Foods	Compelling, label, faiths, forces, FDA	Concern (-)		222.
250.	Foods	Whether, label, issue, future	Concern		223.
251.	Foods	Regulatory procedure, no manipulated	Concern (-)		224.
252.	Foods	Laughter of observers, no, were served, UK	Concern (-)		225.
253.	Foods	Japanese retailers, signatures, labeling	Concern (-)		226.
254.	Foods	Wave, appear, approval, pipeline	**Neutral**		227.
255.	Foods	Presence, public concern, testing	Concern		228.
256.	Foods	Ensure, safe, regulatory delays, wrestled	Concern		229.
257.	Foods	Multinational giants, none, produced/test-tube foods	Concern		230.
258.	Foods	Approval, lined up	Regulation		231.
259.	Foods	Tread gingerly, safe, human consumption	Concern (-)		232.
260.	Foods	Worst fears, mix, predict, may cause, allergy	Unfavorable		233.
261.	-				
262.	Functional foods	Wishful thinking, market potential	Concern		234.
263.	Functional foods	Not adequately legislated, uncomfortable	Unfavorable		235.
264.	Future	No ability, governments, industry, to regulate	Concern (-)		236.
265.	Herbicide-resistance sugar beet	As long as, natural harvest, rudimentary review	Concern		237.
266.	Herbicide-resistance soybeans	Import, visible objection, fraglant	Unfavorable		238.
267.	Herbicide-resistance crops	Research, glamorous, chemical	Concern		239.
268.	Herbicide-resistance crops	Companies, claim, good, environment, lessen	Favorable		240.
269.	Herbicide-resistance trait	Field tests, showed,	**Neutral**		241.
270.	Herbicide resistance	Weeds, presume, vanquished, “take-no-prisoners”	Concern		242.
271.	Hormone	Remained, resolutely supportive	Favorable		243.

	supplement				
272.	Inmmunity	Endowed, estimated, Canada	Concern		244.
273.	Inmmunity	Manipulated DNA, immunity	**Neutral**		245.
274.	Inventions	Patents, issued for/licensing, currency	Concern (-)		246.
275.	-				
276.	-				
277.	Long-lasting tomatoes	FDA, its approval/struggling	Concern		247.
278.	Meat animals	Polls, consumer support, low	Unfavorable		248.
279.	Microbes	Warned, committee, independent experts	Unfavorable		249.
280.	Microbes	Unexpectedly demonstrated, outcompeting	Unfavorable		250.
281.	Microorganism	Case, science gone wrong, student, crop waste	Unfavorable		251.
282.	Microorganism	Company, Biotechnia International, improve nitrogen fixation, improving soil fertility	Favorable		252.
283.	-				
284.	Organism	Life-giving organisms, soil, killed	Unfavorable		253.
285.	Organisms	Obliged, society, health repercussions, risks	Unfavorable		254.
286.	Organisms	Deliberate release of, ban test-tube, patenting	Unfavorable		255.
287.	Organisms	Cautiously, ensure, benefits, safety, protest	Unfavorable		256.
288.	Organisms	Ecologists, fear, exotic species, do	Concern (-)		257.
289.	Plants	Enough research, environments, disasters	Concern (-)		258.
290.	Plants	Field trials of, controversy, scythe in hand	Unfavorable		259.
291.	Plants	Consumers, researchers, trying out, “liberation”	Unfavorable		260.
292.	Plants	Inevitably, cancer, overpowering, problems	Unfavorable		261.
293.	Potato plant	Resolutely repel, infestation, remarkable	Favorable		262.
294.	Products	Mandatory labeling, oppose efforts	Concern (-)		263.
295.	Products	Release, into the environment/dangerous	Unfavorable		264.
296.	Products	Vowed, not to use	Unfavorable		265.
297.	Rendition	Field tested, natural version	Unfavorable		266.
298.	Seeds	Pasture management, nonpropietary	**Neutral**		267.
299.	-				
300.	Societies	Future, embryos/frightening	Concern (-)		268.
301.	Sources	Eliminate, sources, Greenpeace	Concern (-)		269.
302.	Soybean	Couldn’t, do the job?	Concern		270.
303.	Soybeans	Activism, test-tube. Greenpeace, against	Unfavorable		271.
304.	Soybeans	Check, revealed, contained, Toblerone, pull off/anxiety, test-tube	Unfavorable		272.
305.	Soybeans	Voluntarily, European, impose, rules	Concern		273.
306.	Soybeans	Contains, manufactured foods, everything	Concern		274.
307.	Soybeans	Argued, industry, effort, separate, millions, cost	Concern (-)		275.
308.	Soybeans	Field of, protesters, ruin, farm	Unfavorable		276.
309.	Soybeans	Importation, banned, Brazil, cut off	Unfavorable		277.
310.	Soybeans	Introduction, difficult tasks, paving the way	Concern		278.
311.	Soybeans	“No gene bean”, “the naked truth”, protesters	Unfavorable		279.
312.	-				
313.	-				
314.	Tomatoes	Reported, four times, normal levels, help prevent cancer	Favorable		280.
315.	Tomatoes	Approved in Canada, none, available, sale	Concern		281.
316.	-				
317.	Versión	Unfurled, milestone, mice	Favorable		282.

318.	Whole food	Designer tomato, Flavr Savr, promised, hefty	Concern		283.
319.	-				
320.	-				
321.	-			8BL	
322.	Bacteria	Release of, conducting, licensed, Monsanto, might, distinction	Favorable		284.
323.	Bacteria	Vandals, uprooted, plants, awaiting, sprays	Unfavorable		285.
324.	Beans	Already, conventional, inches tall	**Neutral**		286.
325.	-				
326.	Canola	Monsanto, increases, level, inhibited, cancer	Favorable		287.
327.	Corn product	Release of, first time, Ireland	Favorable		288.
328.	Cotton	Advocacy groups, identify, stores, campaign	Unfavorable		289.
329.	Cotton	First company, sell, called, NuCOTN	**Neutral**		290.
330.	Cotton	Flames, rising, gasoline, photo/attack	Unfavorable		291.
331.	-				
332.	Crop	Threaten, never, many people	Unfavorable		292.
333.	Crop	Kenyan government, commercially launching	**Neutral**		293.
334.	Crops	Outcome, widespread crossing, wild relatives	Concern		294.
335.	Crops	Irritated, antagonized, drive, company	Unfavorable		295.
336.	Crops	Iowa farmers, fear, wondered, new	Unfavorable		296.
337.	Crops	Benchmark, approval, held up, European Union	Concern (-)		297.
338.	Crops	Choice, regard, no-brainer	Favorable		298.
339.	Crops	Fields of, China, tobacco, cotton	**Neutral**		299.
340.	Crops	Fields of, seedlings of change	Concern		300.
341.	Crops	Spread of, Greenpeace, end, likely to	Concern (-)		301.
342.	Crops	Research on, British, biotechnology-friendly	Favorable		302.
343.	Crops	Cautious, astute, mass food production	Concern		303.
344.	Crops	Tested, ward off, grow, more food, heard	Favorable		304.
345.	Crops	Company, says, feed, hungry, relieve, misery	Favorable		305.
346.	Crops	Problems, associated	Unfavorable		306.
347.	Crops	Become legal, sales, wonder, fallen	Unfavorable		307.
348.	Dairy hormone	Frankenstein's milk	Unfavorable		308.
349.	-				
350.	Fish	Federal oversight, FDA/concern	Concern		309.
351.	Fish	Raising of, banning, fearing contamination	Unfavorable		310.
352.	Food Alert	News conference, issue, tumor, recall	Concern		311.
353.	Food	Solution, hunger	Concern (-)		312.
354.	Food Alert	Conference, recall, demanded, condemned	Unfavorable		313.
355.	Food Alert	Advocacy organizations	**Neutral**		314.
356.	Food	Rules, tighten, government, stung	Concern		315.
357.	Food	Spiritual mission, feed, hungry, safely, instinct	Concern		316.
358.	Food	Assurance, safe, yet-to-be-discovered	Concern		317.
359.	Food Alert	Advocates, alliance, discovery, Cry9C	Concern (-)		318.
360.	Food Alert	Fronts, successful, seeds of doubt, safety	Unfavorable		319.
361.	Food	Gene-altered, commercially	**Neutral**		320.
362.	Food	Outraged citizens, confronting, multinational	Unfavorable		321.
363.	Food	Hope, demand, label	Concern (-)		322.
364.	Foods	Concerns, many, we eat/worries enormously	Concern (-)		323.
365.	Foods	Freedom, move, companies, restrictions	Concern (-)		324.
366.	Foods	Unlike, not, require, labelling/regulation	Concern (-)		325.

367.	Foods	Choice, refuse, paying, prices	Unfavorable		326.
368.	-				
369.	-				
370.	Growth hormone	Even, engineered corn, modified barley	Concern		327.
371.	Herbicide tolerance	Appeal, farmer, Ireland	Favorable		328.
372.	-				
373.	Hormone	Dairy farmers, induces, cows, more milk	**Neutral**		329.
374.	Hormone	Induced, cows, more milk, frightened, die	Concern (-)		330.
375.	-				
376.	-				
377.	-				
378.	-				
379.	-				
380.	Microbe	Monsanto, test, earth, troubled, locals	Unfavorable		331.
381.	NewLeaf Potato	Tough, resilient, ward off, vicissitudes	Concern (-)		332.
382.	Organism	Company, retards, frost/"deliberate release"	Concern (-)		333.
383.	Organisms	Authorized personnel, locked door, sign	Concern		334.
384.	Organisms	Testing, against, facilities, expected	Concern (-)		335.
385.	Plant	First, outdoor test/milestone	Favorable		336.
386.	Plants	Nitrogen-fixing, single-gene trait	**Neutral**		337.
387.	Plants	Shook off, prizefighters, muscled bodies	Concern		338.
388.	Plants	Wearing, cotton, observes, crowd	**Neutral**		339.
389.	Plants	Law, labeling, food, Europe, debate	Regulation		340.
390.	Plants	Petri dish, sprout, dirt	**Neutral**		341.
391.	Plants	Growing, slip, neighborhood party	Concern		342.
392.	Plants	Field trials, research, evidence, records	**Neutral**		343.
393.	Plants	Broad authority, oversee, Dept. of Agriculture	Concern		344.
394.	Plants	Regulating, kid-gloves, EPA, Agriculture Dept.	Concern		345.
395.	Plants	Stumbling, succumb, kill	Unfavorable		346.
396.	Plants	Potential effects, threat, hidden allergens	Concern (-)		347.
397.	Potato	Mothballed, company, ponder	Unfavorable		348.
398.	Potatoes	Cease delivering, invincible spuds	Unfavorable		349.
399.	Product	First, product, reach, supermarkets, US	**Neutral**		350.
400.	Products	Adequate, laws, recalled	Concern		351.
401.	Products	Precautionary principle, stumbling block	Concern (-)		352.
402.	Remedies	Monsanto, confined, bollworms	Concern		353.
403.	Roundup Ready soybeans	Monsanto, little attention, European Union	Concern (-)		354.
404.	Roundup Ready canola seeds	Gene-altered, labeling, Canada, not tell me	Concern (-)		355.
405.	Seed	Acreage, increased, claimed, modified cotton	Concern (-)		356.
406.	Seeds	Acres, soybeans, gazed, every inch	Favorable		357.
407.	Seeds	Pirated, planted, own backyard	Concern (-)		358.
408.	Seeds	Manipulate, working, weed killers	Unfavorable		359.
409.	Soybeans	Worried, arriving, from, America	Unfavorable		360.
410.	Soybeans	Testing, conventional, field trials	Concern (-)		361.
411.	Soybeans	My wife, looked, first time/fish eye	Concern		362.
412.	Soybeans	Remained, hearty, bigger/squirted, mess	Concern (-)		363.
413.	Soybeans	Fond, watching, grow	Favorable		364.
414.	Soybeans	Control, cosmic melons, figured	Unfavorable		365.
415.	Soybeans	Refused, commercial plantings, Brazil	Unfavorable		366.

416.	Soybeans	Pirated, conventional beans	Concern (-)		367.
417.	Soybeans	Pirated, planted, own backyard	Concern (-)		368.
418.	Soybeans	Risk, necessary, about	Concern (-)		369.
419.	Soybeans	Processed, spurn, technology, Europeans	Unfavorable		370.
420.	StarLink	Tainted with a protein, explosive revelation	Unfavorable		371.
421.	Sugar beets	Monsanto, permission, test, Irish fields/fretted	Unfavorable		372.
422.	Sweet potatoes	Sprouting, greenhouse, industry-funded	**Neutral**		373.
423.	-				
424.	-				
425.	-				
426.	-				
427.	-				
428.	-				
429.	-				
430.	Vaccine	Outdoor use, track down, location	**Neutral**		374.
431.	Vaccine	Preserved, herd	**Neutral**		375.
432.	Varieties	Schmeiser, canola crop, company/Monsanto	Concern (-)		376.
433.	Varieties	Tremors, industry, pay, farmers, conventional	Unfavorable		377.
434.	Varieties	Barley breeders, intend, use	**Neutral**		378.
435.	Veggies	Supposed to, like it	Unfavorable		379.
436.	-			10JS	
437.	Artificial sweetener	Removed, Monsanto	Concern (-)		380.
438.	Bacteria	Pre-epidemic cases, EMS (Eosinophilia myalgia syndrome) , L-tryptpphan, created from	Unfavorable		381.
439.	Bacteria	Enzymes, routinely, manufactured, processed	**Neutral**		382.
440.	Bacteria	Unexpected, toxic, problem, undetected, hazard	Unfavorable		383.
441.	Bacteria	Certainly, knew, about	Concern		384.
442.	Baloney	Proposal, full, not worth	Unfavorable		385.
443.	Beans	Planted, conventional, previous year, geese, ate	Unfavorable		386.
444.	Beans	Untouched, geese, natural beans	Unfavorable		387.
445.	Bovine growth hormone (rbGH)	Increases milk production, recombinant, injected	**Neutral**		388.
446.	Bovine growth hormone	Monsanto, approved, FDA, deemed, yet, safe	Unfavorable		389.
447.	Bovine growth hormone (rbGH)	Challenged, animal-safety studies, journals	Concern (-)		390.
448.	Bovine growth hormone	Monsanto, partners, management, budget	**Neutral**		391.
449.	Bt crops	Allergies, result, market, allergies	Concern (-)		392.
450.	Constructs	Potential allergy, disrupted, sequence	Concern (-)		393.
451.	Cooking agents	Produced, varieties, GM, food additives	**Neutral**		394.
452.	Crops	Major, cotton, soy, corn, currently	**Neutral**		395.
453.	Crops	Massive, uncontrolled, experiment, hazardous	Unfavorable		396.
454.	-				
455.	Food regulation	'Competent' agencies, if ever, know, research	Unfavorable		397.
456.	Food	May raise, safety, acceptability, consumers	Concern (-)		398.
457.	Food	Task, overseeing, enthusiastic, Shapiro	Concern (-)		399.
458.	Food	New policy, better, products, reforms	Concern		400.
459.	Food	FDA's policy, scientists, provide, input	**Neutral**		401.
460.	Foods	Aware, allowed, human use, safe	Concern (-)		402.

461.	Foods	Court, determined, FDA, not regulating, foods	Unfavorable		403.
462.	Foods	Fear, distortion	Unfavorable		404.
463.	Foods	Dangers of, share	Unfavorable		405.
464.	Foods	Regulation, cast, votes, Europe	Concern		406.
465.	Foods	Failure, Monsanto, push, far exceeds	Concern (-)		407.
466.	Foods	GM, be labeled, signatures	Concern (-)		408.
467.	Foods	Immediate moratorium, serious risk	Concern (-)		409.
468.	Foods	Removing, eliminates, GM sources, menu	Concern (-)		410.
469.	Foods	Government lies, safety, industry	Unfavorable		411.
470.	Foods	Biotech, industries, subservience	Concern (-)		412.
471.	-				
472.	-				
473.	Ingredients	Made, without, followed suit	Unfavorable		413.
474.	L-tryptophan	Pro-biotech bias, sensitive issue, lawmakers	Concern (-)		414.
475.	Organisms	Very unlikely, Cornell, popcorn, according	**Neutral**		415.
476.	Plants	Debate, Europe, new law, labeling/better	Concern (-)		416.
477.	Plants	Unexpected, accidental changes, limited	Concern (-)		417.
478.	Plants	Warned, may escape	Unfavorable		418.
479.	Potatoes	Grant, new variety, Scottish Ministry, commercializing	Concern (-)		419.
480.	Products	Safety, companies, regulators, at least	Concern (-)		420.
481.	Rice	Biotech industry, poster child/moral dilemma	Concern (-)		421.
482.	Soybeans	Reason, farmer, tried, new	Concern		422.
483.	Strain	Likely, produce, more contaminants, reduced filtration, increase	Concern (-)		423.
484.	Sweetener aspartame	Defense secretary, Monsanto /significant ties	Concern (-)		424.
485.	-				
486.	-				
487.	-				
488.	-				
489.	Tomatoes	Fairly squarely against, gene marker	Unfavorable		425.
490.	Crops	Acceptable, most consumers, Monsanto	Concern (-)		426.
Genetically modified + N (soc corpus) (257 occurrences) Neutral: 25; Regulation: 1; Favorable: 19; Concern: 47; Concern (-): 83; Unfavorable: 82					
No.	**R1 collocate**	**Co-text/context**	**Semantic set**	**Book**	**No.**
1.	Animal organs	Biotech companies, anxious, warning, unleashing, pandemics	Unfavorable	4JR	1.
2.	Animals	Patented, engineered, approval, US	**Neutral**		2.
3.	Cell	Retrovirus, vector	**Neutral**		3.
4.	Enzyme	Great comercial advantage, effluent	Favorable		4.
5.	Organ	Strained, logic, becomes, patenting	Concern (-)		5.
6.	Organism	Field test, potential risks, into natural world	Concern (-)		6.
7.	Organism	Potential impact, releasing ice-minus, risk assessment, into the environment	Concern (-)		7.
8.	Organisms	Release of, petrochimical products, into the environment	Concern (-)		8.
9.	Organisms	Absence, dearly, implications, regime,regulate, into the environment	Concern (-)		9.
10.	Organisms	Impact, exceed, damage, release of	Unfavorable		10.
11.	Organisms	Release of, criticism, warning, potential dangers	Unfavorable		11.

12.	Organisms	Deliberate release of, into the environment	Concern (-)		12.
13.	Organisms	Field tests, regulatory shortcomings, apparent	Concern		13.
14.	Organisms	Introduction, into the environment, corrupted	Concern (-)		14.
15.	Organisms	Releases of, catastrophic, unresolved	Concern (-)		15.
16.	Organisms	Safe release of, regulatory, "the risks"	Concern (-)		16.
17.	Organisms	Releasing, impacts, nagging, risk, potential	Unfavorable		17.
18.	P. syringae	New, called, ice-minus	**Neutral**		18.
19.	Whole animal	Logic, strained, patenting, cell line	Concern (-)		19.
20.	Crops	Monsanto's interests, littered, buying its way	Unfavorable	6LA	20.
21.	Viruses	Release of, every eventuality, possible	Concern (-)		21.
22.	Crop	Company, grow, apply, sponsor	**Neutral**	7IB	22.
23.	Crops	Development, shut down, research	Concern (-)		23.
24.	Crops	Commission, companies, requiring, separate	Concern		24.
25.	Food	Handling, subject, regulatory scrutiny	Regulation		25.
26.	Food	Law, food manufacturers, label, had to	Concern (-)		26.
27.	Food	Powerful leaders, agreed, outnumbered	Concern (-)		27.
28.	Foods	Force, accept, consumers, did not want	Unfavorable		28.
29.	Foods	European, efforts, label, equivalent, barrier	Unfavorable		29.
30.	Foods	Rejected, laypeople, Norway, activist, Germany	Unfavorable		30.
31.	Foods	Effects, virtually no tests, Pusztai, shock	Unfavorable		31.
32.	Foods	Sale, dared, restrict, Glickman	Unfavorable		32.
33.	Foods	Ban, unlabelled, ASDA, Iceland	Unfavorable		33.
34.	Ingredients	Brands, contained, right-to-know	Concern (-)		34.
35.	Labelling regime	Labelling regime, reassured, consumer	Concern (-)		35.
36.	Organisms	Acronyms, GM, GMO, everyday language	**Neutral**		36.
37.	Organisms	Able, identify, even, trace amounts, companies	Concern		37.
38.	Organisms (GMOs)	Legally cleared, import, regulatory, fraught with	Unfavorable		38.
39.	Potatoes	Damaging effects, Pusztai, internal organs	Unfavorable		39.
40.	Products	No laws, distribution, strange, consumers	Concern (-)		40.
41.	Products	Pulled (cancelled), consumer, in-house brands	Unfavorable		41.
42.	Soy	Companies, had to state, exempted, derivatives	Concern		42.
43.	Soybeans	Processors, pledged, not to use	Concern		43.
44.	-				
45.				8BL	
46.	Agriculture	Expansion, costly separation, slowing	Concern (-)		44.
47.	Commodities	Handle, shipments, sticking point	Concern (-)		45.
48.	Corn	Field, future, nervous times	Concern (-)		46.
49.	Cotton	Plot, photos, Karnataka	Concern (-)		47.
50.	Cotton	Torched fields, attacks, violent, Monsanto	Unfavorable		48.
51.	Crops	Efficiency, farmer success	Concern		49.
52.	Crops	United States, approved, planted, acres	**Neutral**		50.
53.	Crops	Ban, prohibit, altered DNA, patents, Switzerland	Unfavorable		51.
54.	Crops	Moratorium, pushed, French government, Rifkin	Concern (-)		52.
55.	Crops	No, legally planted, Brazil, smuggling, Roundup	Concern (-)		53.
56.	Crops	Flourish, Roundup, whether or not	Concern (-)		54.
57.	Crops	Field, confronted, protesters, attacking	Unfavorable		55.
58.	Crops	Undesirable consequences, patented	Unfavorable		56.
59.	Crops	Producer, Frankenstein food, raised	Unfavorable		57.

60.	Crops	Lushness, displayed, Monsanto	Concern		58.
61.	Crops	Swaths, raised, sensitive skins	Concern (-)		59.
62.	Crops	Safety, Monsanto, wined, dined, bombarded	Unfavorable		60.
63.	Crops	European, pivotal vote, issue, Ireland	Favorable		61.
64.	Crops	Farmers, Shiva, not, heard, fields	**Neutral**		62.
65.	Crops	Global impasse, biosafety protocol	Concern		63.
66.	Crops	Protesters, prove safe, field tests	Concern (-)		64.
67.	Crops	Monsanto, stunned, Europe, exploded, to sow	Concern		65.
68.	Crops	Potentially sowing, Monsanto, farmers	**Neutral**		66.
69.	Crops	Dangerous, farmers, developing world	Unfavorable		67.
70.	Crops	Convert, gene-altered	Favorable		68.
71.	Crops	China, rapidly adopted, ‘developing country’	**Neutral**		69.
72.	-				
73.	Farming	Most knowledgeable critics, law professor	Concern (-)		70.
74.	Food	Ruling, complaints, biotech policies, ministers			
75.	Food	Suspicions, halting advance, promise	Unfavorable		71.
76.	Food	Concerns, high, on the verge, labeling	Concern (-)		72.
77.	Food	Baseball, suspected, Camdem Yards	Concern		73.
78.	Food	Accept, forcé, world	Unfavorable		74.
79.	Food giant Monsanto	Propaganda campaign, rowm erupted, US government	Concern (-)		75.
80.	Food	Collapse, public support, biotechnology	Unfavorable		76.
81.	Food	Challenging, structure, European	Concern (-)		77.
82.	Food	Design, persuade, government, Monsanto	Concern (-)		78.
83.	Food	FDA, labeling, don’t know, isn’t necessary	Concern (-)		79.
84.	Food	Swaths, factories, converting, so many farmers	Concern		80.
85.	Food	In favor, toughened rules, moratorium, root	Concern (-)		81.
86.	Food	Regulations, protein, debate, immortality	Concern (-)		82.
87.	Food	Pivotal year, reporting project, tagged	Concern		83.
88.	Food	Against, Frankenfood, agricultural interest	Unfavorable		84.
89.	Food	Humans, no health threat	Favorable		85.
90.	Food	Interest, concerned, potential safety threats	Cocnern (-)		86.
91.	Food	Warring, Ireland, factions, common enemy	Unfavorable		87.
92.	Food	Skeptics, threat, unknown, invasión	Unfavorable		88.
93.	Food	Issue, roil the waters, many travels	Unfavorable		89.
94.	Food	Modified, creators, soon, march, unstoppable	Concern (-)		90.
95.	Food	Better regulations, forcing, government	Favorable		91.
96.	Food	Fight, critics, breakfasting, empty your pockets	Concern (-)		92.
97.	Food	Risk, environment, dwarfed, human health	Unfavorable		93.
98.	Food	Prospect, organic label, condemning, rules	Concern (-)		94.
99.	Food	Modern environmental movement, crystallized	Concern (-)		95.
100.	Food	Determine, future, Europe, French policy	Concern		96.
101.	Food	Products, reaching, market	Concern		97.
102.	Food	Critic, run, full circle	Unfavorable		98.
103.	Food	Tempestuous, brazen, sabotage	Unfavorable		99.
104.	Food	Frankenstein’s monster, fate, uncertain	Unfavorable		100.
105.	Food	Arrival, fait accompli, Europe, looked like	Concern		101.
106.	Food	Acceptance, as far as, happen	Concern		102.
107.	Food	Skepticism, outirght condemnation, arrival	Unfavorable		103.
108.	Food	Defense, date, Clinton	Favorable		104.

109.	Food	Stormy history, counterinsurgency, rose	Unfavorable		105.
110.	Food	Advance, stalled, Europe	Concern (-)		106.
111.	Food	Vetting, policy hawks, speech, White House	Concern		107.
112.	Food	Future battleground, colliding policies	Concern (-)		108.
113.	Food	Deepening chasm, dividing nations, extreme	Concern (-)		109.
114.	Food	Treaty, twisted, Seattle, laying plans, gathering	Concern (-)		110.
115.	Food	Abandoned, Tony Blair's touch, issues, public	Concern		111.
116.	Food	Decisions, shifted, Montreal, hot potato	Concern (-)		112.
117.	Food	Working group, stunning news, ministers	Concern (-)		113.
118.	Food	Police, standing outside, fórum	Concern (-)		114.
119.	Food	Fertilizers, por farmers, arguments	Concern (-)		115.
120.	Food	Come along, lunch, today, like it	Concern (-)		116.
121.	Food	War over, hard-edged US policy	Unfavorable		117.
122.	Food	Debate over, skepticism, advocacy group	Concern (-)		118.
123.	Food	Debate over, risk and benefit	Concern (-)		119.
124.	Food	Hasten, quest, more nutritious, suspicious	Concern (-)		120.
125.	Food	Treaty, regulate, fate, suffering, succumb	Concern (-)		121.
126.	Food	Shortcomings, activists, regulating	Unfavorable		122.
127.	Food	Fabric, American life	**Neutral**		123.
128.	Food	Dampened, fallen soufflés, cheery outlook	Unfavorable		124.
129.	Food	Bill Clinton, support, Blair, pillory	Unfavorable		125.
130.	Food	Growing sense, equate, nothing to offer, threat	Unfavorable		126.
131.	Food chain	Think, science, farming, trade	Concern (-)		127.
132.	Food	Efforts, opponents, put us down	Unfavorable		128.
133.	Food	Resistance, Seatle, unifier	Unfavorable		129.
134.	Food	Linked, MP, debate, fatal disease	Unfavorable		130.
135.	Food	Consumer activists, issue, enviromental	Unfavorable		131.
136.	Food	Turbulent times, introduced	Unfavorable		132.
137.	Food	Globalization, symptom, backlash, Seatle	Unfavorable		133.
138.	Food	Lesson, arrival, Seattle, politics, crucible, issue	Concern		134.
139.	Food	Unfamiliarity, biotech stocks, highbrow journals	Concern (-)		135.
140.	Foods	Reopen, rules, allow, organic, effort	Concern (-)		136.
141.	Foods	Biggest threat, mankind, nuclear weapons	Unfavorable		137.
142.	Foods	North Americans, governments, labeling	Concern (-)		138.
143.	Foods	Stalled, marketplace, reasons	Concern		139.
144.	Foods	Regulations, unassailable, administrations	Concern (-)		140.
145.	Foods	Future, grim, concluded, report, collapse	Unfavorable		141.
146.	Foods	Monsanto, never, sit, interview, architect	Unfavorable		142.
147.	Foods	Consumer, advocates, mandatory labeling	Unfavorable		143.
148.	Foods	Require, labeling, lead the drive, California	**Neutral**		144.
149.	Foods	Demanding caution, labeling, Canada, Miami	Concern (-)		145.
150.	Foods	Ban, Friends of the Earth, the Good Food Guide	Unfavorable		146.
151.	Foods	Debate over, part, British culture	Concern		147.
152.	Foods	Debate over, in earnest, online, skyrocketed	Concern		148.
153.	Foods	Consultative process, lobbying, voting in line	Concern (-)		149.
154.	Foods	Government, promoted, in word and deed, Glickman	Favorable		150.
155.	Foods	US government, announce, prohibited, organic	Concern		151.
156.	Foods	Companies, go-ahead, Flavr Savr, little fanfare	Favorable		152.
157.	Fruits	Increasingly common sight, poll	**Neutral**		153.

158.	Grain shipment	Cover commodities, negotiators, shipments	Concern		154.
159.	Grains	Bins, filled increasingly, planted, commercially	Concern (-)		155.
160.	-				
161.	Ingredients	Iceland, banned, refuse, wouldn't be happy	Unfavorable		156.
162.	Ingredients	Tests, sponsored, consumer, advocacy groups	Concern (-)		157.
163.	Ingredients	Already, thousands, processed, contain	Concern (-)		158.
164.	Ingredients	Labels, packages, contained	Concern		159.
165.	Ingredients	"Global foot rot", decrying, Darina Allen	Unfavorable		160.
166.	Ingredients	Darina Allen, steer clear, advises, students	Unfavorable		161.
167.	Ingredients	Overall feelings, grammatically, more negative	Unfavorable		162.
168.	Ingredients	Removed products, retailers, shelves	Concern (-)		163.
169.	-				
170.	Organism	Stands for, move genes, boundaries, quest	**Neutral**		164.
171.	Organisms	Atmosphere, no opposition, coalesced	Concern (-)		165.
172.	Organisms	Introduction, new food-stuff, protests, debate	Concern (-)		166.
173.	Organisms	Afraid, dumping grounds	Unfavorable		167.
174.	Organisms	Negotiations, rules, collapsed, divisions	Concern (-)		168.
175.	Organisms	Release of, foot of lobbying, interests, lobbying	Concern (-)		169.
176.	Organisms	Pose, greater dangers, not supported	Favorable		170.
177.	Plantings	Lost, debate, migrated	Concern		171.
178.	Plants	Farmers, save, avoid, fees, advantage	Concern		172.
179.	Plants	Nor, hopeful, plight, farmers	Concern (-)		173.
180.	Plants	Industry's promise, cut, chemicals	Concern		174.
181.	Potatoes	Business, Monsanto, bowing out	Concern		175.
182.	Potatoes	Grew, garden, organic, implications	Concern (-)		176.
183.	Products	Regulate trade, failed, rejected, proposal	Concern (-)		177.
184.	Products	Demands, label, sprout, ratcheted-up	Concern (-)		178.
185.	Products	Worth, govern, movement, once again	Concern (-)		179.
186.	Products	Wave, folly, Rifkin, talk	Unfavorable		180.
187.	Products	Flow, Greenpeace, protest, engineered	Unfavorable		181.
188.	Rice	Monsanto, applications, work, I am told	**Neutral**		182.
189.	Seed	Paul, talk, pigs, rarely, gets him going	Concern (-)		183.
190.	Seeds	Damn, store, demanded	Unfavorable		184.
191.	Seeds	Harvest seasons, grown commercially, shelves	**Neutral**		185.
192.	Seeds	Acres, grew, United States, nearly, engineered	**Neutral**		186.
193.	Seeds	Lasting damage, predicts, panelist	Unfavorable		187.
194.	Seeds	Projects, involve, Monsanto, yet, relevant	Concern (-)		188.
195.	Seeds	Deployment, emerging truth, capitalized	Concern		189.
196.	Seeds	Arrival of, pending, said, out there, test	Concern		190.
197.	Seeds	Irked, Monsanto, technology fees, binding	Unfavorable		191.
198.	Seeds	Growing criticism, Monsanto, ill-conceived	Unfavorable		192.
199.	Seeds	Bags, payback, opportunity, unloaded	Unfavorable		193.
200.	Seeds	Consider, planting, again, asked, paused	Concern (-)		194.
201.	Seeds	War, over, companies, sow, Indian	Concern (-)		195.
202.	Seeds	Believes, bad, good farmers	Favorable		196.
203.	Seeds	Companies, worry, filched, export	Concern		197.
204.	Seeds	It, were, grown /radiation / sludge	Concern (-)		198.
205.	Seeds	Innovator, git-go, not only	Favorable		199.
206.	Seeds	Average, produce, not, supported, research	Concern (-)		200.
207.	Soybeans	Undoubtedly, dipped, consumed, U. States	Concern		201.

208.	Soybeans	Selling more, research, does business	Concern (-)		202.
209.	Soybeans	Middle, field, I'm standing	**Neutral**		203.
210.	Soybeans	Acres, modified crops, orders, place	**Neutral**		204.
211.	Soybeans	Sneaking, European food chain, resented, Monsanto	Unfavorable		205.
212.	Sugar beets	Sabotaged, permits, plant, Irish	Unfavorable		206.
213.	Sugar beets	Learned, Monsanto, plan, test, Ireland	Concern		207.
214.	-				
215.	-				
216.	Varieties	Bred, pressure, possible	Concern		208.
217.	Variety	Extra levels, converted, vitamin A	**Neutral**		209.
218.	-			10JS	
219.	-				
220.	-				
221.	-				
222.	Artificial sweetener aspartame	Consider, case, peer-reviewed, conducted	**Neutral**		210.
223.	-				
224.	Bt variety	Harvested, natural, Iowa, farm	Concern		211.
225.	Bt crops	Immune, scrambling, should mean	Concern		212.
226.	Corn product	Contained, potential allergen, not approved	Unfavorable		213.
227.	Corn	US exports, even, accept, food aid	Unfavorable		214.
228.	Crops	Scientists, not yet understood, to document	Favorable		215.
229.	Crops	Moratorium, sale, panel	Concern (-)		216.
230.	Crops	Assumed, to be safe, counterparts	Favorable		217.
231.	DNA	Risks, breathing	Unfavorable		218.
232.	DNA	Large proportion, through, intestine	**Neutral**		219.
233.	Enzymes	List, current, describing, use	**Neutral**		220.
234.	Flavr Savr tomato	The Washington Post, rodents, munch, test	Unfavorable		221.
235.	Food-related product	FDA's first look/controversial	Concern		222.
236.	Food additives	Grocery shelves, health supplements	**Neutral**		223.
237.	Food	Queasiness, eating, go blind, third world	Unfavorable		224.
238.	Food	Industry-friendly GMO policy, world's first	Favorable		225.
239.	Food	Safe, great service, fellow citizens	Favorable		226.
240.	Food	Labeling, help prevent, consumer fears	Concern		227.
241.	Food	Issue, has focused	Concern		228.
242.	Food	Stance, adopted, astounding	Unfavorable		229.
243.	Food	Scary prospect, 'Frankenstein Foods'	Unfavorable		230.
244.	Food	General consensus, no different	Concern		231.
245.	Foods	Safety, air, keen, Pusztai	Unfavorable		232.
246.	Foods	Assumption, stable, FDA	Favorable		233.
247.	Foods	In no way adequate, research, safe,	Concern (-)		234.
248.	(GM) Foods	Serious health risks, alerting, Pusztai	Unfavorable		235.
249.	(GM) Foods	Criticism, shut out, newspapers, United States	Unfavorable		236.
250.	(GM) Foods	Testing, safe, verifying, Pusztai	Concern		237.
251.	(GM) Foods	Bush, to end, hunger, Africa	Favorable		238.
252.	Ingredients	Population, processed foods, unconcerned	Favorable		239.
253.	Maize	Safety tests, flawed, emerged	Unfavorable		240.
254.	Material	Worst case, contamination, happened	Unfavorable		241.

255.	Medicine	Not looked, gene therapy	**Neutral**		242.
256.	-				
257.	Organism	Is released into, environment, never, recalled/dangerous	Unfavorable		243.
258.	Organisms (GMOs)	Controversy, discussion, avoided, media	Concern (-)		244.
259.	Plants	Safety concerns, animal feeds	Concern		245.
260.	Plants	Warned, unexpected, concentrations, difficult	Unfavorable		246.
261.	Potatoes	Producing, certainly, not eat	Unfavorable		247.
262.	Potatoes	Already being sold, consumed	Concern		248.
263.	Potatoes	Less responsive, immune effects	Unfavorable		249.
264.	Products	Labeling, mutant soybeans, natural, impossible	Concern (-)		250.
265.	Roundup	Imported, significant percentage, tested	Concern		251.
266.	-				
267.	Soy	Response, raised, consumers, remove	Unfavorable		252.
268.	-				
269.	-				
270.	-				
271.	Variety	Isogenic varieties, Roundup Ready, genes	**Neutral**		253.
272.	Variety	FDA, no problem, bGH, levels increase	Favorable		254.
273.	Version	Injected, finds its way, rbGH, possible, natural	Concern		255.
274.	-				
275.	-				
276.	Wonders	Misfortune, eat, killed, quickly	Unfavorable		256.
277.	Yeast	Increase, fermentation, shocked	Concern		257.

Genetically altered + N (soc corpus) (18 occurrences)
Neutral: 5; Concern: 6; Concern (-): 5; Unfavorable: 2

No.	R1 collocate	Co-text/context	Semantic set	Book	No.
1.	Animal organs	Transplanting, warning, researchers	Unfavorable	4JR	1.
2.	Bacteria	Produce, antibiotic, kills	**Neutral**		2.
3.	-				
4.	Human embryos	Potentially patentable, if not the whole	Concern		3.
5.	Organism	Release of, worry, catastrophic	Concern (-)		4.
6.	Organisms	Releases of, concern, indirect effects, vindicated	Concern (-)		5.
7.	Soybeans	Gene, conventional soybeans	**Neutral**		6.
8.	Crop	Unmodified, buffers, farmers, companies/Monsanto	Concern	7IB	7.
9.	-				
10.	Soybeans	Allergy, Brazil nuts	**Neutral**		8.
11.	Tomatoes	Measured, self life	**Neutral**		9.
12.	Corn	Worry, unable, pollen	Concern (-)	8BL	10.
13.	Food	No testing, government, United States	Concern (-)		11.
14.	Food	Take root, European soil/critical/loomed	Concern (-)		12.
15.	Food	Abortion, church, hot topic / Irish	Concern		13.
16.	Foods	Wary, Canadians, surveyed	Concern		14.
17.	Microorganism	Open-air testing, spray, would be / genie […] out of the bottle	Concern		15.
18.	Rapeseed	Field, has turned, band concert /biohazard	Concern		16.
19.	Soybeans	Harvested, processed foods	**Neutral**		17.
20.	Crops	Threat, risk	Unfavorable	10JS	18.

21.	-				
22.	-				
Genetically manipulated + N (soc corpus) (5 occurrences) Neutral: 1; Concern: 2; Concern (-): 1; Unfavorable: 1					
No.	**R1 collocate**	**Co-text/context**	**Semantic set**	**Book**	**No.**
1.	Crops	Cursory policing, may not know, governments, consumers	Concern (-)	7IB	1.
2.	Crops	A flood of, unconfined release	Concern		2.
3.	Life	Confident, control, unleashes	Concern		3.
4.	-				
5.	Organisms	Warning, could cointain, labels	Unfavorable		4.
6.	Organisms	Reproductive capabilities, harnessed	**Neutral**		5.
7.	-				
Genetically * + N (soc corpus) (5 occurrences) The occurrences of this group are happax legomena. Therefore they were not analyzed for being considered unrepresentative					

Table 8.29: *Semantic sets of 'Genetically + adjective + noun' in the English soc corpus.*

SEMANTIC PROSODY_*GENÉTICAMENTE*_SCI CORPUS (206 OCCURRENCES)					
N + Adj + genéticamente* / N + *genéticamente + Adj (sci corpus) Neutral: 47; Regulation: 19; Favorable: 36; Concern: 15; Concern (-): 42; Unfavorable: 47					
No.	**L1-2 collocates**	**Co-text/context**	**Semantic set**	**Book**	**No.**
1.	Planta modificada*	Actividad, proteína, diferente	**Neutral**	1ER	1.
2.	ADN modificado*	Llevar, vectores, virus, positivos, células	**Neutral**		2.
3.	Organismos modificados*	Introducción, bacterias, riesgos, discutidos	Concern (-)		3.
4.	-				
5.	-				
6.	Organismos manipulados*	Casos, ninguno, citados	Concern		4.
7.	-				
8.	Planta modificada*	Posibilidades, mismo cuidado, espacio	Concern (-)		5.
9.	Organismos modificados*	Pesimistas, liberación, riesgos, insensato, detenerse	Concern (-)		6.
10.	Organismos modificados*	Estimación, riesgos, probabilidad, falle	Concern		7.
11.	-				
12.	-				
13.	-				
14.	Organismos modificados*	Aspect, liberación, vivos/indeseables	Concern		8.
15.	Animal modificado*	Patente, concedida, Harvard, Oncorratón/preocupación	Concern (-)		9.
16.	-				
17.	-				
18.	Animales modificados*	Liberación al ambiente/cuestiones éticas	Concern (-)		10.
19.	-				
20.	Bacteria modificada*	Ocurrir, se convirtiera, patógeno de genes	Concern (-)		11.
21.	Organismos modificados*	Liberación al ambiente, problemas inesperados	Concern (-)		12.
22.	Organismos manipulados*	Podrían, destruir, entorno ecológico	Concern		13.
23.	-				
24.	-				
25.	-				
26.	-				
27.	-				
28.	-				
29.	-			2SA	
30.	Productos modificados*	Presión, consumidores, Flvr Savr	Concern (-)		14.
31.	-				
32.	-				
33.	-				
34.	Animal *modificado	Primer caso, patentado / defensores	Concern (-)		15.
35.	Tomates *modificados	Producción, argument	Concern		16.
36.	Células vegetales modificadas*	Selección, gen de resistencia, kanamicina	**Neutral**		17.
37.	Organismos modificados*	Exigentes, temerosa, liberación	Unfavorable		18.
38.	-			3EG	
39.	Células *alteradas	Duración, células T, ADA	**Neutral**		19.
40.	Especies *alteradas	Fuga, vertido, preocupación	Concern (-)		20.

41.	Cerdos *alterados	Corazones, sustitutos, trasplantados	**Neutral**		21.
42.	Microbios *alterados	Bacterias, hongos, organismos	**Neutral**		22.
43.	Microbios *alterados	EPA, prohibir, miedo, liberar, «bacterias mutantes», seguridad	Unfavorable		23.
44.	Microbios *alterados	Temor a la liberación, microorganismos	Unfavorable		24.
45.	-				
46.	-				
47.	Semillas manipuladas*	Bt, rotar, plaguicidas, cultivos	**Neutral**		25.
48.	Semillas manipuladas*	Ventajas, ocaso, apresuran, Bt, plantar	Concern		26.
49.	Cultivos manipulados*	Se teme, parasitos resistentes, desarrollar	**Neutral**		27.
50.	Caracteres modificados*	Éxito, una, razones	**Neutral**		28.
51.	-				
52.	-				
53.	-				
54.	-				
55.	-				
56.	-				
57.	Bacterias *manipuladas	Triptófano contaminado, FDA, public	Concern (-)		29.
58.	Células *manipuladas	Encontrar, cultivo, equivale, pajar	**Neutral**		30.
59.	Células *manipuladas	Detección, manipularlas, sanguine	**Neutral**		31.
60.	Moléculas híbridas *manipuladas	Última generación, combinan, proteínas	**Neutral**		32.
61.	Células de médula ósea *manipuladas	Formar, función, nuevas células, saludables, médula ósea	**Neutral**		33.
62.	-				
63.	Cultivos *manipulados	Pocas dudas, papel preponderante	Concern		34.
64.	Organismos *manipulados	Liberen, preocupación, seguridad	Unfavorable		35.
65.	Productos *manipulados	Somatotropina (BST), (BGH)	**Neutral**		36.
66.	-				
67.	Semillas *mejoradas	Se seleccionan, semilleros, portadores	**Neutral**		37.
68.	Cepa bacteriana *modificada	Cepa bacteriana, alteraron, procedimientos de purificación	Concern (-)		38.
69.	Plantas de algodón *modificadas	Controvertida, empresa, patente	Concern (-)		39.
70.	Bacterias *modificadas	Patente, petróleo, alteré, añadiéndoles	**Neutral**		40.
71.	Bacterias *modificadas	Producir, habitual, procedimiento	**Neutral**		41.
72.	Bacterias *modificadas	Método, aumentar, resistencia	**Neutral**		42.
73.	Píceas *modificadas	Se desarrollaron, resistir, orugas	**Neutral**		43.
74.	Plantas *modificadas	Tolerante, herbicidas, experimentos	**Neutral**		44.
75.	Plantas *modificadas	Patente, adaptadas, absorber, raíces	**Neutral**		45.
76.	-				
77.	Vacunas *modificadas	Seguras, proteínas, estimulan, desarrollo	Favorable		46.
78.	Cultivo *modificado	Resistir, aprobación, gobierno	Regulation		47.
79.	Salmón *modificado	Enorme diferencia, tamaño, normal/saber es poder	Favorable		48.
80.	Animales *modificados	Otorgar, patente, controvertida	Concern (-)		49.
81.	Organismo *modificados	Patentes, actitudes públicas	Concern (-)		50.
82.	Árboles […]*modificados	Biomasa, EPRI, electricidad	**Neutral**		51.
83.	Ratones *modificados	Patente, aprobada, Patent Office	Regulation		52.
84.	Vectores […] *modificados	Genes, transferidos, células T, enzima	**Neutral**		53.

85.	-				
86.	Organismo *novedosos	Poco consistentes, reglas, lugar	Concern (-)		54.
87.	-				
88.	-				
89.	-				
90.	-				
91.	-				
92.	Semillas *tratadas	Resistir herbicidas, autorizó, colza	Regulation		55.
93.	-				
94.	Cultivos *uniformes	Preocupación, dotados, resistencia	Favorable		56.
95.	-				
96.	-			5MH	
97.	Organismos manipulados*	Seguro, liberar, al ambiente, «lisiadas»	Unfavorable		57.
98.	Alimentos manipulados*	Prohibir, lanzamiento deliberado	Unfavorable		58.
99.	Tomates, manipulados*	Prolongar, acrecentar, acrecentar	Favorable		59.
100.	Porotos de soja modificados*	Alergénicos, metabolito, niveles mutagénicos	**Neutral**		60.
101.	-				
102.	-				
103.	Cultivos modificados*	Oposición aumenta, desarrollar	Unfavorable		61.
104.	Algodón transformado*	Patente, revocado, manipulado genéticamente, gobierno	Unfavorable		62.
105.	Cultivos modificados*	No, necesidad	Unfavorable		63.
106.	Cultivos modificados*	No, necesidad	Unfavorable		64.
107.	Alimentos modificados*	Demanda, en contra, seguridad	Unfavorable		65.
108.	-				
109.	-				
110.	-				
111.	-				
112.	-				
113.	-				
114.	-				
115.	Alimentos modificados*	Problema, atropello, aceptar	Unfavorable		66.
116.	-				
117.	-				
118.	Microorganismos *lisiados	Liberan deliberadamente, manipulan potencialmente, peligrosos	Unfavorable		67.
119.	Proteínas o ADN *manipulados	Require, etiquetado, Europeo	Regulation		68.
120.	Cerdos *genéticamente	Fracaso, hormona, crecer	Unfavorable		69.
121.	Productos *genéticamente	Total prohibición, consumidores,presión	Unfavorable		70.
122.	Especie exótica, *modificada	Impactos, ecologistas, introducción	Unfavorable		71.
123.	Papa *modificada	Groseras alteraciones, sometida	Unfavorable		72.
124.	Semillas […] *modificadas	Monsanto, retiró, «inesperado», revelado	Unfavorable		73.
125.	Vacunas *modificadas	Riesgo, enfermedades aitrogénicas	Concern (-)		74.
126.	Variedades *modificadas	Diferencia, seguridad, impropia	Unfavorable		75.
127.	Variedades *modificadas	Diferencia, seguridad, impropia	Unfavorable		76.
128.	Alimento *modificado	Compararse, podría/riesgo	Concern		77.
129.	Microorganismo	Misteriosa enfermedad, contaminantes,	Unfavorable		78.

	*modificado	triptófano			
130.	Organismo *modificado	Transferencia, característica, determinista, gen, controla	Concern		79.
131.	Rhizobium *modificado	Eficaz, mejorar, rendimiento plantas	Concern (-)		80.
132.	Productos agrícolas *modificados	Regulaciones, gobiernan, emoción	Concern (-)		81.
133.	Productos agrícolas *modificados	Inacceptable, OMC, barrera	Favorable		82.
134.	Alimentos *modificados	FDA, acción legal, seguridad, cuestiona	Concern (-)		83.
135.	Alimentos *modificados	Peligrosos ocultos, promesas	Unfavorable		84.
136.	Alimentos *modificados	Rechazados, Noruega, consumidores	Unfavorable		85.
137.	Alimentos *modificados	Pueden, alimentar, mundo	Concern (-)		86.
138.	Cultivos *modificados	Preocupación, seguridad, prueba	Concern (-)		87.
139.	Microorganismos *modificados	Liberación, peligrosa, especialmente	Unfavorable		88.
140.	Microorganismos *modificados	Liberan rutinariamente, desechos	Unfavorable		89.
141.	Microorganismos *modificados	ADN transgénico, /peligrosa, xenobióticos	Unfavorable		90.
142.	Organismos *modificados	No, consumidores	Unfavorable		91.
143.	Organismos *modificados	Lanzamiento deliberado, prohibir	Unfavorable		92.
144.	Organismos *modificados	No, consumidores	Unfavorable		93.
145.	Organismos *modificados	Pruebas de campo, no existe	Favorable		94.
146.	Organismos *modificados	Diferencia, pruebas, defensor	Favorable		95.
147.	Productos *modificados	Europea, rechazó	Unfavorable		96.
148.	Productos *modificados	Debilitamiento, regulación, segura	Favorable		97.
149.	Cultivos transgénicos *modificados	Preocupación, enfermedades, generar	Concern (-)		98.
150.	Cultivos «* mutilados»	Monsanto, invasion, activistas	Unfavorable		99.
151.	-				
152.	Organismos manipulados*	Se liberan deliberadamente, lisiados	Unfavorable		100.
153.	«Flavr Savr» de Calgene, manipulado*	Mejorar, permanencia, retirado	Unfavorable		101.
154.	Plantas transgénicas modificadas*	Mayor potencial, generar, obtener resistencia viral/Peligros	Unfavorable		102.
155.	Plantas transgénicas modificadas*	Recombinación, resistentes, virus superinfeccionsos	**Neutral**		103.
156.	-				
157.	-				
158.	«Oncorratón», modificado*	Desarrollar cáncer, patentado, comercialización, sin éxito	Unfavorable		104.
159.	Ratones modificados*	Adquirir, enfermedad, asintomáticos	**Neutral**		105.
160.	-				
161.	Productos modificados*	Corporaciones, imponer, se resiste	Unfavorable		106.
162.	-				
163.	-				
164.	Vacunas *procesadas	Liberación descontrolada, transgénicos	Unfavorable		107.
165.	Plantas de cultivo modificadas*	Transferencias genéticas secundarias	**Neutral**		108.
166.	-				
167.	Productos manipulados*	Cayendo, supuestos, «seguros»	Unfavorable		109.

168.	-				
169.	-				
170.	-				
171.	-í				
172.	-				
173.	-				
174.	-				
175.	-				
176.	Plantas de cultivo modificadas*	Plásmido Ti, vectores, transferencia genética	**Neutral**		110.
177.	Algodón manipulado*	Agracetus, revocó, compañía, patente	Unfavorable		111.
178.	Bacteria del suelo modificada*	Inhibir, inofensiva, desarrollo	Unfavorable		112.
179.	Productos modificados*	Prohibiciones, transgénicos, derrumbó	Unfavorable		113.
180.	-				
181.	Cultivos modificados*	Primera plantación, gran escala	**Neutral**	9SN	114.
182.	-				
183.	Organismos modificados*	Liberación intencional, medio ambiente	Regulation		115.
184.	Ingredientes modificados*	Potencialmente, amplia variedad	Concern (-)		116.
185.	Alimento modificado*	Moratoria, rechazada, etiquetado	Concern		117.
186.	-				
187.	Microbios modificados*	Agricultores, cuotas de mercado	Concern (-)		118.
188.	Baculovirus modificados*	No comparta, insecticidas, población	Concern		119.
189.	Productos modificados*	Ampliarse, moratoria, STB recombinante	Concern (-)		120.
190.	Productos modificados*	Transfirieron, ingeniería genética	**Neutral**		121.
191.	Algodón modificado*	Controvertida, Agracetus, derechos	Concern (-)		122.
192.	-				
193.	Cultivos modificados*	Preocupaciones, potencial, Resistencia	Concern (-)		123.
194.	«Cerdos humanizados» modificados*	No provoquen, rechazo	Favorable		124.
195.	Vegetales modificados*	Análisis, comités consultivos	Regulation		125.
196.	Cultivos modificados*	Combinaciones genéticas, marcadores	**Neutral**		126.
197.	Tomates modificados*	Etiquetado, acuerdos, ventas	Favorable		127.
198.	Tubérculos modificados*	Cultivaron, extraído, gen de lecitina	**Neutral**		128.
199.	Maíz modificado*	Desautorizada, industria, separado	Unfavorable		129.
200.	-				
201.	-				
202.	Cultivos manipulados*	No, pruebas de campo, patentes de vida	Unfavorable		130.
203.	Cultivos manipulados*	Liberaciones, terreno, Europa	**Neutral**		131.
204.	Bacterias modificadas*	Quimosina, terneros, leche, detriment	**Neutral**		132.
205.	Material modificado*	Figurar, porcentaje, productos, debía	Concern		133.
206.	Organismo modificado*	Product final, en sí mismo	**Neutral**		134.
207.	Organismo modificado*	Liberaciones, ice minus	**Neutral**		135.
208.	Maíz modificados*	Consumidores, no, conscientes	Concern (-)		136.
209.	Organismos modificados*	Regulación, USDA, FDA, EPA	Regulation		137.
210.	Caracteres modificados*	Mejora, resistencia, eliminan, malas hierbas, aumento, tiempo	Favorable		138.
211.	Organismos modelo modificados*	Riesgos, genes marcadores, incógnitas	Concern (-)		139.
212.	Material transformado*	Selecciona, en detrimento, antibióticos	Favorable		140.
213.	Cultivos modificados*	Monsanto, importaciones, aceptables	Favorable		141.

214.	Variedades modificadas*	Aumento, herbicidas, no, argument	Favorable		142.
215.	Sojas modificadas*	Concedió, patente, OEP	Regulation		143.
216.	Organismos modificados*	Liberación intencional, en el medio ambiente, Directiva 90/220/EEC	Regulation		144.
217.	Organismos modificados*	Normativa, etiquetado, contaminación	Concern (-)		145.
218.	Animales modificados*	Concebidos, intensiva, industrializada	**Neutral**		146.
219.	Cultivos modificados*	Contribuciones, importantes	Favorable		147.
220.	Bacterias modificadas*	Fabrican, production, queso	**Neutral**		148.
221.	Organismos modificados*	Patentes, manipulación genética	**Neutral**		149.
222.	Plantas modificadas*	Contenedores, transgénicos, experimentales	Regulation		150.
223.	Organismos modificados*	90/220/EEC, liberación intencional, medio ambiente	Regulation		151.
224.	STB modificada*	Mayor durabilidad, mayor velocidad de crecimiento, manipulaciones	Favorable		152.
225.	Organismos modificados*	Liberación intencional, se rigen	Regulation		153.
226.	Organismos modificados*	Etiquetarse, exentos, orgánicos	Regulation		154.
227.	Organismos modificados*	Vandalism, dispersen, riesgo	Concern (-)		155.
228.	-				
229.	Cultivos modificados*	Riesgo, propagación, posibilidad	Concern (-)		156.
230.	-				
231.	Cultivos modificados*	Promesa, reducir, pesticidas, conferirles resistencia, herbicidas	Unfavorable		157.
232.	Cultivos transgénicos o modificados* (MG)	MG, introducido, alimentos procesados	Concern (-)		158.
233.	Semillas de soja modificada*	Legislación, patentes	Regulation		159.
234.	Quimosina modificada*	Etiquetado, no requiere, diferencie	**Neutral**		160.
235.	Sojas modificadas*	No, ser distintos, sin modificar	Favorable		161.
236.	Vegetales modificados*	No, considerarse, igual, tradicionales	Concern		162.
237.	Organismo modificados* (OMG)	Acuerdo, bioseguridad, etiquetado, MG	Regulation		163.
238.	Plantas manipuladas*	Resistencia, herbicida, otros	**Neutral**		164.
239.	Cultivos manipulados*	Promesa, reducir, pesticidas, conferirles resistencia, herbicidas	Unfavorable		165.
240.	Patatas, modificadas*	Células, enfermedad micótica	Favorable		166.
241.	Verduras modificadas*	Mayor durabilidad, mayor velocidad de crecimiento, manipulaciones	Favorable		167.
242.	Levaduras modificadas*	Nuevos avances, queso, propiedades	Favorable		168.
243.	Salmón del Pacífico, modificado*	Riesgo ecológico, emigrar, podría	Concern (-)		169.
244.	-				
245.	Productos modificados*	Patentes, reforzó, industria, éticos	Favorable		170.
246.	Productos biotecnológicos modificados*	Primeros, productos, agricultura / Monsanto, invirtió	Favorable		171.
247.	Cultivos modificados*	Resistencia, paradójjica / desventajas	Concern (-)		172.
248.	Cultivos celulares modificados*	Producir, gen extraído, proteína	**Neutral**		173.
249.	-				
250.	Organismos modificados*	Ilegales, normativas, menos estrictas, riesgos, persisten, medio ambiente	Unfavorable		174.

251.	Microbios modificados*	Preocupación, persistieran, medio ambiente	Unfavorable		175.
252.	Granos modificados*	Paso, constar, contenían o no	Concern		176.
253.	Verdura perecedera modificada*	Primera, fruta, venta	Concern		177.
254.	Patata estadounidense, modificada*	Monsanto, Russet Burbank, famosa	Favorable		178.
255.	Tomate modificado*	Patente, no, reblandece, madurar	Favorable		179.
256.	Aceite modificado*	Primer aceite, laurato, transgénica	Favorable		180.
257.	Productos modificados*	STBr, primeros, productos	Favorable		181.
258.	Tomates modificados*	Gobierno, concedió, Flavr Savr	Favorable		182.
259.	Organismos modificados*	Monsanto, primeros, Roundup Ready	Favorable		183.
260.	Organismos modificados*	Autorización, transgénicos, Directiva	Regulation		184.
261.	Organismos modificados*	Multinacionales, experimentos, bien	Favorable		185.
262.	-				
263.	Baculovirus modificados*	Investigación, se inició, Oxford	**Neutral**		186.
264.	Organismos modificados*	Aplica, medidas preventivas	Concern (-)		187.
265.	Organismos modificados*	Liberaciones, permisos, ACRE	Regulation		188.
266.	Características modificadas*	Se calcula, semillas vendidas, Estados Unidos, 2000	Favorable		189.
267.	Ingredientes modificados*	Etiquetado, presión, consumidores	Concern (-)		190.
268.	Organismos modificados*	Riesgos, similares, industrializados	Concern (-)		191.
269.	Levaduras modificadas*	Utilizado, repostería, fabricación de pan	**Neutral**		192.
270.	Cultivos modificados*	Producir, resistentes, plagas, reduciría, uso de pesticidas	Favorable		193.
271.	Organismos modificados*	Transgenes, heredan, genomas	**Neutral**		194.
272.	-				
273.	STB modificada*	Producir, hormona, natural	**Neutral**		195.
274.	Organismos modificados*	La mayor parte, industrializados	Favorable		196.
275.	Organismos modificados*	Liberaciones, liberación intencional	Regulation		197.
276.	Baculovirus modificados*	Directrices, liberación	Regulation		198.
277.	Ingredientes modificados*	Etiquetado, Greenpeace, vago	Concern (-)		199.
278.	Organismos modificados*	Etiquetado, preocupaciones éticas	Concern (-)		200.
279.	Células bacterianas modificadas*	Producir, proteínas, cubeta de ensayo	**Neutral**		201.
280.	Soja mezclada, modificada*	CE, autorizado, Amberes, remesa	Favorable		202.
281.	Semillas modificadas*	Incremento, ventas, movieron	Favorable		203.
282.	Maíz modificado*	Seguridad, graves dudas, riesgo, gen marcador	Concern (-)		204.
283.	-				
284.	Cultivos comerciales modificados*	Producción, ritmo, avanzado, progreso	Favorable		205.
285.	-				
286.	Cultivos modificados*	Abundan, mercados occidentales	Favorable		206.

Table 8.30: *Semantic sets of 'Noun + adjective + genéticamente' and 'Noun + genéticamente + adjective' in the English sci corpus.*

SEMANTIC PROSODY_*GENÉTICAMENTE*_SOC CORPUS (450 OCCURRENCES)					
N + Adj + genéticamente* / N + *genéticamente + Adj (soc corpus) Neutral: 56; Regulation: 15; Favorable: 80; Concern: 54; Concern (-): 103; Unfavorable:142					
No.	**L1-2 collocates**	**Co-text/context**	**Semantic set**	**Book**	**No.**
1.	-			4JR	
2.	-				
3.	-				
4.	-				
5.	-				
6.	-				
7.	Organismos modificados*	Responsabilidades, catastróficas	Concern (-)		1.
8.	Organismos modificados*	Consecuencias kafkianas, introducidos en el entorno, aseguradoras	Unfavorable		2.
9.	Organismos modificados*	Liberación, seguridad, riesgos	Concern (-)		3.
10.	Organismos modificados*	Introducidos rápidamente, medio ambiente, corrompe	Unfavorable		4.
11.	Animal entero, modificados*	Riesgo, quebrarse, patenta	Unfavorable		5.
12.	Organismos modificados*	Daño, liberación, ecosistema, impacto	Unfavorable		6.
13.	Animales modificados*	Sometidos, patentados, patentes	Concern		7.
14.	Organismos modificados*	Deficiencias, pruebas de campo	Unfavorable		8.
15.	Organismos modificados*	Peligros potenciales, liberación	Concern (-)		9.
16.	Organismos modificados*	Contaminación, medio ambiente / Amenaza	Unfavorable		10.
17.	Organismos modificados*	Efectos potenciales adversos, liberación	Unfavorable		11.
18.	Organismos modificados*	Suelta deliberada, una sola	Concern (-)		12.
19.	Animales modificados*	Compañías, ansiosas, trasplantes	Concern (-)		13.
20.	P. syringae modificado*	Nuevo, «sin hielo»/ADN recombinante	**Neutral**		14.
21.	Organismo modificado*	Aprobase, prueba de campo, riesgos potenciales, radical	Concern (-)		15.
22.	Organismo modificado*	Efecto potencial, riesgos, medioambiente, experimento de campo	Concern (-)		16.
23.	Enzima modificada*	Ventajoso, depuración, vertidos	Favorable		17.
24.	-				
25.	-				
26.	-				
27.	-				
28.	-				
29.	-				
30.	-				
31.	-				
32.	-				
33.	-				
34.	-				
35.	-				
36.	-				
37.	Feto humanos alterados*	Patentables, parte, en principio	Regulation		18.
38.	Organismos alterados*	Liberación, posibles efectos, ecólogos	Concern (-)		19.
39.	Animales alterados*	Trasplante, epidemias, fronteras	Concern (-)		20.
40.	Organismo alterado*	Catástrofe, introducción, planta, daño	Concern (-)		21.

41.	-				
42.	Bacteria alterada*	Produce, antibiótico letal, digestivo	Favorable		22.
43.	-			6LA	
44.	-				
45.	-				
46.	Cultivos modificados*	Introducción, escándalos, protestas	Unfavorable		23.
47.	Ingredientes modificados*	Aumentaría, coste, antieconómicos	Unfavorable		24.
48.	Tejidos vegetales modificados*	PTO, patentes, permitir	Regulation		25.
49.	Organismos modificados*	Liberaciones, riesgos, introduction	Unfavorable		26.
50.	Alimentos modificados*	Autorización, segregación, etiquetado	Concern (-)		27.
51.	Cultivos modificados*	Toxina, activa, dañar	**Neutral**		28.
52.	Cultivos modificados*	'mejor', aumentar, beneficios, Monsanto, paso atrás, pobres	Unfavorable		29.
53.	Alimentos modificados*	Pueden, inesperadas, ´toxicas, causar	Concern (-)		30.
54.	Cultivos modificados*	Puede, reducir, valor, problemas, legales	Concern (-)		31.
55.	Cultivos modificados*	Prohibición, preocupados, contaminación genñetica	Unfavorable		32.
56.	Alimentos modificados*	Caída, exportaciones, podría, etiquetar	Concern		33.
57.	Cultivos modificados*	Resistentes, herbicidas /Aumentando, capacidad	Favorable		34.
58.	-				
59.	Cultivos modificados*	Resistir, controlar, plagas, venden	Favorable		35.
60.	Nematodos modificados*	Laboratorios, creado, propósitos	**Neutral**		36.
61.	Alimentos modificados*	Pocas excepciones, promovido, gobiernos	Favorable		37.
62.	Alimentos modificados*	Empresas, aumentando, producción, permitan, residuos, más altos	Favorable		38.
63.	Alimentos modificados*	Prohibir, liberaciones, patentes	Unfavorable		39.
64.	Árboles modificados*	Greenpeace, moratoria, WWF	Unfavorable		40.
65.	Organismos modificados*	Introducción, causar, daño, industria, pueda [subjunctive]	Concern (-)		41.
66.	Cultivos modificados*	Mayoría, resistentes, insectos, herbicidas	**Neutral**		42.
67.	Cultivos modificados*	Introducción, zonas libres, transgénicos, opuesto	Unfavorable		43.
68.	Productos modificados*	Gobiernos, temor, contra, voluntad	Unfavorable		44.
69.	Cultivos modificados*	Monopolio, empresas, mercados	Concern (-)		45.
70.	Cultivos modificados*	Prohibir, hambrientas, Etiopía	Unfavorable		46.
71.	Microorganismos modificados*	Supervisiones, compitiendo, microorganismos, suelo	Concern		47.
72.	Alimentos modificados*	Atractivo, industria, dólares	Favorable		48.
73.	Productos modificados*	Ruinosa, desaconsejableinforme	Unfavorable		49.
74.	Alimentos modificados*	Etiquetar, inaceptable, amenazar	Favorable		50.
75.	Productos modificados*	Aprobado, reforzar, nitrógeno, EEUU	Favorable		51.
76.	Patatas Bt modificados*	EPA, demanda, tribunales, destrucción	Unfavorable		52.
77.	Cultivos modificados*	Transferencia, genes, ruta, bacterias	**Neutral**		53.
78.	Productos modificados*	Glickman, seguridad, demostrado	Favorable		54.
79.	Alimentos modificados*	Aprobación, no requieren	Concern		55.
80.	Cultivos modificados*	Schmeiser, polen, transportado, problema	Unfavorable		56.

81.	Cultivos modificados*	Bloquearían, intento, aprobar	Unfavorable		57.
82.	Organismos modificados*	Seguridad, bloquearon, Bioseguridad, intereses comerciales	Concern (-)		58.
83.	Alimentos modificados*	Consumidores, encuesta, etiquetados	Concern		59.
84.	Ingredientes modificados*	Procesados, Europa, derivados, maíz	**Neutral**		60.
85.	Alimentos modificados*	Eliminar, menús, opinion pública	Concern (-)		61.
86.	Ingredientes modificados*	Eliminar, comerdores escolares	Unfavorable		62.
87.	Productos modificados*	U. Europea, autorizado, comercialización	Regulation		63.
88.	Ingredientes modificados*	Excluir, opinión pública	Unfavorable		64.
89.	Sustitutos modificados*	Desarrollo, amenazados, productores	Unfavorable		65.
90.	-				
91.	Microorganismos modificados*	Enzimas, quimosina, Europa, rivoflavina	Regulation		66.
92.	Organismos modificados*	Liberación, consecuencias ambientales	Concern (-)		67.
93.	Ingredientes modificados*	Enzimas, quimosina, Europa, rivoflavina	Regulation		68.
94.	Tejidos humanos modificados*	Enmienda, no cubiertas, células, genes	Concern		69.
95.	Virus modificados*	Liberación, cubrir, riesgos, puedan	Unfavorable		70.
96.	Ingredientes modificados*	Consumen, industrializados, E. Unidos	Concern (-)		71.
97.	Organismos modificados*	Aumentos, rendimientos, supuestos	Concern (-)		72.
98.	Cultivos modificados*	Uso, herbicida, aumentar, resistencia	Concern (-)		73.
99.	Clavel modificado*	Aprobación, estados miembros	Regulation		74.
100.	Algodón modificado*	Empresa, comercializó, prisa, pruebas	Concern (-)		75.
101.	Organismo modificado*	Rechazar, clara, "evidencia científica", causa, daño	Favorable		76.
102.	ADN modificado*	Etiquetado, industria, destruía, ADN	Favorable		77.
103.	Algodón modificado*	Incinerar, Monsanto, ilegalmente	Unfavorable		78.
104.	Klebsiella modificado*	Puedan, dañar, liberado, eliminar	Concern (-)		79.
105.	Algodón modificado*	Patente, soja, Monsanto	Regulation		80.
106.	-				
107.	Ratón modificado*	Oncoratón, desarrollar, cancer	**Neutral**		81.
108.	Producto modificado*	Equivalente, no necesita, ser analizado	Concern		82.
109.	Microorganismo modificado*	Liberación, consecuencias, potenciales	Concern (-)		83.
110.	Microorganismo modificado*	Se añadió, mató, modificado, no lo hizo	**Neutral**		84.
111.	Maíz modificado*	Aumento, mortalidad, padecían, retrasos	Unfavorable		85.
112.	Animal modificado*	Patente, oncomouse, casuen, cancer	**Neutral**		86.
113.	Microorganismo modificado*	Insertado, aumentaría, nitrógeno	Favorable		87.
114.	Alimento modificado*	Flavr Savr, primer, autorizado	Favorable		88.
115.	-				
116.	Maíz modificado*	Aumentaron, sentimientos en contra	Unfavorable		89.
117.	Semillas modificadas*	Royalties, patente, produzcan	Regulation		90.
118.	Semillas modificadas*	Prohibida, acceder, tres años	Concern (-)		91.
119.	Bacterias modificadas*	Incapaces, destruyó, Showa Denko	Concern (-)		92.
120.	Enzimas modificadas*	No, etiquetadas, requisitos, usan	**Neutral**		93.
121.	Sojas modificadas*	Rendimientos, inferiores, convencionales	Concern		94.
122.	Variedades modificadas*	Patentes, controlar, se niega	Concern (-)		95.

123.	Patatas “New Leaf” de Monsanto, modificadas*	Toxina Bt, Monsanto / sufrieron pérdidas	Concern (-)		96.
124.	Variedades modificadas*	Investigaciones, posibles, muy por detrás, consecuencias ambientales	Concern (-)		97.
125.	-				
126.	Bacterias modificadas*	Seguridad, 0,1%, contaminantes, aprobaron, riboflavin	Concern (-)		98.
127.	Semillas modificadas*	Introducción, forzado, sin, pruebas, demanda, reclaman, Monsanto	Unfavorable		99.
128.	Bacterias modificadas*	Showa Denko, experimentado, proceso	**Neutral**		100.
129.	Hormona del crecimiento modificada*	Aprobado, reforzar, nitrógeno, EEUU, RBST/RBGH, inyectadas,	Favorable		101.
130.	Soja modificada*	Transgénicos, primera vez, Monsanto, resistente, herbicida	Concern		102.
131.	-				
132.	-				
133.	Enzima modificada*	Producción, destruir, lignina	**Neutral**		103.
134.	Bacteria modificada*	Dictó, podía, patentarse	Concern		104.
135.	Colza modificada*	Experimento, laboratorio, resistentes	**Neutral**		105.
136.	Hormona modificada*	rBST, rBGH, recombinante, WTVT	**Neutral**		106.
137.	Hormona modificada*	Influencia, aprobación, FDA	Concern (-)		107.
138.	Planta modificada*	Se recombinó, ADN viral, nueva variedad	**Neutral**		108.
139.	Hormona modificada*	Evidencias, residuos, presentes, leche	Unfavorable		109.
140.	Soja modificada*	Monsanto, triplicado, residuos	Unfavorable		110.
141.	Soja modificada*	Descontento, Agricultores, Christison	Unfavorable		111.
142.	Soja modificada*	Patente, Monsanto, monopolio, amenaza, contrato	Unfavorable		112.
143.	-				
144.	Alimentos manipulados*	Informe, Monsanto, colapso, apoyo	Unfavorable		113.
145.	-				
146.	-				
147.	Soja manipulada*	Aumento, 8%, grasa/Efectos colaterales	Concern (-)		114.
148.	Soja manipulada*	Aprobada, autoridades, apta, consumo	Favorable		115.
149.	-				
150.	-				
151.	Alimentos contaminados*	Gobierno, derechos protegidos	Unfavorable		116.
152.	Tomate *modificado	Duración, estante, medirá, meses, días	**Neutral**	7IB	117.
153.	Soja *manipulada	Resistente, herbicidas, Greenpeace, objection	Unfavorable		118.
154.	Soja *manipulada	Resistente, herbicida, superficie	**Neutral**		119.
155.	-				
156.	-				
157.	Productos *modificados	Ley, distribución, extraño	Concern (-)		120.
158.	Plantas *alteradas	Compañías, plantasen, setos, barreras	Concern (-)		121.
159.	Organismos *modificados (OGMs)	OGMs, zancadillas políticas, importaciones, aclarado	Concern (-)		122.
160.	Organismos *modificados	Detectar, cantidades ínfimas, alimentos procesados	**Neutral**		123.
161.	Organismos *manipulados	Prohibiese, venta, patentes, Austria	Unfavorable		124.
162.	Organismos *manipulados	Producir, substancias deseadas	Favorable		125.
163.	Organismos *manipulados	Etiquetado obligatorio, desesperanza	Concern (-)		126.

164.	Productos modificados*	Seguros, etiquetado, consumidores, no tienen por qué	Concern		127.
165.	Alimentos modificados*	Glickman, inocuos, no, segregación	Favorable		128.
166.	Soja modificada*	Se comprometieron, no utilizar	Unfavorable		129.
167.	Corazones de cerdo, manipulados*	Nextran, resistiesen, rechazo, implantados, sobrevivir	**Neutral**		130.
168.	Animales manipulados*	Gobiernos, ejercen, control	Concern		131.
169.	Organismos manipulados*	Supermercado, podían, contener, hombre, detenido, etiquetas	Concern (-)		132.
170.	-				
171.	-				
172.	-				
173.	Soja o maíz *modificados	Compañías, declarar, normativa, eximía	Concern		133.
174.	Maíz *manipulado	Proyecto, immune, fusiarosis	**Neutral**		134.
175.	Cultivos *modificados	Posibilidad, separasen, convencionales	Concern (-)		135.
176.	Cultivos *modificados	Autorizados, centros de biotecnología	Favorable		136.
177.	Cultivos *modificados	Acabar, investigación, desarrollo	Concern (-)		137.
178.	Cultivos *manipulados	Torrente, aprobaba, comercialización	Concern		138.
179.	Cultivo *modificado	Compañía, vender, solicitud	Regulation		139.
180.	Colza *moanipulada	Introdujo, mantuvo separada, ventas bajaron,	Unfavorable		140.
181.	Aves *manipuladas	Idiotizadas, enjaulada, insoportable	Unfavorable		141.
182.	Animales *manipulados	Difícil, crear, sin peligro	Concern (-)		142.
183.	-				
184.	Alimentos *modificados	Rechazados, consulta, Noruega	Unfavorable		143.
185.	Alimentos *manipulados	Etiqueten, o no, asunto, futuro	Concern		144.
186.	Alimentos *manipulados	Al no etiquetar, vegetarianos	Concern		145.
187.	Alimentos *manipulados	Etiquetado, derecho, poder elegir	Concern		146.
188.	Alimento *modificado	Empresas, etiquetar, obligadas	Regulation		147.
189.	Variedad *modificada	Más altos, betacaroteno, vitamina A	**Neutral**	8BL	148.
190.	Maíz StarLink *alterado	Contaminado, alergénica, ecos	Unfavorable		149.
191.	Brotes de soja *modificados	Procesados, suspicacia, consumían	Concern		150.
192.	Brotes de soja *manipulados	Apareciendo, procesados, comerciales	Favorable		151.
193.	Soja *manipulada	Ilegalmente, propio huerto	Concern (-)		152.
194.	Semillas *modificadas	Incipiente verdad, defensa	Concern (-)		153.
195.	Semillas *modificadas	Empresas, preocupadas, birlen	Concern		154.
196.	Semillas *modificadas	Breve pausa, puede que sí	Concern		155.
197.	Semillas *alteradas	Monsanto, relevantes	Concern		156.
198.	Semillas *alteradas	Preocuparme, vigilando, Monsanto	Concern (-)		157.
199.	Semilla *modificada	Schmeiser, 90%, su variedad	Concern		158.
200.	Remolacha *alterada	Permiso, Monsanto, plantas, granjas	Concern (-)		159.
201.	-				
202.	Productos *modificados	Leyes, adecuaban o no	Concern		160.
203.	-				
204.	Plantas *modificadas	Cubeta de cristal, arraigasen, campos	**Neutral**		161.
205.	Plantas *modificadas	Tecnología, amenaza, alérgenos ocultos	Concern (-)		162.
206.	-				
207.	Plantas *alteradas	Paseando, trompicones, sucumbían	Concern (-)		163.
208.	Patata *modificada	NewLeaf, Monsanto, puede, tan agresiva, mata, bichos	Unfavorable		164.

209.	Organismos *modificados	Solo personal autorizado	**Neutral**		165.
210.	Organismo *alterado	Retarda, escarcha, fruta / «de liberación deliberada»	Concern (-)		166.
211.	-				
212.	-				
213.	-				
214.	Alimentos modificados*	Etiquetado, ordenaba, acuerdo	Concern		167.
215.	Cultivos modificados*	Probando, ha enterado, producir, más alimentos	Concern		168.
216.	Alimentos modificados*	Sospechas, cesaría, vacilante progreso	Concern (-)		169.
217.	Alimentos modificados*	No saben, consumiendo, FDA, etiquetado, no, necesaria, náuseas	Concern (-)		170.
218.	Alimentos modificados*	Defensores, consumidor, etiquetado	Concern (-)		171.
219.	Organismos modificados*	Oposición concreta, tensa	Concern (-)		172.
220.	Organismos modificados*	Liberación, a favor, presionado, gobierno estadounidense	Unfavorable		173.
221.	Alimentos modificados*	Etiquetar, agricultores, luchan	Concern (-)		174.
222.	Alimentos modificados*	Campo de batalla, OMC, contrapuestas	Concern (-)		175.
223.	Alimentos modificados*	Importarían, cultivarían, europeos	Favorable		176.
224.	Alimentos modificados*	Monstruo, Frankenstein, incierto	Concern (-)		177.
225.	Cultivos modificados*	Eficiencia, raras veces, rendimiento	Concern		178.
226.	Cultivos modificados*	Compañía, hambrientas, India	Favorable		179.
227.	Cultivos modificados*	Fibra sensible, senadores/proteccionista	Favorable		180.
228.	Organismos modificados*	Peligros, no, respaldado, científica	Concern		181.
229.	Alimentos modificados*	Beneficio, descubrir, inocuos	Unfavorable		182.
230.	Organismos modificados*	Acciones directas, contra, prueban	Unfavorable		183.
231.	Alimentos modificados*	Productos alterados, etiquetas, figure, gobiernos, no saben cuáles son	Concern (-)		184.
232.	Cultivos modificados*	Greenpeace, erradique, expansión	Concern (-)		185.
233.	Alimentos modificados*	Riesgo, nimiedad, agua, plantas / india	Concern		186.
234.	Alimentos modificados*	Discurso, política, examinaran/Glickman	Favorable		187.
235.	Alimentos modificados*	E.Unidos, etiqueta, orgánico	Concern		188.
236.	Alimentos modificados*	Escépticos, invasion, desconocido	Unfavorable		189.
237.	Alimentos modificados*	Por qué, conviertiendo, granjeros	Concern		190.
238.	Cultivos modificados*	Irlanda, voto decisive, conversación	Unfavorable		191.
239.	Alimentos modificados*	Comunidad, aborto, no, candente	Concern (-)		192.
240.	Cultivos modificados*	Aprobación, paralizado, Monsanto	Concern (-)		193.
241.	Alimentos modificados*	Sabotaje, tempestuosa historia	Unfavorable		194.
242.	Alimentos modificados*	Orgánicos, no pueden ingerir, problema	Concern (-)		195.
243.	Alimentos modificados*	Facciones irlandesas, enemigo común	Unfavorable		196.
244.	Peces modificados*	FDA, supervisar / preocupaciones	Concern		197.
245.	Ingredientes modificados*	Retirarían, estantes, Tesco	Unfavorable		198.
246.	Alimentos modificados*	Extendida preocupación, consumidores	Concern (-)		199.
247.	Alimentos modificados*	Asistir, foro, policía, obligado	Concern		200.
248.	-				
249.	Alimentos modificados*	Poco conocimiento, gente	Concern		201.
250.	Alimentos modificados*	Luchar, con los críticos, industria	Favorable		202.
251.	Organismos modificados*	Debate, introducción, estrategia	Favorable		203.
252.	Cultivos modificados*	Frankencomida, descubrirse, dinero	Unfavorable		204.
253.	Alimentos modificados*	Reevaluación, guerra, política	Concern (-)		205.
254.	Peces modificados*	Ley, prohibía, fuera, contaminación	Concern (-)		206.

255.	Productos modificados*	Regular, fracasaron, E.Unidos	Regulation		207.
256.	Alimentos modificados*	Normativa, fracasaron, divisions	Regulation		208.
257.	Alimentos modificados*	Parte, tejido, vida norteamericana	**Neutral**		209.
258.	Alimentos modificados*	Conlleva, impedir, lleguen al mercado	Unfavorable		210.
259.	Alimentos modificados*	Sospechaba, hablemos	Concern		211.
260.	Alimentos modificados*	Desafiando, comunidad europea	Concern (-)		212.
261.	Alimentos modificados*	Regular, padeciendo, destino, Lezo	Unfavorable		213.
262.	Alimentos modificados*	Colapso, respaldo público	Unfavorable		214.
263.	Productos modificados*	Soberbia tontería, Rifkin, esperar	Unfavorable		215.
264.	Alimentos modificados*	Mayor amenaza, humanidad	Unfavorable		216.
265.	Alimentos modificados*	Resistencia, factor unificador	Unfavorable		217.
266.	Alimentos modificados*	Enraizarían, europeas, para siempre/ Monsanto	Favorable		218.
267.	Alimentos modificados*	Mezcla, liberó, Monsanto, escepticismo	Unfavorable		219.
268.	Alimentos modificados*	Empresa, irritado, introducir, Monsanto	Unfavorable		220.
269.	Alimentos modificados*	Etiquetado, Tom Hayden, exigiese	Concern		221.
270.	Alimentos modificados*	Tan polémico, testigo, tema	Concern (-)		222.
271.	Alimentos modificados*	Determinar, futuro, política francesa	**Neutral**		223.
272.	Cultivos modificados*	Cautos, introducir, funcionarios chinos	Concern		224.
273.	Alimentos modificados*	Mejora, regulación, Glickman, actitud	Concern		225.
274.	Alimentos modificados*	Debate, se disparó, personas, red	Concern		226.
275.	Alimentos modificados*	Escepticismo, debate, defensa	Unfavorable		227.
276.	Alimentos modificados*	Asumir, seguridad, instinto, hambriento	Concern (-)		228.
277.	Alimentos modificados*	Turbulenta historia, contraataque	Concern (-)		229.
278.	OMG (organismos modificados*)	No, OMG/alteradas genéticamente	Unfavorable		230.
279.	Brotes de soja modificados*	Salsa, sushi, E. Unidos, se obtuvo	**Neutral**		231.
280.	Cultivos modificados*	Europa, nueva ley, debate, mejores	Favorable		232.
281.	Alimentos modificados*	Ensombrecida, soufflé, mal	Unfavorable		233.
282.	Productos modificados*	Principio de precaución, tropiezo	Concern (-)		234.
283.	Productos modificados*	Dólares, normas, en juego	Concern		235.
284.	Alimentos modificados*	Apoyar, ridiculizar, Blair, Clinton	Unfavorable		236.
285.	Ingredientes modificados*	Porquería mundial, alimentos, muerde	Unfavorable		237.
286.	Alimentos modificados*	Ninguna, amenaza, jubilada	Concern		238.
287.	Cultivos modificados*	Fuera, duda, su elección, granja/ Seifert	Favorable		239.
288.	Cultivos modificados*	Campesinos, no ido hablar /Shiva	**Neutral**		240.
289.	Ingredientes modificados*	Darina Allen, no empleen, nunca	Unfavorable		241.
290.	Microbio modificado*	Inquietaba, Monsanto, experimentar	Unfavorable		242.
291.	Organismo modificado*	OMG, significa, fronteras, propiedades	**Neutral**		243.
292.	Grano modificado*	Cargamento, E. Unidos, protocolo	Regulation		244.
293.	-				
294.	Cultivo modificado*	Resistente, enfermedad, gobierno keniata	Favorable		245.
295.	Herbicida, modificado*,	Resistente, herbicida, especialidad/ menú modificado	Favorable		246.
296.	Cultivo tolerante al herbicida, modificado*	Revolucionario, aprobaciones, Monsanto	Favorable		247.
297.	Plantas de soja modificadas*	Brazos en jarras, esposa, primera vez, Sandra	Concern (-)		248.
298.	Plantas modificadas*	Carece, evaluación, protocolos	Concern (-)		249.
299.	Semillas modificadas*	Predice, efectos perniciosos	Unfavorable		250.

300.	-				
301.	Semillas modificadas*	Comercialmente, soja alterada	Favorable		251.
302.	Plantas modificadas*	Reducirían, químicas, promesa	Favorable		252.
303.	Semillas modificadas*	Manipular, herbicidas	Unfavorable		253.
304.	Patatas modificadas*	Modificación genética, riesgos, error, genes insertados, Royal Society	Favorable		254.
305.	Semillas modificadas*	Crítica creciente, campaña, revista	Unfavorable		255.
306.	Patatas modificadas*	Resistentes, plagas, perjudicaban	Unfavorable		256.
307.	Semillas modificadas*	Seguridad, emplear, Pinstrup-Andersen	Favorable		257.
308.	Variedades modificadas*	Terremoto, industria, bonificación	Unfavorable		258.
309.	Semillas modificadas*	Convertido, malos, en buenos/ Seifert	Favorable		259.
310.	Variedades modificadas*	Emplear, producción, cerveza, cebada	**Neutral**		260.
311.	Semillas de soja modificadas*	Protein technologies, invierte, vender, países, tiene mercado	**Neutral**		261.
312.	Semillas modificadas*	Tim, innovador tecnológico	Favorable		262.
313.	Plantas modificadas*	Indulgencia, regular, EPA	Favorable		263.
314.	Plantas modificadas*	Dejé caer, vecinos / Reacción	Concern		264.
315.	Semillas modificadas*	Fibra sensible, realmente	Unfavorable		265.
316.	Patatas modificadas*	Monsanto, se retiraba del negocio / Alteración genética	Unfavorable		266.
317.	Plantas modificadas*	Esperanzas, tampoco, alivien, problemas	Unfavorable		267.
318.	Variedades modificadas*	Presionen, diez años, a menos que	Concern (-)		268.
319.	Plantas modificadas*	Amenazas ambientales, desconocidas	Unfavorable		269.
320.	Hormona modificada*	Granjeros, emplean, induce, dar, más	**Neutral**		270.
321.	Hormona modificada*	Inquietos, obtención, induciría, dar, más	Concern (-)		271.
322.	-				
323.	Hormona del crecimiento modificada*	Contiene, incorpora / derivarse, modificación genética	**Neutral**		272.
324.	Agricultura modificada*	Medra, democracia, mala salud	Unfavorable		273.
325.	-				
326.	Soja modificada*	Rehusaba, permitir, plantación, Brasil	Unfavorable		274.
327.	Vacuna modificada*	Libró, misma suerte, piara	Favorable		275.
328.	Soja modificada*	Aficionado, contemplar, cómo, crece	Favorable		276.
329.	Agricultura modificada*	Frenando, expansión, separación, cara	Unfavorable		277.
330.	Alimentos mejorados*	Batería inminente, revolucionarán	Favorable		278.
331.	Cultivos manipulados*	Legalizado, ventas, maravilla, reducido	Unfavorable		279.
332.	Producto manipulado*	Primer, infiltró, supermercados	Unfavorable		280.
333.	Maíz *modificado	Estudia, peligros, cultivar, insecticidas	Unfavorable		281.
334.	Maíz *alterado	Aprobaba, gubernativo, Monsanto	Favorable		282.
335.	Hormona *alterada	*Times of London*, Frankenstein, historia	Unfavorable		283.
336.	Patata hervida, *manipulada,	Qué gusto tendría, almacenado, alcanfor	Unfavorable		284.
337.	Muchas de ellas [plantas] *modificadas	Brotar, verdean, acaban de	Favorable		285.
338.	Cultivos *modificados	Monsanto, Europa, pulverizar, planes	Unfavorable		286.
339.	Cultivos *modificados	Invertido, dólares, investigación	Favorable		287.
340.	Cultivos *modificados	Roundup, medren o no	Concern		288.
341.	Cultivos *modificados	Tim Seifert, primeros conversos	Favorable		289.
342.	Cultivos *modificados	Problemas, creemos, asociados	Unfavorable		290.
343.	Cultivo *modificados	Reunido, gente, amenazar	Unfavorable		291.
344.	Comida *modificada	Promovía, gobierno, Glickman	Favorable		292.

345.	Bacteria *modificada	Liberación aprobada, Monsanto	Favorable		293.
346.	Animales *alterados	Supervisar, encargado, Dept. Agricultura	**Neutral**		294.
347.	-				
348.	-				
349.	Alimentos alterados*	Diseñar, Monsanto, convencer, gobierno	Favorable		295.
350.	Alimentos alterados*	FDA, no le apetece, regular	Unfavorable		296.
351.	Ingredientes alterados*	Consumidor, defensa, se descubrió	Unfavorable		297.
352.	Cultivos alterados*	Escaso riesgo, «genes marcadores»	Concern (-)		298.
353.	Cultivos alterados*	Shiva, peligrosos, campesinos	Unfavorable		299.
354.	Alimentos alterados*	Shapiro, se negaba, reunirse, Mosanto	Favorable		300.
355.	Alimentos alterados*	Investigación, producir, más nutritivos	Favorable		301.
356.	Productos alterados*	Aprobación, acelerar, moratoria	Concern (-)		302.
357.	Cultivos alterados*	Aprobasen, habían plantado, 32, acres	Favorable		303.
358.	Cultivos alterados*	Tendrían, inquietarse, algo nuevo	Concern (-)		304.
359.	Ingredientes alterados*	Hoy día, alimentos elaborados	**Neutral**		305.
360.	Ingredientes alterados*	Más negativo, peor, sentimiento	Unfavorable		306.
361.	Ingredientes alterados*	Médicos británicos, etiquetaran	Concern		307.
362.	Alimentos alterados*	Mano izquierda, abandonado/ Malos ojos, Tony Blair	Unfavorable		308.
363.	Alimentos alterados*	Activistas ecologistas, consumidores	Unfavorable		309.
364.	Ingredientes alterados*	Sainsnury, eliminar, etiqueta	Unfavorable		310.
365.	Tomates alterados*	Experimentos, aire libre, telefoneé, empresa	Favorable		311.
366.	Cultivos alterados*	Rifkin, influyó, gobierno grnacés, moratoria	Concern (-)		312.
367.	Cultivos alterados*	Indeseables consecuencias	Unfavorable		313.
368.	-				
369.	Maíz alterado*	Época tubulenta, Tim Seifert	Concern (-)		314.
370.	Microorganismo alterado*	Empresa, primera liberación aprobada	Favorable		315.
371.	-				
372.	-				
373.	Cosechas enteras alteradas*	«los experimentos de liberación», transplantaron, campos	Concern (-)		316.
374.	Semillas alteradas*	Jodidas, Riesel	Unfavorable		317.
375.	Semillas alteradas*	Insecticida, lanzar, dados, Randy Talley	Unfavorable		318.
376.	Plantas de colza alteradas*	Activistas, sobrevivir, herbicida Liberty	Concern (-)		319.
377.	Variedades de cultivos alteradas*	Compañías, insistir, no se distinguían, convencionales	Favorable		320.
378.	Semillas de colza Roundup Ready, alteradas*	Botella, no me dice, Roundup Ready	Concern (-)		321.
379.	Plantas de algodón alteradas*	Llamaradas, pira, granjeros, mechero	Unfavorable		322.
380.	Semillas alteradas*	Pocos datos, aumento, beneficios	Unfavorable		323.
381.	Bacteria, alterada*	Fumigar, Pseudomonas, «Frostbusters»	Favorable		324.
382.	Comida alterada*	Nueva, aún no, comercialización	**Neutral**		325.
383.	Planta alterada*	Primera prueba, al aire libre / hito	Favorable		326.
384.	Alimentos *modificados	Inocuidad, mensajes positivos	Favorable		327.
385.	Alimentos *modificados	Avance, detenido, Europa	Unfavorable		328.
386.	Alimentos *modificados	Adversarios, armas, atacado	Unfavorable		329.
387.	Alimentos *modificados	Cry9C, consumidor, descubrimiento	Unfavorable		330.
388.	Alimentos *modificados	Molestos, gobierno, endurecer, retirada	Unfavorable		331.

389.	Alimentos *modificados	Proteína, reexaminara, reglamentos	Concern (-)		332.
390.	Alimentos *modificados	Modificar, clasificarse, orgánicos	Favorable		333.
391.	Algodón *modificado	Supermercados, identificasen, grupos	Concern (-)		334.
392.	Agricultura *modificada	Críticas más eruditas, Margaret Mellon	Unfavorable		335.
393.	Variedad *modificada	Variedades isogénicas, genes Roundup	**Neutral**	10JS	336.
394.	-				
395.	Tomates *modificados	División, marcador genético, kanamycin	Concern (-)		337.
396.	Tomate *modificado	Apartaban, hocico, Flavr Savr	Unfavorable		338.
397.	-				
398.	Soja *modificados	Riesgos, detectar, investigación, por alto	Unfavorable		339.
399.	Soja *modificados	Se retirasen, empresa	Unfavorable		340.
400.	Soja *modificada	Riesgos potenciales, redujo, leche	Unfavorable		341.
401.	Soja, *manipulada	Probado, granjero, razón / boicoteado	Concern (-)		342.
402.	-				
403.	-				
404.	-				
405.	-				
406.	-				
407.	Hormona recombinante (* modificada)	Incrementa, producción lacteal, rbGH	Favorable		343.
408.	Variedad Roundup Ready, *modificada	Incluía, notable porcentaje, científicos	Unfavorable		344.
409.	Productos *modificados	Acepten, financiación, informe, paliar	Unfavorable		345.
410.	Productos *modificados	Seguridad, introducidos, sistema	**Neutral**		346.
411.	Productos *modificados	Peor caso de contaminación	Unfavorable		347.
412.	Productos *modificados	Innecesario, someterse, pruebas / preocupaciones	Concern		348.
413.	Productos *modificados	Gobierno, no, exigir, etiquetas	Favorable		349.
414.	-				
415.	Plantas *modificadas	Improvista, toxinas, Toxicology Group	Unfavorable		350.
416.	Plantas *modificadas	Evalúen, eludan, criadores	Concern (-)		351.
417.	Plantas *modificadas	Riesgos, CVM, piensos, afirmó	Unfavorable		352.
418.	Patatas [*modificados]	Pueden, provocar, efectos perjudiciales, indicios, cada vez, más claros	Unfavorable		353.
419.	Patatas *modificadas	Respondieran, menos, efectos inmunológicos / Pusztai	Unfavorable		354.
420.	Patatas *modificadas	Vendiendo, consumiendo, E. Unidos, ya	**Neutral**		355.
421.	Patatas *modificadas	Pruebas, no lo haría, sometemos	Unfavorable		356.
422.	Organismos *modificados (OGMs)	Prohíben, baremos	Unfavorable		357.
423.	Organismos *modificados	Enzimas, proyecto educación	**Neutral**		358.
424.	Organismos *modificados (OGMs)	Evitaron, debate, controversia	Unfavorable		359.
425.	Organismos *modificados	Producción imprevista, problema	Unfavorable		360.
426.	Organismo *modificado	Introducido, medio, no, ser eliminado / Más peligro, impacto	Unfavorable		361.
427.	-				
428.	-				
429.	Alimentos modificados*	Seguridad, Pusztai, periodistas / daños	Unfavorable		362.
430.	Soja y maíz modificados*	Tampoco, ya, comiendo, Pusztai	Concern (-)		363.
431.	Productos modificados*	Hectáreas, sin, evaluación, E.Unidos	Concern (-)		364.

432.	Cultivos Bt modificados*	Immunes, mezcladores del código	**Neutral**		365.
433.	Soja y maíz modificados*	Exportaciones, se ha venido abajo, africanas, no, aceptar, ayuda	Unfavorable		366.
434.	-				
435.	-				
436.	Cultivos modificados*	Riesgo alguno, FDA, asumían, similares valores nutricionales	Favorable		367.
437.	Alimentos modificados*	Suspension cautelar, venta	Concern (-)		368.
438.	Productos modificados*	No se etiqueten, sojas mutantes, quién	Unfavorable		369.
439.	-				
440.	Alimentos modificados*	No, probar, entrañaban riesgo	Concern (-)		370.
441.	Alimentos modificados*	Entrañaba, riesgos, o no, Pusztai	Concern		371.
442.	Alimentos modificados*	Atentan, fe, evitarlos, imposibilidad	Unfavorable		372.
443.	ADN modificado*	Sobrevivía, viaje, proporción, estudio	**Neutral**		373.
444.	-				
445.	-				
446.	-				
447.	Patatas modificadas*	Ministro escocés, comercializar	Favorable		374.
448.	Patatas modificadas*	Imprevistos, estudio toxicológico	Concern (-)		375.
449.	-				
450.	-				
451.	Cepa modificada*	Showa Denko, utilizar, cepa/responsable	Concern		376.
452.	Versión modificada*	rBGH, abra camino, leche, natural	Concern		377.
453.	-				
454.	Variedad modificada*	FDA, asegura, no, riesgos	Favorable		378.
455.	Variedad Bt modificada*	Granja, Iowa, natural, Vlieger, 1998	**Neutral**		379.
456.	Cepa modificada*	L-triptófano, Showa Denko, síndrome	Concern		380.
457.	-				
458.	-				
459.	Maíz mejorado*	Perjuicio insignificante, BIO, comisión	Concern		381.
460.	Medicamentos *modificados	No ha tratado, terapia génica	**Neutral**		382.
461.	Maravillas *modificadas	Insectos, poca fortuna, ingerir, Bt, mata	Concern (-)		383.
462.	Maíz y soja manipulados*	Seriamente preocupado, sin evaluarse	Concern (-)		384.
463.	Cultivos manipulados*	No se comprende, documentar, equipo	Favorable		385.
464.	-				
465.	Plantas manipuladas*	FDA, no, necesario, evaluaciones	Favorable		386.
466.	Maíz y soja *modificados	Retirar, preocupaciones, clients	Unfavorable		387.
467.	Maíz *modificado	Pruebas, seguridad, erróneas	Unfavorable		388.
468.	Maíz *modificado	No, capaces, magnitud, riesgo, Monarca	Unfavorable		389.
469.	Maíz *modificado	Montón, natural/Roedores	**Neutral**		390.
470.	Maíz *modificado	Más seguro, pronto, conclusion	Concern		391.
471.	Maíz *modificado	Alérgeno potencial, no, aprobado, tacos	Unfavorable		392.
472.	L-triptófano *modificado	Partidistas, FDA, delicado tema	Concern (-)		393.
473.	Los *modificados	Intactos, natural, a un lado, línea	Concern		394.
474.	-				
475.	Las *modificadas	Monsanto, cien por cien, patentadas	Favorable		395.
476.	Ingredientes *modificados	Población, E. Unidos, despreocupada			
477.	Bacterias y hongos *modificados	Utilizando, década 1980	**Neutral**		396.
478.	Bacterias y hongos	Enzimas, fabricación, procesados	**Neutral**		397.

	*modificados				
479.	Cultivos GM (*modificados)	Crítica devastadora, consecuencias	Unfavorable		398.
480.	-				
481.	Estructuras *modificadas	Potencial alergénico, charla amistosa	Concern (-)		399.
482.	-				
483.	-				
484.	-				
485.	-				
486.	Enzimas *modificadas	Apéndice B, lista, utilizadas	**Neutral**		400.
487.	Edulcorante *modificado	Aspartamo, Searle, Donald Rumsfeld	**Neutral**		401.
488.	Edulcorante *modificado	Suprimieron, tumores, aspartamo	Unfavorable		402.
489.	-				
490.	Cultivos *modificados	Silenciado, críticas, periódicos	Unfavorable		403.
491.	Cultivos *modificados	Riesgo, la mayor amenaza, Cummins	Unfavorable		404.
492.	Cultivos *modificados	Mayoría cultivos, son, colza, maíz, soja	**Neutral**		405.
493.	Cultivos *manipulados	Descontrolado, impredecible	Unfavorable		406.
494.	Hormona bovina del crecimiento *modificado	Cuestionaba, estudios, Kronfeld	Concern (-)		407.
495.	Comida *modificada	Trabajaba, para Monsanto, biólogo	Favorable		408.
496.	Cepas *modificadas	Determinante, mialgia / ocultaron	Concern (-)		409.
497.	Cepa *modificada	Showa Denko, más contaminantes, introdujo, redujo, filtración	Unfavorable		410.
498.	Cultivos Bt *modificados	Alergias, otras, revelan, mercado	Unfavorable		411.
499.	Hormona de crecimiento bovino *modificada	Daniels, vicepresidente, Eli Lilly, Monsanto, producción	**Neutral**		412.
500.	Hormona de crecimiento bovino *modificada	FDA, Monsanto, Michael Taylor, aprobaron, ningún, país, segura	Concern (-)		413.
501.	Bacterias *modificadas	Síndrome, L-triptófano, parece ser	Concern (-)		414.
502.	Bacterias *modificadas	Archer, al corriente	Concern		415.
503.	Bacteria *modificada	Utilizado, agencia, epidemia, no, pública	Unfavorable		416.
504.	Edulcorante artificial *modificado	Aspartamo, revisiones colegiadas	**Neutral**		417.
505.	Lino y arroz *modificados	Jamás, comercializarse, aprobados	Concern (-)		418.
506.	Arroz *modificado	Buen reclamo, betacaroteno, precursor	Favorable		419.
507.	Alimentos *modificados	Expansión, Shapiro, desbarató, descafeinada, evaluaciones, fulgurante	Favorable		420.
508.	Alimentos *modificados	Aversión, superamos, comer, ciegos	Favorable		421.
509.	Alimentos *modificados	Retirada prenventiva, riesgo,	Concern (-)		422.
510.	Alimentos *modificados	Regulación, pocas veces, corregir	Regulation		423.
511.	Alimentos *modificados	FDA, aprobados, no, igual, sanos	Favorable		424.
512.	Alimentos *modificados	Erradicación, hambre, África, Bush	Favorable		425.
513.	Alimentos *modificados	Sumisión, industria biotecnológicas	Favorable		426.
514.	Alimentos *modificados	FDA, supuesto, estables	Favorable		427.
515.	Alimentos *modificados	Eliminar, cambió de alimentos	Concern		428.
516.	Alimentos *modificados	Sospechas, seguridad, consumidores	Concern (-)		429.
517.	Alimentos *modificados	Pribyl, FDA, política, científicos, seguir	**Neutral**		430.
518.	Alimentos *modificados	Convencionales, no se diferencian	Favorable		431.
519.	Alimentos *modificados	Política, Bush, mejores, desarrollados	Favorable		432.
520.	Alimentos *modificados	Sorprendente, no, cambiado, actitud	Favorable		433.
521.	Alimentos *modificados	Puede, utilidad, seguros, ciudadanos	Favorable		434.
522.	Alimentos *modificados	Vanguardia, cambios, cultura	Favorable		435.

523.	Alimentos *modificados	Fracaso, lanzamiento	Unfavorable		436.
524.	Alimentos *modificados	Glickman, etiquetar, prevenir, temores	Concern (-)		437.
525.	Alimentos *modificados	Peligros, concimientos/Pusztai	Concern (-)		438.
526.	Alimentos *modificados	Identificación, actualizada, fundé	**Neutral**		439.
527.	Alimentos *modificados	Craig Winters, miedo, distorsión	Unfavorable		440.
528.	Alimentos *modificados (GM)	Serios riesgos, Pusztai, periódicos	Unfavorable		441.
529.	Alimentos *modificados	Libro, centrado	**Neutral**		442.
530.	Alimentos *modificados	Peligrosos, silenciar, pruebas, en, contra	Unfavorable		443.
531.	Alimentos *modificados	Pusztai, regular, ministros, Europa	Regulation		444.
532.	Alimentos *modificados	Seguros, tú decides, firmas	Concern (-)		445.
533.	Alimentos *modificados	Linda Kahl, FDA, diferencias, forzar	Concern		446.
534.	Alimentos *modificados	No cumplía, etiquetado, infringía, ley	Unfavorable		447.
535.	Agentes alimentarios *modificados	Producidos, enzimas, transgénicas	**Neutral**		448.
536.	Cultivo alimentario *modificado	Introducir, primer, Flavr Savr	**Neutral**		449.
537.	ADN *modificado	Riesgos, respirar	Unfavorable		450.

Table 8.31: *Semantic sets of 'Noun + adjective + genéticamente' and 'Noun + genéticamente + adjective' in the English soc corpus.*

8.9. Appendix 9: Peninsular Spanish monolingual corpus of popular science books

No.	Author(s)	Publ. yr.	Title	Publ. place	Publisher
1	Ramón Vidal, Daniel	1996	*Los genes que comemos: La manipulación genética de los alimentos.*	Valencia	Algar
2	Riechmann, Jorge.	2000	*Cultivos y alimentos transgénicos*	Madrid	Catarata
3	Ferro Rodríguez, Antonio, Pedauye Ruiz, Julio & Pedauye Ruiz, Virginia	2000	*Alimentos transgénicos: La nueva revolución verde.*	Aravaca	Mc Graw-Hill/Interamericana de España
4	López Guerrero, José Antonio	2001	*¿Qué es un transgénico? (y las madres que lo parieron)*	Madrid	Sirius
5	Tamames, Ramón	2003	*Los transgénicos: Los pros y los contras de una tecnología agraria*	Barcelona	Ariel
6	Riechmann, Jorge.	2004	*Transgénicos: El haz y el envés. Una perspectiva crítica.*	Madrid	Catarata
7	Novas, Antón.	2005	*El hambre en el mundo y los alimentos transgénicos.*	Madrid	Catarata
8	Mendiola, Ignacio	2006	*El jardín biotecnológico: Tecnociencia, transgénicos y biopolítica.*	Madrid	Catarata
9	González Caballero, Marta	2008	*Alimentos transgénicos. Organismos modificados genéticamente.*	Jaén	Formación Alcalá

Table 8.32: *Selected books out of a larger list of 40 Spanish books.*

Exc.	Author(s)	Publ. yr.	Title	Publ. place	Publisher
1	Borja, José Miguel.	2004	*Transgénicos*	Valencia	Nadir Libros

Table 8.33: *Excluded book for being considered within GL.*

Exc.	Author(s)	Publ. yr.	Title	Publ. place	Publisher
2	Pengue, Walter.	2001	*Cultivos transgénicos: ¿Hacia dónde vamos?*	Buenos Aires.	Lugar
3	VVAA (several authors)	2003	*Transgénicos: Organismos genéticamente modificados ¿progreso o peligro?*	Santiago de Chile	Aún creemos en los sueños

Table 8.34: *Excluded book for being the Latin-American Spanish variant.*

8.10. Appendix 10: Authors' background of Spanish monolingual corpus

Authors	Names	Education & Profession
1.	López Guerrero, José Antonio	PhD in Biology in 1989 from the University of Madrid (UAM). Director of Scientific Culture in the Molecular Biology Centre (CBM in the UAM, Madrid)
2.	Riechmann, Jorge.	University teacher of moral philosophy from the University of Barcelona. He is a Greenpeace member. He currently works at ISTAS (Union Institute of Work, Environment and Health), which is a self-managed trade union's technical foundation supported by the Spanish Trade Union Confederation CCOO to promote the improvement of working conditions, occupational health and safety and environmental protection in Spain. http://www.istas.ccoo.es/
3.	Novas, Antón.	PhD in Economics from University of Santiago de Compostela, Spain. He was the local director of the Minister of Agriculture.
4.	Mendiola, Ignacio	PhD in Sociology from the University of the Basque Country, Spain.

Table 8.35. *Authors' background (Peninsular Spanish Publishing Houses).*