Interpreting and Translation for Agri-food Professionals in the Global Marketplace

Interpreting and Translation for Agri-food Professionals in the Global Marketplace

Edited by
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DE GRUYTER

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Contents

Part III: **Translation and interpreting technology**

Part IV: **Terminology**

Prologue

Purificación Fernández Nistal
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In the last decade we have witnessed a rise of concerns about agri-food within Translation Studies, such as the *Second International Conference on Food and Culture in Translation* (FaCT, 19–21 May 2016) organized at the University of Catania (Italy), whose results were published in a special issue of the *Terminology* journal (Temmerman and Dubois, 2017). In the same year, the T*erminàlia j*ournal also launched a special issue entitled "Gastronomy and Terminology". In 2018, Rivas Carmona and Veroz González published a volume about LSP and translation oriented to the agri-food sector and in 2023 the *Perspectives* translation journal is devoting a special issue to translation and food.

The internationalization of the agri-food sector has led to an exponential increase in the use of writing, interpreting, and translation services. The demands of the market require researchers to develop new tools or adapt the existing ones to help professionals during interlingual transfer. Aware of the evolution of this field within Translation Studies and concerned about the importance of agri-food translation and interpreting for the development of industries of the surrounding area, ten years ago Ortego Antón focused on the research about translation and contrastive studies (English-Spanish) within dried meats (Ortego Antón, 2019–2021) moving later on to the development of semiautomatic Spanish – English translation and writing aid tools based on NLP.

This volume is one of the results of the research carried out by researchers within CITTAC-UVa, ACTRES-ULE, LEXYTRAD-UMA, GIR Lenguajes de Especialidad de la Lengua Inglesa (UVa) and TorreznoTRAD project (PROYEMER 2021-028, UVa), which Peñuelas Gil and Ortego Antón have carefully selected and compiled. Hence, this volume includes a series of contributions that explore some of the ways in which language professionals have done their bit to achieve this goal of expanding the national agri-food sector beyond Spanish borders. These contributions take many different forms and will help professionals in the agri-food industry at different stages of the process. Among others, this volume will touch upon the importance of understanding the cultural context of the target markets, the use of corpora to create tools that facilitate communication, the possibilities offered by automatic translation, and they eventually reach to the basis that knowledge is built on terminology.

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The typologies and characteristics of the chapters allow to group them in four clearly defined sections. The first one focuses on the close relationship between the agri-food sector, culture, languages, and translation. In the second section, the focus shifts towards the use of corpora to carry out in-depth analysis that showcase the differences and similarities between languages so that they can later on be applied in the creation of support apps and resources. The third of the sections explores the possibilities that machine translation systems offer to businesses in the sector. Lastly, the fourth one addresses the importance of terminological appropriateness, as well as its standardization, to create resources that can assist those working in the agri-food sector.

It is also interesting to point out that the 14 chapters that this volume is composed of explore the interrelation of translation, interpreting and the agri-food sector. The contributions here presented delve into the topic from very different perspectives that range from terminology to culture using a variety of methodologies which include corpora, machine translation, interpreting gamification, the development of writing aids and more.

1. Pictograms are considered a form of intersemiotic translation and their usefulness has been widely demonstrated in public spaces. They are being used more and more in sectors such as the pharmaceutical one, but their usefulness in the agri-food industry has hardly been investigated. Prieto-Velasco explores the possibilities that pictograms offer when it comes to understanding specific concepts in this field from the perspective of cognitive accessibility, as well as the viability of using existing pictograms to create more inclusive food labels and restaurant menus.

2. Zhang and Torres-Hostench delve into the abundance of Chinese gastronomy studying the nomenclature of some of the most popular dishes from all over the country. The names given to these dishes are deeply rooted in the regional cultures and include references to them in the form of colors, flavors, and culinary techniques, but also anthroponyms, toponyms, metaphors, and ancient legends, reason why many consider them a form of linguistic art, which can pose a difficulty for the translator. The authors propose some guidelines to help translators convey not only the meaning, but the culture behind them.

3. When talking about wine, the use of metaphors is widely spread, however it is scarcely addressed from a translation point of view. Through the use of a bilingual (ES-EN) corpus made of texts from multiple wine-related sectors, Ramírez-Almansa investigates the numerous metaphors used in Spanish vitiviniculture and their equivalents in the Anglosphere, which allows the author to identify the

different translation techniques employed when dealing with this figure of speech in the English language.

4. The methodology used to develop a corpus-based tool that assists in the writing and translation from Spanish into English of *torrezno* product cards is carefully explained by Ortego Antón, who has led the TorreznoTRAD project, which includes the Spanish-English comparable corpus (C-MARMEAT) compilation, its rhetorical annotation, the establishment of model lines and the analysis of terminology and phraseology in the field. The tool will guide Spanish speakers through the writing process to draft specialized texts about *torrezno* in English to satisfy the needs of the target language and culture.

5. Pizarro-Sánchez and Pérez-Ruiz explore the relation between persuasion and adjectives in baked goods product descriptions found online, since they are one of the most prevalent elements in persuasive texts. This chapter analyzes the rhetorical structure of the biscuit descriptions, the adjective distribution in the texts based on the genre and section of the text it occurs in, and the relationship between the rhetorical communicative purposes and the adjective frequencies. The study was carried out using a virtual comparable corpus (EN-ES) that allowed the authors to discern the differences between English and Spanish conventions, like a more origin-focused point of view in the English texts versus the more health-focused descriptions in Spanish, which makes possible to create more accurate texts that will encourage the internationalization of the products and their sales.

6. Within the framework of the TorreznoTRAD project, Peñuelas Gil shows the importance of carrying out an in-depth analysis of linguistic structures for the creation of a semi-automatic writing tool based on corpora. This analysis leads to the identification of language patterns commonly found in a given textual genre, which makes possible to categorize, compare, unify and convert them, thanks to the creation of model lines, into a blank template to write specialized texts that maintain the structure and the acceptability, but without the ties the original texts once had imposed.

7. Aware that labelling is an important step in the marketing of a product and that the translator's contribution to this process is of extreme value, Álvarez Jurado and Policastro Ponce identify the difficulties involved in translating the product's name on food labels using a corpus with real examples in French and Spanish. Results show the most common translation techniques applied and the main problems when transferring texts belonging to this genre.

8. A genuine and innovative study is presented by Alcaide-Martínez and Corpas Pastor, in fact, up to date, this is one of the first studies on the use of gamification

to arrange an interpretation (real or simulated). A protocolized gamified methodology is presented, which is really useful to prepare for an interpretation on the field of agri-food. It is based on a three-step corpus-based protocol for the creation of terminology-orientated game-based activities. This new approach for interpreting setting will help interpreters to train for a specialized assignment and will be effective for interpreting trainers to get their students to work on domain-specific terminology through playful activities.

9. The agri-food industry is one that constantly requires translation and interpreting services, however, at present, not many Spanish universities offer this area of specialization in their curricula. In this chapter, Toledo-Báez designs a virtual course aimed at graduate students. The course, divided in four units, deals with the most common text typologies of the sector, and proceeds to focus in three of the most important areas within it — advertising, gastronomy, and science — making use of translation technologies such as virtual corpora and the Menutech tool.

10. Pena Díaz analyses a corpus of restaurants reviews automatically translated by Google. Among the results, she points out that 38.8% of the most frequent error was overly literal translations and the most second frequently encounter error was false friends (32.8%) and the third most common error was content that should not have been translated (10%). Although MT is a very useful tool for professional translators, raw unedited translations are not accurate or reliable, so human post-editing would be necessary, and users of translated Google reviews should be aware of it.

11. Pérez Ruiz and Pizarro Sánchez explore the terminology related to texture in English and in Spanish following a corpus-based methodology of apple and pear descriptions. Results could be of great value for online marketing of fresh fruit, provided that a wide variety and density of terminology is used quite straightforwardly to describe texture and mouthfeel sensations with great precision.

12. Arce Romeral describes how to exploit virtual corpora for contrastive terminological analysis focusing on terms related to *torrezno* and their equivalents into English. A virtual parallel corpus (P-MARMEAT) is compiled and aligned, terms and their equivalents are extracted and contrasted in a virtual comparable corpus (C-MARMEAT). Results show that translations equivalents do not correspond with the terms used by English native speakers, as previously pointed out Ortego Antón and Fernández Nistal (2020).

13. Within the framework of the TorreznoTRAD project, Sánchez Carnicer studies the phraseology used in the agri-food industry, more specifically the phraseology regarding *torreznos* and *adobados*, two staples of the Castile and Leon gastronomy

in Spain, in both English and in Spanish. The study was carried using a comparable corpus (C-MARMEAT) and a parallel corpus (P-MARMEAT), both bilingual, that allowed the author to identify the differences between translations into English and the text written originally in this language and what is considered to be acceptable in the English-speaking market.

14. Agost and Ramos present the methodology used to develop Porterval (Portal Terminològic Valencià), a terminology portal for Valencian language. The aim of Porterval is to create a terminological database covering terms for this basic sector of the Valencian economy, being agri-food and gastronomy one of the most powerful areas (11% of the specialized fields of Porterval are directly related to both sectors). Hence, from the assignment of lexical units to different interfaces according to their general or specialized use to the selection of some lexical preferences over others depending on criteria such as geosynonymy or formal variants are carefully detailed using examples about the agri-food sector.

All in all, in this volume the reader will find innovative ideas and studies within the agri-food sector that will not only help training future translators and interpreters who specialize in this sector amidst an increasingly internationalized market, but it will also help developing new tools and resources to support these professionals, as well as the companies in the sector themselves.

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Part I: **Food, culture and translation**

Juan Antonio Prieto Velasco

An accessible translation-oriented analysis to assess pictogram comprehensibility in agri-food texts

Abstract: Pictograms can be regarded as an intersemiotic translation from linguistic to pictorial representations of knowledge. They have been widely used for the signage of public spaces as symbols providing public information to indicate the location of a place. They are increasingly used now as visual aids in augmentative and alternative communication (AAC) systems for people with comprehension difficulties, for example people with cognitive disabilities. The use of pictograms is well documented is some domain-specific texts (i.e., pharmacology texts), but little attention has been paid to the comprehensibility of pictograms in the agricultural, gastronomic and food (agri-food) domain. For that reason, the research projects VISUALECT and INCLUMED focus on the role of pictograms in understanding domain-specific concepts from the perspective of cognitive accessibility.

Domain-specific pictograms convey meaning and visually represent specialized concepts, just as terms do linguistically. Thus, they need to be validated to ensure they can be easily understood. This is particularly necessary when translating specialized texts into easy-to-read texts, addressed to people with comprehension difficulties, whose understanding may be hindered, unless pictograms are clear enough and properly validated. It is our assertion that the validation of domain-specific pictograms should be carried out by terminologists (assessing the depictability of specialized concepts), experts (assessing pictogram accuracy) and

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end-users/readers (assessing their representativeness in terms of transparency and translucency), as they are involved in the composition and translation of texts into accessible easy-to-read texts.

Our objective is to observe whether AAC pictograms may be preferable to typical signage-like pictograms in terms of comprehensibility. To this end, we study the transparency and translucency of pictograms depicting concepts relevant to the agri-food domain. By replicating the methodology in Merks et al. (2022), we compare signage pictograms commonly used in agri-food texts to AAC pictograms from the ARASAAC collection, a free pictogram library by the Aragonese Centre of Augmentative and Alternative Communication. Transparency and translucency rates may be a measure to assess the accessibility of agri-food pictograms and to explore the possibility of using AAC pictograms as a way to adapt signage symbols typically depicting domain-specific concepts in agri-food texts, in order to guarantee an inclusive access to specialized knowledge, for example when translating.

Keywords: Pictograms, translucency, transparency, translation-oriented analysis, easy-to-read texts

1 Introduction

Pictograms are used everywhere for communication. “A pictogram is a stylized figurative drawing that is used to convey information of an analogical or figurative nature directly to indicate an object or to express an idea” (Tijus et al. 2007: 18). They can be found in public buildings to give directions and locate different spaces and facilities. They are also increasingly used as part of augmentative and alternative communication (AAC) systems conceived to communicate with people who have not developed an oral language, for example due to cognitive disabilities; low-literacy people or non-native speakers, as in the case of migrants who are not fluent in a foreign language. This kind of pictograms make up a pictorial language itself, as they provide a visual aid for people with comprehension difficulties, particularly for with people with cognitive disabilities, but also for the elderly and migrants who are not proficient in a foreign language. They enhance effective communication by replacing or complementing linguistic descriptions and offering a visual alternative instead. They have a syntax which requires training to effectively encourage understanding and facilitate access to knowledge. Pictograms can be found in labels in everyday products, including clothes, medicines, food packaging or cleaning products and detergents. Label pictograms are often used to communicate risk and provide warnings.

Pictograms are simplified concise pictorial representations of knowledge, which can be used as stand-alone depictions or in combination with verbal information to guarantee full understanding. “Pictorials offer not only cognitive but also affective and behavioural advantages over written text. [. . .] Thus, in general, pictorials may facilitate the cognitive processing of the information” (Geuens et al., 2021). However, compared to other pictorials, such as icons, pictograms tend to be more abstract, attempting to convey messages by analogy or symbolic representation. Pictograms therefore require engagement of a learning function beyond simple recognition to assure comprehension. (Montagne, 2013, p. 610).

From an accessible translation approach and according to the previous definition, people with comprehension difficulties would not be able to follow the instructions or consider the warnings conveyed by such symbolic, abstract pictograms in everyday texts such as labels, since the pictograms they need should be particularly designed to meet their needs and expectations.

In the medical domain, they convey instructions for the correct use and storage of medicines and improve communication between healthcare providers and patients in order to foster patient adherence to medication and avoid dosage errors (Sletvold, Sagmo & Torheim, 2020). In the textile industry, pictograms offer the manufacturer’s suggestions regarding laundry (hand washing, dry cleaning, cool ironing) or garment features (waterproof, cotton wool, eco materials, in the form of care labels or tags (Sanad & Kang, 2018), whereas for chemicals, they tend to provide risk warnings: hazard statements and precautionary advice (flammable, oxidizing, explosive, corrosive) (Boelhouwer et al., 2013).

Nevertheless, pictograms are observed to differ one another in their degree of standardization and conventionalization, which may hinder comprehension and pose a challenge for people with cognitive disabilities. This is where the notion of intersemiosis arises. When it comes to pictogram design, they should be conceived as an intersemiotic word-to-image translation in texts which should be inclusive and ensure comprehension for every kind of recipient. This is especially important in everyday agri-food texts like food labels and restaurant menus, which provide useful information about ingredients, allergens, meal preparation, and nutritional facts. People with cognitive disabilities, as we all do, need this information for their daily routines, so its semiotic encoding, both linguistic and visual, must be meaningful and accessible enough to be understood by everyone, regardless disability.

On the one hand, we hypothesize that the more vivid the referent is evoked, the easier the concept can be accessed and the more translucent the pictogram is; on the other hand, the more semantic relations are explicitly depicted, the more meaningful the pictogram will be. In this regard, to ensure the meaningfulness and comprehensibility of domain-specific pictograms, validation should involve

1) terminologists (assessing the depictability of specialized concepts), 2) experts (assessing pictogram accuracy) and end-users/readers (assessing their representativeness in terms of transparency and translucency) (Prieto-Velasco, 2022).

In this work, we intend to study whether AAC pictograms may be preferable to typical signage pictograms in terms of comprehensibility, by analyzing the transparency and translucency of pictograms depicting concepts relevant to the agricultural, gastronomic and food domain (agri-food), since the translucency of pictograms from the ARASAAC collection (a free pictogram library by the Aragonese Centre of Augmentative and Alternative Communication) has proven high (Roldán Coya & Viera Delgado, 2018). For pictogram analysis, transparency is here understood as the ability of an individual to guess an image's innate significance or meaning without being provided details beyond the pictogram (Merks et al., 2022). Translucency refers to the degree to which, in the interviewed person's opinion, the pictogram corresponds to its intended meaning or verbal label (Merks et al., 2018).

2 Depiction of domain-specific concepts

Translators deal with specialized texts from a variety of domains. They sometimes translate for expert recipients and, more often than not, they translate for non-experts from an intergeneric perspective, as the source text belongs to a specialized domain-specific text genre, whereas the target text gathers the textual conventions typical to a non-specialized genre. In this respect, intergeneric translation implies using techniques of science popularization and determinologization is seen as mandatory to make the text accessible to the target audience.

Both specialized and non-specialized texts tend to be more and more multimodal. They combine linguistic information and visual information for the sake of clarity, but the depiction of domain-specific concept remains an underexplored issue in specialized communication.

Frame-based terminology (FBT) (Faber, 2022), however, has shed some light by providing both a theoretical and methodological approach to the representation of specialized concepts in terminological databases and domain-specific texts, namely environmental and medical texts. In general, the visualization of specialized knowledge argues that the depiction of concepts should be based on the graphic representation of their semantic relations and definitional features. Images enable the resemiotization of meaning in a concise but effective way to boost comprehension. It also defends that a systematic resemiotization can be reached provided extratextual (Prieto-Velasco & Montalt-Resurrecció, 2018) and intersemiotic coherence (Prieto-Velasco, 2013) are guaranteed. Consequently, we believe images are repre-

sentative of the concept depicted insofar as 1) they are understandable by recipients in each communicative situation, meeting their needs and expectations, and 2) they depict the most salient semantic relations which define the concept and link it to other domain-specific concepts, thus enabling integration into the mental lexicon. In this study, we address the first assumption.

Other aspects dealt with in previous research are the patient-friendliness of images (Prieto-Velasco & Montalt-Resurrecció, 2018) by exploring the reception and perception of disgust-evoking depictions of medical concepts (Prieto-Velasco, 2017), or the use of images either as visual representations of concepts or knowledge-rich visual contexts, which contribute to a more thorough depiction of concepts in terminological databases (Prieto-Velasco, 2013).

Unfortunately, the lack of systematicity and conventionalization in pictogram use and design continues to be a problem, although the classification of pictograms and the creation of taxonomies could contribute to enhance homogenization. "As symbolic languages, pictograms are half-way between being rule-governed systems and being ad hoc solutions to communication and expression problems" (Tijus et al., 2007, p. 26). Hence, a visual grammar describing the morphological, syntactical, semantic and pragmatic features of images would be indispensable:

> Each of these aspects, the participants, processes, circumstances, and attributes, can be conflated into the Visual Message Elements (hereafter VMEs). These elements are visual features which carry semantic properties, and these semantic properties or meanings are potentially real by a variety of visual techniques at the disposal of the visual designers. (Royce, 2006: 70).

With regard to the use of visuals in specialized texts, Frame-based terminology (FBT) advocates the convergence of graphic and linguistic information in knowledge-based terminological databases. According to FBT (León-Araúz & Reimerink, 2016, p. 17), for the graphic representation of specialized knowledge, image analysis should be performed:

> In terms of (1) their adequateness in representing one or more conceptual propositions linked to the concept entry in which there are currently included, (2) the reusability of the image for other concept entries, (3) the semantic relations expressed in the image, (4) the concept types involved, and (5) the morphological features or visual knowledge patterns (VKPs) such as colour coding, referential background, arrows, labels, etc. used to convey the information.

Defining the interaction between concept type, image type, and visual knowledge patterns would probably lead to a more systematic use of images in domain-specific texts, despite their polysemic nature. For the sake of conventionalization, Reimerink & León-Araúz (2018, p. 1055) propose a system to annotate the concepts depicted in a visual repository, as well as "the possible relations between pairs of

the selected concepts", in order to register "the most representative propositions for the image.". They also elaborate some guidelines to use images in Environmental Science:

1. Use photographs for the *type_of*, *made_of*, and *has_location* relations of physical entities shown in their real-world environment.
2. Use drawings with labels and arrows for representing complex meronymic relations (*part_of*, *delimited_by*) or to differentiate between closely related concepts that are otherwise hard to differentiate without making reference to one another. Drawings are mostly fit to represent entities, but combinations of several drawings can be used to describe processes and their phases, especially if no flow chart is available.
3. Use flow charts for complex processes and non-hierarchical relations such as *causes* and *result_of*. The flow chart must show a high level of referential similarity for the background. It must use color-contrast to differentiate between closely related concepts. It must also contain arrows to add dynamism and show the direction of the movement or even add textual explanations.

In the meanwhile, extratextual and intersemiotic coherence seems to provide a solid foundation for a reasoned design and selection of images to improve their representativeness in specialized texts.

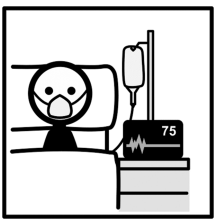
Nevertheless, little attention has been paid to image representativeness and, as a result, to the comprehensibility of visual information in specialized communication addressed to people with poor comprehension due to cognitive disabilities. For a while now, accessible translation has encouraged that people with sensory disabilities can understand texts (mainly audiovisual) through the subtitling for the deaf and hard of hearing and the audiodescription for the visually impaired; but not many textual alternatives have ensured access to knowledge for those with comprehension difficulties until simplified language and easy-to-read became mainstream intralingual translation modalities addressing those recipients.

Visual information in audiovisual texts cannot be changed in any way when subtitling or audiodescribing, making translation a constrained process, but translation into easy-to-read somehow involves a transcreation of the source text into a new accessible text, where pictograms can be chosen or designed to resemiotize meaning. In other words, they should complement, reinforce, and clarify linguistic information to meet the special cognitive needs of readers with disabilities. The problem remains in that the visual aids (pictures, pictograms, illustrations and other graphic elements) used when translating texts into easy-to-read also lack the systematicity and conventionalization desirable for an intersemiotic word-to-image translation.

ARASAAC is a free pictogram library by the Aragonese Centre of Augmentative and Alternative Communication "of more than 11,000 descriptive and schematic symbols translated into more than 23 languages that are used by professionals for different purposes: [. . .] communication boards for people unable to speak; visual schedule to carry out daily routines; visual timetables; visual support for social stories and behavioral strategies, etc.". (https://arasaac.org/). This symbol set was firstly developed to communicate with people without an oral language but was later used for signage and provide public information. From the perspective of cognitive accessibility, this practice seems controversial and there are some voices (for example, Plena Inclusión[1]) claiming this misuse should be avoided, as there is a principled pictogram design method available (ISO, 2014). Signage pictograms would tend to universalization, whereas communication pictograms are rather individual and require training in the communication system they are part of (CERMI, 2019). Despite this, they are actually used for other purposes since their transparency has already been validated (Cabello Luque & Bertola López, 2015). In fact, ARASAAC encourages the use of their pictograms for public information as they result to be more transparent than other symbol sets (Roldán Coya & Viera Delgado, 2018), such as Picture communication symbols (SPC), with pictograms depicting nouns being more transparent than those depicting verbs or adjectives. Moreover, their readiness and their broad scope may have also contributed to their success.

When used as visual aids to specialized text simplification by means of determinologization, pictograms and other graphic resources can be regarded as knowledge-rich visual contexts, as they are able to make explicit domain-specific knowledge which is implicit in the text. In a previous observational study on medical pictograms (Prieto-Velasco, 2022), we observed that signage and AAC pictograms differ either morphologically or conceptually, or both.

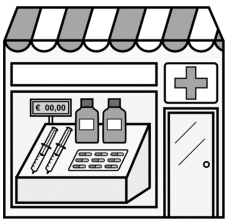
Table 1: Morphological differences between pictograms depicting the concept ICU.

	
A) Schematic signage pictogram	B) Detailed AAC pictogram

1 Plena Inclusión España is a network of non-profit associations which defend the rights of people with cognitive disabilities.

Table 1 shows two different pictograms for a single concept (INTENSIVE CARE UNIT), which is depicted very similarly: a patient in bed, a monitor showing the heart rate and intravenous medication. Differences between pictograms A and B are rather morphological (color, perspective, contrast, etc.) than conceptual, with pictogram B richer in details.

Table 2: Conceptual differences among pictograms depicting the concept PHARMACY.

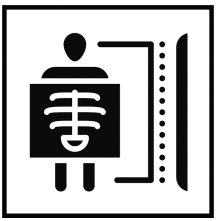
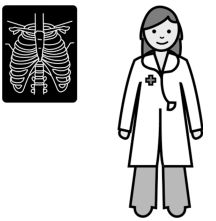
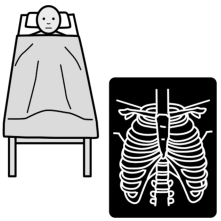
		
A) Signage pictogram focusing on drugs.	B) Signage pictogram focusing on tools.	C) AAC pictogram depicting how a PHARMACY looks like.

In relation to the depiction of PHARMACY, the pictograms in Table 2 are rather different both morphologically and conceptually. The acronym Rx in pictogram A stands for prescription or drug therapy and focuses on what can be bought at the chemists', but is unknown to the general public, and even patients. In pictogram B, the old mortar and pestle used by chemists to prepare master formulas are neither recognizable nowadays. In contrast, pictogram C does resemble a drug store and is much more detailed.

We have observed that AAC pictograms are conceptually richer and more elaborated morphologically, whereas signage pictograms tend to be pretty schematic and conceptually simpler. However, we hypothesize that pictograms should be designed on the basis of an accessible definition in order to serve as meaningful ostensional definitions (ISO, 2022), as in Table 3. In this respect, to select or design a pictogram for the concept RADIOLOGY, attention should be paid to the semantic relations lexical in the definition and the set of related concepts.

RADIOLOGY is the place where doctors (*agent*) use X-rays (*instrument*) to take pictures of the inside of your body (*patient*) and detect a disease (*function*). According to this accessible definition, pictograms B and C appear to be more suitable in terms of meaningfulness (transparency and translucency) than A, because they depict either the agent or the patient, as well as the instrument. Probably, there is no need to represent all relations at once in a single pictogram, but it would be useful to focus on those which highlight certain dimensions (agent, patient, instrument), so that 1) the more vivid the referent is evoked, the easier the concept can be ac-

Table 3: Depiction of semantic relations in pictograms for the concept RADIOLOGY.

		
A) Schematic signage pictogram	B) AAC pictogram focusing on who does the X-ray	C) AAC pictogram focusing on who gets the X-ray

cessed and the more translucent the pictogram is, and 2) the more semantic relations are explicitly depicted, the more meaningful the pictogram will be.

3 Pictograms and visual aids to comprehensibility in agri-food texts

Pictograms have received close attention from a number of disciplines, namely, Psychology, Cognitive Science and Linguistics, due to their advantages for communication as compared to text alone.

> They have the potential to be interpreted more accurately and more quickly than words. Thus, they can serve as "instant reminders" of a hazard or an established message. They improve understanding of warnings for those with visual or literacy difficulties. They can make warnings more noticeable or "attention grabbing", and they can improve their legibility. Pictograms or brief textual information are suitable when users undertake familiar or routine tasks (although this does not apply for novel or highly complex tasks). In addition, pictograms are more easily processed at a distance compared to textual information (Tijus et al., 2007: 18).

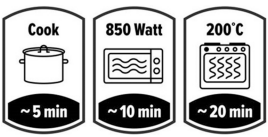
Different criteria have been used to classify images and pictorial resources as visual aids to the comprehension of the concepts lexicalized in texts, but most of them focus either on their morphological features (Lohse et al., 1994; Valverde Berrocoso, 2001; Pinto Molina, 2006; ISO, 2022) or their function (Duchastel & Waller, 1979; Levin, 1981; Levie & Lentz, 1982; Alesandrini, 1984; Park & Hopkins, 1992; Marsh & White, 2003). However, little has been added in recent years to the types of images which serve different rhetorical purposes and social functions, especially in the current rapidly-evolving multimodal scenario. In our view, pictogram

classification is necessary for the sake of design homogeneity and systematicity since they increase the "users" ability to learn them" (Tijus et al., 2007, p. 28).

Besides, for Edworthy & Adams (1996) and Tijus et al. (2007), there seems to be a transparency continuum running from fully transparent figurative pictograms to guessable ideographical abstract pictograms, and opaque arbitrary pictograms.

To our mind, it would be useful to classify agri-food pictograms from a semantic viewpoint, according to the type of information concerned and exclude pictograms appearing on food packaging and labels which do not refer to food, but to the packaging itself, as shown in Table 4.

Table 4: Semantic classification of food pictograms.

Pictograms	Category	Meaning
 Source: iStock[2]	Meal preparation or conservation indications Cooking instructions	Stove, oven, microwave, freezing temperature, cooking times.
 Source: The Training Terminal[3]	Allergens	Peanuts, soya, fish, celery, gluten, crustaceans, shellfish, lupins, nuts, eggs, dairy, mustard, sulphite, sesame.

2 iStock: https://www.istockphoto.com/es/vector/icono-de-vector-de-minutos-de-cocci%C3%B3n-5-10-y-20-minutos-cocinando-en-una-cacerola-gm1135321728-301988225 (8 May 2023).

3 The Training Terminal: https://www.thetrainingterminal.com/your-guide-to-the-common-food-allergens/ (8 May 2023).

Table 4 (continued)

Pictograms	Category	Meaning
 Source: VectorStock[4]	Nutrition facts	Energy, trans fat, potassium, protein, carbohydrates, sugar, dietary fiber, cholesterol.
 Source: Progressive Grocer[5]	Food origin	Fair trade, direct from farmers, bio, eco, organic, sustainable fishing certifications.

4 VectorStock: https://www.vectorstock.com/royalty-free-vector/nutrition-facts-icon-vector-21141740 (8 May 2023).

5 Progressive Grocer: https://progressivegrocer.com/new-areas-food-certification (8 May 2023).

Table 4 (continued)

Pictograms	Category	Meaning
	Food properties	Cardioprotective, light, no added sugar, low sodium, iron rich, vegan, halal, kosher, lactose free, spicy, paleo, keto.

Sources: Deutsche Apotheker Zeitung[6] and Saad and Maaruf (2020)

Most of them provide information about meal preparation or conservation, cooking instructions, food allergens, nutrition facts, food origin and food properties. They are not normally used to communicate danger, prohibition, or obligation. Certain pictogram variants, however, may imply danger (by depicting allergens inside a yellow triangle meaning caution); prohibition (by showing allergens inside a red barred circle), or allowance (kosher or halal pictograms).

In an attempt to improve comprehensibility of existing pictograms, Saad & Maaruf (2020) conducted a study to develop a novel design for pictograms providing front-of-pack nutrition information to help consumers in Malaysia choose healthier prepacked food, as "[Malaysian] consumers have claimed that they have knowledge about nutrition information but with low awareness level to read the nutrition information and difficulties to interpret the nutrition information on the food label". These authors used the conventional meaning of colors in a traffic light (red for an unhealthy dangerous amount of nutrients, orange for a regular amount of nutrients, and green for a low healthy amount of nutrients), an accompanying label specifying the intended meaning (low fat, medium protein, high calorie), along with pretty standardized depictions of nutrients (a spoonful of sugar to mean calories, a double wheat ear to mean carbohydrates or a drop of oil to mean fat,). Were it not for the labels, comprehension might be hindered by ambiguous depictions: a double wheat ear may well stand for gluten instead of carbohydrates. Moreover, different certifica-

6 Deutsche Apotheker Zeitung: https://www.deutsche-apotheker-zeitung.de/daz-az/2016/daz-43-2016/koscher-halal-und-vegan (8 May 2023).

tion agencies (for kosher o halal products, for instance) use different pictograms globally, which adds confusion to already complex scenarios (as shown in Table 5).

Table 5: Variability in pictogram design for KOSHER and HALAL products.[7]

KOSHER	KOF-K Kosher Supervision	Kosher Supervision of America (KSA)	Orthodox Union	Shield Star K
HALAL	Halal Italia	Islamic Food and Nutrition Council of America (IFANCA)	Islamic Society of the Washington Area (ISWA)	National Independent Halaal Trust

The previous examples point to a lack of standardization, which only adds ambiguity to a world particularly difficult to understand for people with cognitive disabilities. In fact, we have documented ambiguous confusing pictograms (see Figure 1): a carton of milk in a barred red circle may either stand for dairy-free, lactose free or an allergen alert (contains dairy/lactose).

Figure 1: Ambiguous pictogram design for DAIRY-FREE.[8]

Such lack of standardization seemingly leads to undesirable rates of arbitrariness and opacity in the design of pictograms, as "there is a need to standardize the principles for creating and designing public information symbols to ensure visual clarity, to maintain consistency and thereby to improve recognition" (ISO 2007, p. V).

7 WebstaurantStore: https://www.webstaurantstore.com/guide/623/types-of-food-certification-labels.html (8 May 2023).

8 Cárnicas Grau website: https://www.carnicasgrau.com/dt_gallery/album_calidad/ (8 May 2023).

For instance, the UK Food Standards Agency website merely states: "where a food product contains any of the 14 allergens, required to be declared by law, as ingredients, these allergens must be listed and emphasized within the ingredients list [. . .]. This enables consumers to understand more about the ingredients in packaged foods and are helpful for people with food allergies and intolerances who need to avoid certain foods[9]." Food agencies do not tell much about pictograms and existing labelling regulations do not offer a standardized set of pictograms for allergens. Much less do they care for an inclusive food labelling and check whether mandatory information in food labels is easy to understand by people with cognitive disabilities or reading comprehension difficulties.

Thus, the assignment of meaning, function and image content to the pictogram should be based on a principled method aimed at avoiding ambiguity and opacity. Even widely accepted, allegedly standardized pictograms might be poorly understood if they have not been properly designed or validated considering the situational context which concretizes their intended meaning.

According to E.I.S. Technosite, García & Palao (2013) the principles guiding the design of pictograms for all are perception and comprehension, which require further validation by end-users in terms of both legibility (visual coherence) and comprehensibility (understandable by everyone regardless their competence and beyond any aesthetic traits). To ensure legibility and comprehensibility are guaranteed the process of designing pictograms needs: 1) searching for referents; 2) documenting existing pictograms belonging to different typologies; 3) defining graphic items to convey the intended meaning; 4) proposing a draft of the pictogram's conceptual design; 5) testing comprehension; 6) testing visual perception, and 7) final graphic design. For Tijus et al. (2007, p. 18)

> (i) there must be appropriate levels of complexity and detail to maximise visibility and comprehension; a good pictogram should contain little detail and should be easily distinguishable; excessive representations of reality should not be used; objects should not be drawn merely with contours; shading and nuances of color should not be used with thin or flat objects; 3D representations should be used for objects with several dimensions; (ii) uniformity: new symbol designs must be consistent with existing pictograms which are well understood; (iii) discriminability: an effective symbol must be easily distinguishable compared with others; (iv) legibility: the size of elements and their separators, the levels of contrast between elements, and also content familiarity facilitate legibility and comprehension; (v) lastly, note that an appropriate level of complexity and detail will depend on how the pictogram is to be used."

9 Legal requirements for food packaging and labelling by the UK Food Standards Agency: https://www.food.gov.uk/business-guidance/packaging-and-labelling (8 May 2023).

For example, in a study about farmers' understanding of the pictograms displayed on pesticide labels, "unclarity of pictograms, inability to understand their meaning, and low literacy or illiteracy were the main causes of poor understanding of pictograms, respectively" (Bagheri, Pirmoazen & Allahyari, 2021, p. 17812). For these authors, "the impact of pictograms on the safe use of pesticides depends on the significance of pictograms for farmers and how farmers interpret their content" (Ibid., 17813).

As a result, pictogram design is often a costly and effortful task. There are, nonetheless, plenty of ready-to-use resources in free online repositories (Shutterstock[10], Dreamstime[11], Vectorstock[12]) and pictogram libraries (ARASAAC[13], Plena Inclusión[14], SPC[15]) which may reduce costs and quicken the process of pictogram design, to, ultimately, enhance standardization by improving conventionalization. In fact, neither the European Food Safety Authority nor the UK Food Standards Agency or the US Food and Drug Administration provide standardized, mandatory, ready-to-use pictograms in food labelling and packaging regulations, particularly in relation to allergens. After examining main existing regulations (USA, EU and UK), we have observed that the main food agencies coincide in the mandatory information labels must carry: name of the food, ingredient list (including additives), allergen information, quantity of certain ingredients, date marking (best before / use by), name and address of the food business operator or importer, net quantity, country of origin, any special storage conditions and/or conditions of use, and nutrition declaration.

Additionally, the UK Food Standards Agency[16] (2023). states that mandatory food information must be easy to see, clearly legible, not in any way hidden, obscured, detracted from or interrupted by any other written or pictorial matter, and should not require consumers to open the product to access the information The EU Food Safety Authority[17] (2023), in turn, specifies that any allergens present must be emphasized in the list of ingredients, for example by using a different font, letter size or background color. This should be also applicable to pictograms, despite they are not mandatory, and justifies the inclusion of allergen pictograms, at least, in

10 Shutterstock website: https://www.shutterstock.com/es/ (8 May 2023).

11 Dreamstime website: https://es.dreamstime.com/ (8 May 2023).

12 Vectorstock website: https://www.vectorstock.com/ (8 May 2023).

13 ARASAAC pictogram library by the Aragonese Centre of Augmentative and Alternative Communication: https://arasaac.org/pictograms/search (8 May 2023).

14 Plena Inclusión pictogram library: https://pictogramas.plenainclusion.org/.

15 Sistema pictográfico de comunicación (SPC) developed by Mayer-Johnson.

16 UK Food Standards Agency: https://www.food.gov.uk/business-guidance/packaging-and-labelling (8 May 2023).

17 EU Food Safety Authority: https://europa.eu/youreurope/business/product-requirements/food-labelling/general-rules/index_en.htm (8 May 2023).

prepacked food labels. There is no mention whatsoever to pictogram of symbols in food packaging regulations by the US Food and Drug Administration.

4 Methodology

In this research, we intended to compare the transparency and translucency of pictograms commonly used in agri-food texts to AAC pictograms from the ARASAAC collection and validate them among people with comprehension difficulties. For that purpose, we carried out an exploratory study to replicate, to a great extent, the methodology described in Merks et al. (2022, 2018) and Reeves et al. (2021) "to determine the comprehensibility, representativeness, and recall rate" of pictograms in nursing students, elderly patients, and parents. These authors asked subjects to guess the meaning of pictograms without any additional information in order to assess transparency in terms of their understanding of the visual information conveyed by pictograms. Then, after explaining their meaning, pictogram translucency was evaluated by asking subjects "to indicate the perceived strength of the relationship between the pictogram and its intended meaning for each pictogram."

4.1 Setting

We carried out our evaluation of pictograms was conducted in the headquarters of the Futuro Singular Córdoba foundation, based in Montilla, a middle-s city in the south of the province of Córdoba (Spain). Around 68 users attend every day this Futuro Singular Córdoba center, which comprises an occupational therapy day center for adults with cognitive and sensory disabilities, and a school for children with special learning needs.

4.2 Participants

For data collection purposes, participants were eligible provided they were of age and had any kind of cognitive disability. Participants were selected by a qualified occupational therapist, divided into three groups based on their comprehension skills, and required to give informed verbal consent for their participation in the research study. A research assistant provided participants with all the necessary details about the purpose of the study. Eight participants were assigned to each group, but due to some health issued some participants in groups 2 and 3 could

not attend the evaluation meeting. Group 1 consisted of 8 people with good comprehension and good reading and writing skills; group 2 consisted of 6 people with reading and writing skills, but poorer comprehension; finally, 6 people without reading and writing skills, with further comprehension difficulties and poor attention were assigned to group 3. A total of 20 people with cognitive disabilities took part in this study. A larger sample would have been desirable, but evaluating pictograms was such an effortful, time-consuming task for both people with disabilities and researchers that it would have taken longer and required more resources.

4.3 Study design and data collection

In this study, we validated pictograms depicting concepts relevant to the agri-food domain in a small cohort of twenty people with cognitive disabilities. Nevertheless, the methodology needed to be simplified and adapted to their impairments. A qualified occupational therapist served as a research assistant to help those participants with poorest comprehension skills (particularly, group 3) understand the aim of the research and assist them in completing the questionnaire. Since some participants needed assistance and there was a limited number of computers available, they were asked to complete the questionnaire in rounds of three people, which took them 20-25 minutes on average.

We designed an online questionnaire using Google Forms, arranged into four different sections, comprising 26 questions about the comprehensibility and representativeness of pictograms related to food allergens, which was first validated by an occupational therapist and easy-to-read facilitator.

The first section consisted of 10 items and was used to assess pictogram transparency by asking participants to guess the meaning of the pictogram with no further details about the concept depicted. For the sake of comprehensibility, we asked participants to imagine that the pictograms shown were displayed on a restaurant menu or on the packaging of food products and tell what pictograms meant without providing any additional information. Possible answers were: correct answer; partially correct answer; incorrect answer; opposite answer; I don't know/I can't guess. Two pictogram categories were studied: signage pictograms to provide public information and pictograms for communication. Five out of the ten pictograms shown corresponded to food allergen pictograms commonly found in restaurant menus, whereas the other five were AAC pictograms belonging to the ARASAAC pictogram library. Pictograms were considered transparent and, thus, comprehensible, when correctly understood by, at least, two thirds of participants (66,7%) to comply with the requirements of ISO standards. Valid answers were correct and partially correct.

The second section consisted of five items from each of the two pictogram categories studied to assess translucency. After a brief explanation of their intended meaning, participants were asked to tell how well or bad pictograms conveyed their intended meaning and represented the referent using a five-point Likert-style scale (for example, rating 1–5 how effective a pictogram was considered to mean DAIRY). Pictograms were considered translucent enough provided they were rated at least four on the scale by at least 66.7% of participants.

The third section included five items to know participants' preferences and evaluate their perception of pictogram comprehensibility. Participants had to choose the pictogram they thought was easiest to understand and best depicted the concept in a series of four different pictograms. Pictograms belonging to the two categories studied, signage pictograms and AAC pictograms, were among the possible answers. Validated signage pictograms from the Plena Inclusión network library were also included as distractors, although there were no correct/incorrect answers. Whereas section 1 was intended to assess pictogram comprehensibility, sections 2 and 3 were used to assess pictogram representativeness.

Finally, in section 4 participants were asked to tell how pictograms could be improved to make them more meaningful and foster comprehension of food allergens.

Although these sections were presented sequentially, the items within each section were shown randomly. Pictograms were shown in high resolution, full color, without any descriptive label. Participants were able to resize the screen, if necessary, so that low vision would not interfere completion of the questionnaire. There was no time limit and guidance was provided whenever necessary in any form that would not bias the study.

5 Pictogram validation: results and discussion

In this study a total of 20 participants with cognitive disabilities took part to validate food allergen pictograms. In the following subsections, we present and discuss the results of the validation questionnaire. A summary of results is provided in Table 6.

5.1 Transparency: pictogram comprehension

After data analysis, three out of five widely used food allergen signage pictograms were not validated by participants (DAIRY, CELERY, CRUSTACEANS), whereas just one out of five AAC pictograms was rated < 66.7% (CELERY). Across the three groups, guessability rates tend to be higher in the case of AAC pictograms in contrast to common

food allergen pictograms (DAIRY 0% to 80%; CELERY 10% to 0%; CRUSTACEANS 60% to 75%; EGGS 85% to 100%; FISH 100% to 85%). There were a couple of exceptions: CELERY, which seemed a rather unknown vegetable for participants, and FISH, whose pictogram is among the most conventional ones and resulted to be easily recognizable for all participants. Data show higher guessability rates for AAC pictograms in the group of respondents with comprehension difficulties than signage pictograms, revealing that the poorer comprehension of the participants, the larger differences in guessability rates can be found between the two pictogram categories. These results point to a higher transparency of AAC pictograms in comparison to the pictograms one may find in restaurant menus or food labels.

The most misinterpreted pictogram was DAIRY, depicted as a white jug [of milk] on a brown circle, which participants identified as a jug of either water, beer or red wine. It seemed difficult for participants to be able to make abstractions from the concrete entities in the pictogram and name a hypernym or superordinate concept enclosing what the pictogram concretizes. Other misinterpretations were spider for the crab pictogram standing for crustaceans, or potatoes for eggs. Although most participants referred to vegetables resembling celery, answers like broccoli, lettuce or asparagus were not considered correct, since food allergen pictograms need to be unequivocal and fully understood.

5.2 Translucency: pictogram representativeness

Moreover, with regard to pictogram representativeness ARASAAC pictograms were rated higher than common signage pictograms across all groups (DAIRY 10% to 100%; CELERY 15% to 40%; CRUSTACEANS 45% to 100%; EGGS 75% to 90%; FISH 90% to 85%). None of the most common food allergen signage pictograms was validated according to ISO standards, except for FISH, whereas all AAC pictograms were validated, except for CELERY, which is seemingly consistent to the transparency results shown in section 5.1. Not surprisingly, the AAC pictogram for CELERY was actually validated in group 1, where participants with the best reading and writing skills belong, but not in groups 2 and 3.

Interestingly, the pictograms with the strongest relationship between the depiction and the referent were communication-oriented AAC pictograms, particularly those depicting the superordinate concept with some sort of extensional definition showing some subordinate concepts falling into the same category. For example, the pictogram for DAIRY showing milk, yogurt, and cheese, or the pictogram for CRUSTACEANS showing a crab, a shrimp, and a lobster. Those with the weakest relationship, and thus least representativeness, coincide with signage

pictograms which are difficult to abstract (DAIRY), depict unknown entities (CELERY) or are ambiguous and may be mistaken (CRUSTACEANS).

Table 6: Summary of transparency and translucency rates.

						
Guessability (Transparency)	0%	100%	10%	0%	60%	75%
Translucency (≥4)	10%	100%	15%	40%	45%	100%
						
Guessability (Transparency)	85%	100%	100%	80%		
Translucency (≥4)	75%	90%	85%	90%		

When asked to freely choose the most easily understandable pictogram among a series of four, participants massively selected ARASAAC pictograms (EGGS 90%; MOLLUSC 85%; DAIRY 95%; MUSTARD 80%; NUTS 95%). Consistently, percentages grow as the level of reading comprehension of participants decreases, except for the case of MOLLUSC and NUTS (EGGS G1: 75%, G2: 100%, G3: 100%; MOLLUSC G1: 100%, G2: 66%, G3: 83%; DAIRY G1: 85%, G2: 100%, G3: 100%; MUSTARD G1: 75%, G2: 83%, G3: 83%; NUTS G1: 100%, G2: 100%, G3: 83%). However, sample configuration (sample size, differences in group size) somehow may blur tendencies, as the opinion by just one participant has a strong influence in the results.

This kind of spontaneous selection was not included in the original methodology we replicated but was considered relevant for the purpose of our study, because it could either support or show some discrepancies regarding transparency or translucency. We assume that participants would intuitively choose pictograms on the basis of comprehensibility and representativeness, apart from any aesthetic considerations. These results may reinforce the assumption that, to depict food allergens, communication-oriented AAC pictograms are preferable to conventional signage pictograms because people with cognitive disabilities find them easier to understand.

Besides, we noticed that participants did not consider validated pictograms from the Plena Inclusión library easy to understand, and just 15% (3) chose the Plena Inclusión pictogram for MOLLUSC as their preferred option.

Finally, most participants, regardless their group, agreed that, for pictograms to be easy to understand, they should be large enough, colored and presented along with a descriptive label. This may not be trivial and could suggest that participants, who attend a day center for people with cognitive disabilities, are biased, as they are used to seeing pictograms everywhere and reading simplified texts containing pictograms. As a result, they pointed to how they had expected the pictograms included in this study to be.

6 Conclusions

Pictograms, insofar as visual representations of knowledge, have a great potential for communication in specialized domains as they foster understanding of domain-specific concepts. They are mainly used to provide public information and signage of public spaces or to enable communication with people with reading comprehension difficulties as part of AAC systems. Due to the different purposes they may serve, they need to be designed accordingly. The former tend to universalization, the latter to customization, because they require some training for users to become skilled.

Some studies have shown that pictograms belonging to AAC pictogram libraries are generally more transparent than standardized signage pictograms, are often more at hand and are easy to use in signals or simplified texts addressed to people with cognitive disabilities. Current regulations and guidelines by international food agencies are not committed with inclusive food labelling beyond a mere mention that mandatory information can also be shown using pictograms and symbols.

We view pictograms in domain-specific texts as units of understanding depicting concepts as units of knowledge. To make them meaningful, they should be designed or selected departing from their capacity to represent the most significant semantic relations defining the concept depicted, which is the main guiding principle we argue for: the more vivid the referent is evoked, the easier the concept can be accessed. Consequently, pictogram comprehensibility can be assessed through transparency, but full validation of domain-specific pictograms can just be achieved provided the validation workflow is implemented to incorporate terminologists, experts and target readers.

Pictograms are useful visual aids in agri-food texts like food labels and restaurant menus because they provide relevant public information about food prepara-

tion and conservation, nutritional facts, food allergens and food properties. From the point of view of cognitive accessibility, those texts containing mandatory information about food should have an alternative in the form of pictograms for low-literacy people and people with cognitive disabilities. In this sense, pictograms can be regarded as an accessible alternative visual representation of domain-specific concepts which may be built upon an accessible definition of the depicted concept. This type of intersemiotic translation from words into pictures and the principles guiding the design or selection of pictograms might also be the foundation to simplify domain-specific texts through their intralingual translation into easy-to-read visually-aided texts.

In our study, we have explored the viability to use existing transparent AAC pictograms as signage pictograms in agri-food texts with a view to more inclusive food labelling and restaurant menus, where mandatory allergen information should be clearly displayed and easily comprehensible. On the one hand, we analyzed the transparency and translucency of different food allergen pictograms, with a clear preference of people with cognitive disabilities for communication-oriented AAC pictograms in contrast to widely used signage pictograms. On the other hand, we can draw the following conclusions about validating domain-specific pictograms. Pictogram validation requires terminologists assessing the depictability of specialized concepts; experts assessing the pictogram's conceptual accuracy, and end-users assessing pictogram representativeness on the basis of transparency and translucency.

Our results about pictogram transparency and translucency show that AAC pictograms could be used to give public information about food allergens better than common signage pictograms seen in most food labels and restaurant menus. They are usually easy to understand, are richer in details (which makes pictograms more meaningful), are available and, to some extent, customizable. They seem to best depict significant semantic relations, thus, helping comprehension.

Nevertheless, results would need further research to be general. Some limitations of our study were: a small sample, the difficulties in adapting the methodology replicated to people with cognitive disabilities in a way it would not interfere with our objectives, the lack of standardization of the pictograms included in the research questionnaire, and a rather heterogeneous group of validators with different intellectual capacities, some of whom were skilled in the validation of easy-to-read texts. These limitations could be prevented by validating new pictograms unknown to participants to which they have not been previously exposed or designing studies which avoid subsequent exposures to the same pictogram or to pictograms whose meaning has already been made clear during questionnaire completion.

Further research into the design of pictograms and their use in agri-food texts is needed to promote an inclusive food labelling, for the UNE standard 153101 (AENOR, 2018) does not deal, except for some obvious remarks, with how visual aids should

be in easy-to-read texts to facilitate comprehension. Future studies should focus on a visual grammar with a view to ensure pictogram comprehensibility by describing the morphological, syntactical, semantic, and pragmatic features of images. From the perspective of universal accessibility, such research should involve a larger sample of people with different reading comprehension difficulties (elderly people, children, and people with learning impairments) in order to design pictograms for all.

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Chinese gastronomic nomenclature: Culture and translation

Abstract: Gastronomy is a cornerstone of all civilizations and the essence of every culture worldwide. Chinese cuisine has been enjoying growing popularity internationally over the years. The richness of Chinese food not only resides in its delicate and abundant tastes, but also in its millenary history, which contributes to the numerous regional cuisines and a deeply rooted gastronomic culture. It also relates to different areas of society such as philosophy, traditional medicine, etc. The nomenclature of Chinese dishes, which reflects the essence of its culture, is considered a linguistic art and incorporates several cultural elements, including ingredients, colors, flavors, culinary techniques, utensils, anthroponyms, toponyms, metaphors, historical legends and so on and so forth. Furthermore, it follows certain patterns, which could be roughly divided into descriptive, figurative and mixed.

Despite the importance of translation in the gastronomic field, the relationship between gastronomy, culture and translation has not yet been fully researched in academia. This chapter gives a detailed description of the language of Chinese food to illustrate the cultural components of Chinese gastronomic nomenclature, as well as insights into and discussion on the difficulties encountered in their translation.

Keywords: Food translation, Chinese gastronomic culture, Chinese gastronomic translation, Chinese dishes

1 Chinese gastronomic culture

In today's globalized landscape, the frequent and extensive cultural exchanges are influencing many aspects of our daily life. Peterson (2005, 1992) proposes the term "cultural omnivorousness" to describe this new and general tendency of consuming the gastronomic, musical and artistic products from a variety of cultures. Undoubtedly, gastronomy consists of a very relevant part of this phenomenon. In this context, the translation of gastronomic nomenclature is an ongoing practice with

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importance for academic research. In this chapter, we are focusing specifically on the culture and the translation of Chinese gastronomic nomenclature.

The history of Chinese gastronomy spans thousands of years and it offers a great variety of dishes. On the one hand, up to the Yuan, Ming and Qing dynasties, Chinese gastronomy had already been highly developed, while on the other hand, China embraces an extensive territory in which geographical and climatic conditions vary greatly from region to region. So, there is a wide variety of natural resources and dietary habits throughout the country, which has led to a very diverse range of Chinese cuisines. This all means that classifying Chinese cuisine style is a rather complex issue; one approach could be according to regions, consumers and ethnicities (Du & Yao, 2013, p. 87).

1.1 The grammar of Chinese cuisine

In his book *The language of food: A linguist reads the menu*, Jurafsky (2014) proposes a theory called "the grammar of cuisine", in which he compares cuisines to languages:

> Just as a language has an implicit grammar that native speakers know even if they can't explain, a cuisine has an implicit structure, a set of rules about which foods go together, what constitutes a "grammatical" dish or meal in that cuisine. The implicit structure of cuisine consists of rules about how dishes are structured out of ingredients, meals are structured out of dishes, and entire cuisines out of particular flavor combinations and required cooking techniques (Jurafsky, 2014, p.178).

Jurafsky (2014) indicates four aspects of the grammar of cuisine: the ordering of meals, the structure of a meal, the implicit rules about the flavors that make up individual dishes and cooking techniques. Given its relevance for translators, the following summarizes the grammar of cuisine.

1.1.1 The order of meals

Each country has its own specific terms and ways of organizing their own courses of meals. Unlike the case in Europe which consists of a main course and dessert, generally speaking, the Chinese ordering of meals is completely different: for daily meals at home, all dishes are usually placed on the table at the same time. As for soup or porridge, the order in which they are eaten may vary according to different regions and customs. As for dining in Chinese formal restaurants, the order of the courses differs again. Normally, it starts with small cold dishes such

as appetizers, followed by the hot dishes. As for desserts, there is no Chinese word meaning "dessert", since there is no tradition of having dessert at the end of each meal. This could explain the tradition of serving fortune cookies in Chinese restaurants in the US, which is a way of filling the "dessert gap" for American consumers (Jurafsky, 2014, p. 185).

1.1.2 The structure of a meal

Since antiquity, China has been a civilization based primarily on agriculture, and eating a wide variety of cereals has been the essential energy source of a Chinese diet (Du & Yao, 2013). In Chinese gastronomy, there is a concept called "staple food" (主食), which mainly consists of starchy foods which are an immediate source of energy. The most common are rice and flour based food (面食, *mianshi*), with diverse types of noodles, *mantou* (馒头, 'steamed bread'), among many others (Du & Yao, 2013).

Jurafsky (2014) points out that Chinese food often has "constraints on the ingredients and their combination: Meal = starch + nonstarch" (Jurafsky, 2014, p. 180). This equation means that a Chinese meal is composed of two parts: the staple food and the complementary food like vegetables, meat, seafood, eggs, etc. This structure can be presented in a single dish, such as a plate of noodles or rice with chicken, or different dishes in a meal as a whole.

1.1.3 The implicit rules about the flavors that make up individual dishes

This aspect of the grammar of Chinese cuisine is related to flavours. Jurafsky (2014) compares dishes to words, explaining that particular ingredients or flavour elements are as the sounds (the 'phones') that make up a word or dish. Just as speakers of different languages can all recognize different phonemes but pronounce them with nuances, the ability to perceive flavours (sour, sweet, bitter, salty, spicy and umami) is also universal, and "each cuisine may express these universal flavor elements using ingredients that add their own culturally specific flavors" (Jurafsky, 2014, p. 181).

According to the "flavour principle" proposed by Rozin (1973), different combinations of specific flavors define a cuisine. The following section details the flavors of Chinese cuisine as a gustatory art.

1.1.4 Cooking techniques

In terms of Chinese cooking techniques, a special and diverse system has been developed over thousands of years. Historically, the basis of cooking techniques essentially took shape up to the Yuan, Ming and Qing Dynasties (Du &Yao, 2013), and as history progressed, these have been further developed and enriched till they have become the core aspect of the grammar of Chinese cuisine. The total number of these techniques is unclear. According to Zhao and Liang (2017), there are around 30 or 40 basic techniques, which could be divided into two categories: culinary techniques for hot dishes and those for cold dishes (Zhao & Liang, 2017).

1.2 Chinese gastronomic aesthetics

Gastronomy is a form of art that encompasses several aesthetic aspects. It is not only an art of taste, but also the dimensions of visual presentation and the aromas we can detect. This section analyses the four aesthetic facets of Chinese gastronomy: gastronomy as a visual, gustatory, olfactory and linguistic art.

1.2.1 Visual

Gastronomy is a visual art. Cooks "paint" the dishes with ingredients of diverse colors, decorate them using various shapes, and frame them within a range of culinary ware (although it is not necessarily mandatory for every dish). On occasions this is also reflected in the name of the dishes and could be taken into account in the translation.

Colors are an important element of a dish, which may influence people's appetite and could also indicate the quality of the food. In a Chinese dish, a combination of bright and vivid colors is usually preferred. Red, yellow, green and white, for example, are the frequently used elements of the palette of Chinese dishes (Zhao & Liang, 2017, p. 144). Many Chinese dishes are named using its color. Take a scallop dish *wucai xuehua shanbei* (五彩雪花扇贝) for example, whose name represents the combination of colors. *Wucai* (五彩) literally means "five colors", which refers to the color of the condiments (chopped garlic, chives, chopped fresh hot chilies, etc.). In contrast, *xuehua* (雪花), which means "snow", alludes to the color of the scallop.

Another basic element of this visual art lies in its shape, in particular, the ingredients (and condiments) and the overall presentation of the dish. Regarding cutting methods, in China almost all the ingredients and condiments are cut into

different shapes and sizes accordingly before cooking. This is why the Chinese do not use knives and forks as utensils, simply chopsticks and spoons. In this sense, the preparation of ingredients is different between Chinese and the Western gastronomy in general. The former pays much more attention to shaping the ingredients before cooking than the latter. In fact, this skill of cutting called *daogong* (刀工, 'the skill of cutting') is one of the basic skills learned by Chinese cooks during their training. In fact, master chefs even pursue the *daogong* as an artistic technique (Du & Yao, 2013).

There are approximately 200 types of cutting method in Chinese gastronomy (Du & Yao, 2013, p. 111). Besides the common shapes like slices, strips, cubes, etc., there are more professional nuanced cuts. These cutting methods or shapes of the ingredients are also often found in the dish names. For example, the last character of the dish *pa niurou tiao* (扒牛肉条, 'cooked veal strips') *tiao* (条, 'strips') alludes to the shape of the veal. In another dish *roumo qiezi* (肉沫茄子, 'eggplants with minced pork'), the character *mo* (沫, 'the minced form') indicates that the meat is minced.

As for the presentation of the dish, this is an essential factor in Chinese gastronomy. In international cooking competitions, for example, Chinese chefs can even create sculptures using the ingredients. Many dish names also reflect the overall presentation, for example, *songshuyu* (松鼠鱼), literally means "squirrel-shaped fish". By way of another example, *tai ji* tofu (太极豆腐, 'tofu in the form of tai chi'), as the name suggests, is a dish shaped after the tai chi symbol.

The last visual element of Chinese gastronomic art is the culinary containers of the dishes when being served. Although special containers are not used in all cases, they form an important criterion regarding the visual presentation. According to Du and Yao (2013), the dish container could contribute to enhancing the food, since they are chosen according to the presentation and colors of the dish, the characteristics of the ingredients, the theme of the banquet and so on. For example, there are fish–shaped plates especially designed to serve fish dish (Du & Yao, 2013, p. 117–119). Generally, the dish containers are prepared separately, and in some cases, the kitchen utensil in which the food is cooked could be used directly when serving. For example, the famous *hot pot* (火锅 *huoguo*) is named after the cooking utensil.

1.2.2 Gustatory

Undoubtedly, Chinese gastronomy is considered a gustatory art, the very essence of gastronomy. Two corresponding perspectives are described here below: the flavors and the texture.

Flavors can be simple or complex. In previous content, the flavor principle was introduced, which states that specific flavor combinations can define the typology of a cuisine. Here, we will introduce how the Chinese cuisine expresses its specific flavor patterns applying the universal flavor components. According to Zhao and Liang (2017), the flavors of Chinese cuisine can be categorized into two groups: simple and complex flavors. Simple flavors constitute the basic elements; Zhao and Liang (2017) propose seven types of simple flavors in Chinese cuisine: salty, sweet, sour, spicy, bitter, umami, and *xiang* (香) (Zhao & Liang, 2017, p. 64).

The etymology of *umami* (鲜, *xian*) originates from Japanese, which is produced by amino acids from raw materials. Here are some examples of common condiments which produce this flavor: monosodium glutamate (MSG) (味精, *weijing*), chicken essence (鸡精, *jijing*), oyster sauce, etc. *Xiang* (香) refers to a general expression that describes the delicious taste or smell of food and is a very common word in Chinese. In addition, another simple flavor worth mentioning is called *ma* (麻, 'numbing flavor'), which is characteristic of Sichuan cuisine. This flavor in particular consists of the numbing sensation of the tongue produced by a spice called *huajiao* (花椒, 'Sichuan pepper'), and is usually accompanied by a spicy flavor. Broadly speaking, there is a saying that describes the typical flavors of different regions in China: "Spicy in the east, sour in the west, sweet in the south, salty in the north" (东辣西酸, 南甜北咸 *dongla xisuan, nantian beixian*, translated by the authors) (Zhao & Liang, 2017, p. 84).

Regarding complexity, it is worth mentioning that the majority of Chinese cuisine has complex flavors. In fact, the very ability to create original and delicious complex flavors is one of the main goals of the chefs. Like a symphony, the synthesis of flavors reaches gustatory harmony through its diversity. As a Chinese expression goes, "five flavors in harmony" (五味调和 *wuwei tiaohe*), which voices the philosophy of harmony via sense of taste. Despite the multitude of complex flavors, there are various fixed and common combinations. Here we present two examples.

Yuxiang (鱼香, 'fish flavour') is a traditional complex flavor which originates from Sichuan culinary style. Despite its literal meaning, this flavor in fact has nothing to do with fish. It is elaborated using a mixture of seasonings. For example, scallion, ginger, garlic, red chili, sugar, soy sauce and vinegar. It was given this name because this mixture of seasonings is very common in fish-cooking in Sichuan province (Zhao & Liang, 2017, p. 66). Another example is *Mala* (麻辣, 'numbing and spicy'), another rather common complex flavor which also comes from Sichuan cuisine. As explained above, the flavor *ma* (麻, 'numbing flavor') and *la* (辣, 'spicy') usually go together. This combination is one of the most pungent and popular complex flavors in China.

As regards texture, this is another aspect of food which could also stimulate gustatory pleasure (Zhao & Liang, 2017, p. 145). For example, the crunchy texture (脆 *cui*) may be a sign of freshness of the ingredients, apart from its pleasant gustatory effect. To name a few more examples: juicy, smooth or tender.

1.2.3 Olfactory

Chinese gastronomy is also an art of olfaction. The attractive and delicious smell of food brings us great olfactory joy. Since ancient China, it has become one of the most important culinary criteria (Zhao & Liang, 2017, p. 144). As shown above, the omnipresent Chinese word that describes the attractive smell of food is *xiang* (香, 'the aromatic smell of food'), which is produced by using a wide range of condiments. In the English vocabulary, there are terms such as "delicious" to express a good taste and "beautiful" for good looks but there is smaller vocabulary with respect to good smell.

Unpleasant smells can also be found in Chinese cuisine; a classic example is the famous dish *chou doufu* (臭豆腐, 'stinky tofu'). There are several variations of this dish found in different regions. Foreigners might consider it an exotic and unpleasant dish, however, this smell in fact comes from the sulphide substance that is produced from the decomposition of protein but is really quite tasty and nutritious dish.

1.2.4 Linguistic

Chinese gastronomy not only focuses on the senses, but also on language. Chinese gastronomic nomenclature is considered a linguistic art, given its diversity, delicacy and beauty. In the words of Bassnett (1988, p. 22), "Language, then, is the heart within the body of culture, and it is the interaction between the two that results in the continuation of life-energy." The next section discusses the language of Chinese food in more detail.

2 Language of Chinese food

The Chinese gastronomic nomenclature pursues pleasant, attractive, auspicious and even poetic effects according to different occasions. (Zhao & Liang, 2017, p. 150). Up to this point, we have analyzed the grammar and the aesthetics of Chi-

nese gastronomy. This section further develops the afore mentioned cultural elements such as culinary techniques, color, shape, taste, culinary containers, flavors, texture and smell, and also the naming methods and classification of the nomenclature.

2.1 Cultural components

Culinary techniques are one of the most essential components of gastronomic nomenclature. They provide plenty of additional information on the dish, such as the preparation method or the culinary style. Colors are a frequent element in the dish names, describing the color of ingredients and condiments. For example, the first two characters of the dish *huangjin kao shanbei* (黄金烤扇贝, 'roasted golden scallops'), *huangjin* (黄金, 'gold or golden color'), indicates the color of the dish, alluding to the sautéed chopped garlic. Shape is also often found in the dish names. As we mentioned above, it could refer to the cutting style or the overall presentation of the dish.

Generally speaking, when special culinary containers are used, they are reflected in the names. For example, *guan men yangrou* (罐焖羊肉, 'braised lamb in clay pot'). The character *guan* (罐) is a general term for a culinary pot made of clay, which is often found in Chinese culinary nomenclature, referring to different types of culinary pots used in various styles of cuisines.

The Chinese word for flavor is *wei* (味). When we see it, we know that this word is emphasizing the flavors. However, the appearance of *wei* (味) is not indispensable to indicate the flavors, since it can be expressed with a multitude of other words. Clear examples of this are *yuxiang* (鱼香, 'fish flavor') and *mala* (麻辣, 'numbing and spicy') mentioned above. Finally, *xiang* (香, 'the pleasant smell of food') can be frequently observed in the dish names. Although it does not always provide concrete information about the dish, it does underline the deliciousness of the food.

Apart from these elements, toponyms and anthroponyms are also a part of the cultural components of gastronomic nomenclature. Toponyms can indicate the origin or the most representative locations of the cuisine, such as Beijing *kaoya* (北京烤鸭, 'Beijing roast duck'). Anthroponyms generally refer to the names of the creator or historical character (famous or common) related to the dish. The typical dish *Gongbao jiding* (宫保鸡丁, 'Kung Pao chicken') contains the name of its inventor. Sometimes, the nomenclature itself consists of a legend or historical tale, which is very unique to Chinese gastronomic culture. For instance, *Fotiaoqiang* (佛跳墙, 'Buddha jumping over the wall') is a well-known traditional delicacy from the Fujian province, which consists of a mixture of seafood, meat, certain vegetables and

mushrooms in simmered soup. This name is rooted in various tales and legends, and one simple version tells that the dish smells so delicious that even a vegetarian monk wants to taste it by jumping over the temple wall.

2.2 Naming methods

To date there are different proposals in the literature concerning naming methods in and classification of Chinese gastronomic nomenclature, however, in this section we have adopted the proposal by Zhao and Liang (2017). Broadly speaking, the naming methods can be grouped into: the descriptive/ literal (写实, *xieshi*), the figurative (虚拟, *xuni*) and a combination of both (hybrid).

The descriptive/literal method, which is more similar to the Western culinary naming, refers to using the factual information of the dishes, such as ingredients, culinary techniques, colors, shapes, culinary containers and flavors. In contrast, the figurative method does not use factual information, but rather rhetorical elements such as metaphors, tales, legends, *chengyu* (成语, 'idiom'), etc. Lastly, the hybrid method is a combination of the factual and figurative (Zhao & Liang, 2017, p. 151). An example of the latter is *babao ya* (八宝鸭), which literally means "duck stuffed with eight treasures": *ya* (鸭) means duck, which is the factual element of the dish; while *babao* (八宝) is a rhetorical expression which refers to the stuffing of the duck made up of various ingredients such as peas, glutinous rice, shrimps, along with some diced vegetables.

3 Translating Chinese gastronomic nomenclature

Gastronomic translation can have a wide range of potential audiences: from cooks interested in foreign cuisines, foodies who follow TV cooking programmes or people that want to adapt Chinese recipes found in the Internet, to foreign restaurant or supermarket customers. Gastronomic translation is applicable to a wider range of spheres than likely was believed before.

There has been relevant research into Chinese gastronomy. Yi (2009) discusses the Chinese menu translation from a gastronomic cultural difference perspective. Wang (2008) researches on this topic taking into account linguistic and cultural untranslatability. Xiong (2013) studies the translation of Chinese dish names from a cross–cultural communication perspective with an interesting focus on a special branch of Chinese gastronomy: medicinal cuisine. Cai (2017) researches the translation of Chinese dish names applying functionalist approaches.

Saihong Li (2019, p. 12–15) presents an interesting proposal for gastronomic translation. It consists of a multimodal method for translating menus from Chinese into English. Li considers that the combination of intralinguistic (use of pinyin), interlinguistic and inter semiotic (pictures of the dish) translation is highly effective for menu translation. This visual aid, according to Li (2019), "moves menus beyond a merely informative function towards a more demonstrative advertising function" (p. 13).

The terminology study plays a fundamental role in gastronomic translation. One of the major challenges is the lack of equivalences between different culinary cultures regarding ingredients, condiments, culinary techniques, etc. Paradowski (2018) points out that the culinary translators need the competence of "encyclopedic knowledge". Moreover, the information on the practical usage of the terms in gastronomic domain appears scarce (Paradowski, 2018, p. 55). For instance, in a Chinese medicinal cuisine translation research, the terminology of Chinese traditional medicine is unavoidable.

Another factor we need to bear in mind is the function of a translation of Chinese gastronomic nomenclature. Text typology needs to be clarified in the first place: fiction, cookbooks, documentaries, menus, etc. Ruzaitė (2006, p. 257) empathizes the importance of menu translation, as the quality of translated menus could improve the service quality and avoid intercultural mis-communication. In addition, the author states: "By being both informative and expressive, menus can be said to perform both ideational and interpersonal functions" (Ruzaitė, 2006, p. 259). Xiong (2013) also highlights that the translators should take economical efficiency and transmissibility into serious consideration.

The consequences of bad translation are not trivial, as stated by Fuentes-Luque (2017):

> [. . .] the consequences can range from a laughter to undesirable nasty misunderstandings, religious, and even health issues (such as allergies), which can (and actually do) have a damaging effect, not only for the restaurant, but also for the tourist destination and even the local economy (Fuentes-Luque, 2017, p. 178).

Fuentes-Luque (2017, p. 180) enumerates the advantages of high-quality menu translations: (i) to reflect the quality of served food; (ii) give a positive image of the location (city, region or country) and the restaurant; (iii) attract and retain local customers, (iv) expand business and broaden the scope of the market share. According to the author: "Cheap translations are ultimately more expensive as a so-called money-saving translation can result in expensive revisions." In conclusion, menu translation quality contributes to culinary experience in a significant way (Fuentes-Luque, 2017, p. 187).

3.1 Difficulties and challenges

There are ingredients that are difficult to find in another country, which has often been considered a fundamental difficulty in gastronomic translation. However, this is a very limited view of the difficulties of gastronomic translation. Having discussed the wide variety of factors and elements involved in the nomenclature of Chinese dishes, we now turn to the challenges of translation from the perspective of different criteria, with the following suggestions:

a) Linguistic accuracy. This criterion may seem obvious, but there are many inaccuracies and translation errors in real restaurant menus.
b) Culinary/cultural accuracy. The translation should help the customer to decide whether to order the dish or not. If possible, it would be better to enumerate the main ingredients and the cooking method. Thus, the translation may entail including new items (e.g., cooking method) that were not in the original name of the dish. Chinese customers are generally familiar with the cooking method behind the Chinese names, but customers from other countries may not. Moreover, mentioning the cooking method helps to raise awareness of China's gastronomic culture.
c) Palatability (Appetizing dishes). In addition to being informative, menus also have an appealing function, which is to attract customers. Therefore, in the translation of menus, this appetizing feature must also be maintained. Translations that may cause customers to lose their appetite are not considered adequate, even though they might be faithful and accurate.
d) Exoticism. The use of pinyin in the translation of Chinese cuisine could bring an exotic touch to foreign customers. It may not be necessary for all the dishes but it may be a good translation strategy for famous dishes which contributes to spreading the word about these dishes.

3.1.1 Descriptive names

In this section we provide ten specific examples with the translation of descriptive names which respect the translation criteria given above. Translations should strive to describe the dish as accurately as possible respecting the richness of Chinese senses (visual aspect, smell, taste, etc.) while sounding natural in English. The challenge for the translator is to find a balance.

1. *Guangdong baiqie ji* (广东白切鸡) is a famous dish from Guangdong province (广东). *Bai* (白) means "white", which refers to the color of the dish. *Qie* (切) literally means "cut". *Ji* (鸡) is the ingredient "chicken". As the original name explains, this a cold dish with chicken cut into pieces. The whole chicken is

boiled in water until cooked, then cooled, cut and served in a dish and the last step consists of preparing a sauce and pouring it over the chicken. A translation which respects aforementioned translation criteria is "Cantonese Boiled Chicken Slices (Served with Soy Sauce, Ginger Sauce or Ginger and Scallion Sauce)". This example is given in the book *Enjoy Culinary Delights: The English Translation of Chinese Menus* (Zhao, 2011, p. 18), and focuses more on culinary than linguistic accuracy, adding lots of details, such as shape and condiments.

2. *Sanxian chao fan* (三鲜炒饭) is one of the most common Chinese dishes found overseas. *Sanxian* (三鲜) is an idiom which refers to three fresh ingredients which vary according to the region and customs. *San* (三) means "three" and *xian* (鲜) means "fresh". Ingredients may be vegetables, meat, seafood, fish, etc. In general, one kind of seafood is included among these three ingredients, as Chinese *haixian* (海鲜) refers to "seafood and fish". The ingredient *fan* (饭) refers to "rice" for which there is a popular coined translation: "Fried Rice with Three Delicacies". Even in Spanish, the translation is "arroz tres delicias", probably a literal translation from English.
3. *Muxu Rou* (木须肉) is more commonly eaten in northern China. This traditional dish is cooked with sliced pork, eggs and a kind of edible black mushrooms, *mu'er* (木耳), with vegetables. *Rou* (肉) means "meat" and refers to any edible meat. In Chinese dishes, unless otherwise specified, this character means it is made of pork. A translation which illustrates the translation criteria proposed here is "*Muxu* Pork (Sautéed Sliced Pork, Eggs and Black Fungus)" (Zhao, 2011, p. 30). The use of pinyin "*muxu*" adds an exotic touch to the translation and culinary accuracy is maintained.
4. *Wucai lapi* (五彩拉皮) is a popular cold dish from northern China. *Wucai* (五彩) means literally "five colors", or "multicolor" in a broader sense. This multicolored look is obtained with several secondary ingredients such as carrots, cucumber or mushrooms. *Lapi* (拉皮) are thick transparent noodles made from potatoes, sweet potatoes or legumes. A translation proposal which respects the criteria set out here is "Multicoloured Tossed Clear Noodles" (Zhao, 2011, p. 18). The reference to colour may well contribute to whetting one's appetite. In cases where there is no direct equivalence, adding more descriptive items works well for menu translation.
5. *Yuxiang rousi* (鱼香肉丝) is one of the most traditional dishes from Sichuan cuisine. As explained before, *yuxiang* (鱼香) is a kind of complex flavour. *Rou* (肉) means "meat", meaning pork if not otherwise stated. The character *si* (丝) describes the form of the ingredient, cut into strips. A translation which aligns with our proposed translation criteria is "*Yuxiang* Shredded Pork (Sautéed in Spicy Garlic Sauce)" (Zhao, 2011, p. 33).

6. *Tangcu ji* (糖醋鸡) is a dish composed of certain condiments and ingredients: *Tang* (糖) means "sugar" and *cu* (醋), "vinegar". *Tangcu* (糖醋) consists of a traditional and common seasoning combination in Chinese gastronomy which produces a complex sweet-and-sour flavor. A translation which illustrates our proposed criteria is "Chicken Braised in Sweet and Sour Sauce" (Zhao, 2011, p. 49). The linguistic and cultural accuracy is maintained while adding the cooking method information.
7. *Xiangsu paigu* (香酥排骨). The ingredient *paigu* (排骨) refers to "pork ribs". *Su* (酥) means "crispy", which refers to the texture of the cooked ribs. *Xiang* (香) generally describes the delicious taste or smell of food. The expression *xiangsu* (香酥) is a very common term. An illustrative translation of our criteria is "Crispy Pork Ribs", which sounds appetizing.
8. *Ganguo feichang* (干锅肥肠) is served in a *ganguo* (干锅), a kind of culinary metal pot from Sichuan cuisine, which in China is representative of a type of Sichuan cuisine, in the same vein as hot pot. *Gan* (干) means "dry" and *guo* (锅) means "pot". Contrary to hot pot, there is no boiling soup, and the ingredients are preprepared in the pot while serving. The ingredient *feichang* (肥肠) refers to pork intestines. The difficulty translating this dish lies in the lack of equivalence as regard the culinary pot. One translation, "Griddle Pork Intestines" (Zhao, 2011, p. 28), applies "griddle" as solution. Our alternative is "Sauteed Hot Pork Intestines in Dry Pot". We think that "dry pot" might be easier to associate to the popular hot pot as a more universally acceptable translation.
9. *Liangban jinzhengu* (凉拌金针菇) is a cold dish made from a type of long, thin and white Asian mushroom called *jinzhengu* (金针菇), similar to needles. *Liangban* (凉拌) is a cooking technique for cold dishes, which consists of stirring and mixing the ingredients with seasonings. An appropriate translation is "Needle Mushroom with Sauce" (Zhao, 2011, p. 20).
10. *Mapo doufu* (麻婆豆腐) is a famous dish traditional to Sichuan cuisine. *Mapo* (麻婆) refers to the inventor of this dish from Qing dynasty. *Doufu* (豆腐) is "tofu". A translation which follows the criteria laid out here is "Mapo Tofu (Sautéed Tofu in Hot and Spicy Sauce)" (Zhao, 2011, p. 91). Keeping the anthroponym in pinyin adds an exotic touch, while culinary accuracy is glossed in the brackets.

3.1.2 Figurative names

It is worth attempting to preserve as much as possible the beauty of the images that the figurative names of Chinese dishes have, but we do not recommend

doing this at any cost, because sometimes the name of the dish would not sound appetizing. The following are five examples of Chinese figurative names for dishes.

1. *Hupi fengzhao* (虎皮凤爪) is a dish from Cantonese cuisine. *Feng* (凤) means "phoenix", and *zhao* (爪) means "feet"; so *fengzhao* (凤爪) literally means "phoenix feet". This is a widely used metaphor when referring to chicken feet in gastronomic nomenclature, since the figure of the phoenix is considered auspicious in Chinese culture. The name also contains another metaphor: *hupi* (虎皮), which means "tiger skin". After frying them in oil and putting them in water for several hours, the skin dilates and it has a lot of wrinkles, which resembles the pattern of a tiger skin. So, a translation that would respect the criteria we propose is "Pan-seared chicken feet".
2. The Sichuan dish name *Mayi shang shu* (蚂蚁上树) is also metaphorical. *Mayi* (蚂蚁) means "ants", and *shu* (树) means "trees". The verb *shang* (上) refers to the action of climbing the tree. Therefore, the literal meaning of the dish is "ants climbing trees". In fact, the "ants" refer to minced pork, and the "trees", to a kind of Chinese noodle usually made of starch, which are very long and slim. The Italian word "vermicelli" has been widely used to refer to this Chinese noodle because they are similar. In order to respect the criteria of appetite, it is better to focus on culinary accuracy and forget about the ants and is illustrated by the proposal "Sautéed Vermicelli with Spicy Minced Pork" (Zhao, 2011, p. 30).
3. In the previous section we introduced the dish *Fotiaoqiang* (佛跳墙), which is named after a historical tale or legend. This broth is very exquisite and expensive and made from seafood, different kinds of meat, mushrooms and vegetables. "*Fotiaoqiang* (Steamed Abalone with Shark Fin and Fish Maw in Broth)" (Zhao, 2011, p. 10), keeps the pinyin and specifies the most exquisite ingredients. In our opinion, this is a very functional translation.
4. *Fuqi feipian* (夫妻肺片) is one of the ten most renowned classic dishes in Sichuan cuisine, which literally means "the lung of the husband and wife". This is another classic example of a figurative dish name. *Fuqi* (夫妻) means "husband and wife", *fei* (肺) means "lungs" and *pian* (片) refers to the slices. The dish actually consists of cold slices of stewed beef, beef stomach, beef tongue and more in a specially made Sichuan chili sauce. The creators of this dish were a married couple from Chengdu, which is the origin of the toponym of the name. As for *fei* (肺), it comes from its homophonic character *fei* (废), which means "wastes", because they used leftover materials of an ox as ingredients. The dish today is the result of a hundred years of evolution and when translating the historical name, obviously the linguistic accuracy would clearly not be a relevant criterion, otherwise its level of exoticism would gen-

erate panic in foreign eaters. One proposed translation is "Sliced Beef and Ox Tongue in Chili Sauce" (Zhao, 2011, p. 18). On the other hand, Brett Martin, in a 2017's *GQ* magazine, found its name translated as "Mr. & Mrs. Smith" in a Chinese restaurant in the US. These different translation approaches suggest just how flexible and creative the gastronomic translation could be.

5. *Yushu gua jinqian* (玉树挂金钱) is another metaphorical name, which literally means "coins hung on the tree". *Yushu* (玉树) is a kind of tree, and *jinqian* (金钱) refers to "coins", which is another metaphor of addressing a kind of mushroom in round shape coins. *Gua* (挂) is a verb which means "hang". There are no direct equivalents in English for these two ingredients. Taking into consideration the criteria of culinary accuracy and exoticism in this case, the proposed translation would be "Chinese Mushrooms with Shanghai green".

4 Conclusion

A gastronomy encodes a culture, and the nomenclature of this gastronomy is considered also an art. Chinese gastronomic nomenclature is an aesthetic art for its visual presentations, tastes and smells, as well as for its language. The language of Chinese food incorporates a great deal of cultural information. On the one hand, the factual elements such as ingredients, color, shape, taste, texture, smell, culinary container, cooking techniques, toponyms and anthroponyms; and, on the other hand, the figurative elements like metaphors, tales, legends and so on, reflect the millenary Chinese gastronomic culture. In short, gastronomy, culture and translation are inextricably related.

Gastronomic translation presents several challenges to reflect the richness presented in the chapter. The lack of equivalences between different culinary cultures regarding ingredients, condiments, culinary techniques, to name a few aspects, requires close attention. Many names cannot be simply translated literally, and translation will depend on the context, the function, the text typology, the audience, etc. Nevertheless, this chapter provides some criteria to help translators in the decision-making process.

Specifically, translators are encouraged to translate Chinese gastronomic nomenclature following four criteria: linguistic accuracy, culinary/cultural accuracy, palatability and exoticism. Each dish name should be analyzed before translating and a balance found for applying these four criteria, although this may vary according to the name.

Linguistic accuracy is important, but in the case of many figurative names, linguistic accuracy is not a priority since a literal translation is not a faithful depiction of the dish. Moreover, when there are no terminological equivalences, linguistic accuracy is a challenge. Translators will need to devote time to explore encyclopedic knowledge to find suitable equivalence.

On the other hand, culinary accuracy is an important criterion since the translation of the gastronomic nomenclature attempts to attract the target readers. An effective approach is to provide accurate culinary information in the translation such as the cooking method (fried, boiled, roasted, etc.). The addition of information regarding whether the dish is cold or hot, signature flavors (salted, sweet, spicy, etc.), special condiments would be highly appreciated by the customers. This implies using translation strategies and methods to compensate the lack of information.

The degree of palatability and exoticism will depend on each case and there is no standard recommendation. In some cases, exoticism will be accepted and more appealing while in other cases it should be toned down. What is important is to take these criteria into account and think about the customer and the function of the translation in order to find a balance between accuracy and practicality of the translation. The difficulties one might encounter in this kind of translation may be very complex, which means that a good deal of cultural knowledge as well as linguistic proficiency are required to produce a high-quality translation. Gastronomic translation has layers that go much deeper than it may seem at first.

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Isidoro Ramírez-Almansa

Agri-food translation within the vitiviniculture field: Wine language metaphors from Spanish into English

Abstract: The current work focuses on the translation of metaphors in the vitiviniculture field from Spanish into English. We have decided to establish the ES-EN combination, since English-Spanish is a very common combination in the translation market within wine-texts (Ramírez-Almansa, 2018a, 2018c). In addition, excellent trade relations exist between Spain and the UK and the USA. Besides, good communication between trade partners, customers and every agent involved in the process is necessary so that such commercial exchanges can succeed and even be improved. To achieve this, many documents (webs, labeling, wine-tasting charts, etc.) must be translated, as well as many negotiations or visits interpreted. Within the vitiviniculture language, the use of the metaphor is a common resource that has hardly been addressed from a ES-EN translation point of view. Thus, in our work we intend to study this phenomenon. To this end, we compile one significant text corpus, which is made up of several text genres in which wine language is present (wine text genres categorization by Ramírez-Almansa, 2020a): scientific articles, brochures, wine-tasting charts, journalistic texts, wine labeling, etc. Once the corpus is compiled, we proceed to metaphor extraction manually by selecting each metaphor belonging to the vitiviniculture field. Subsequently, we go over every metaphor and analyze its translation from Spanish into English using an analysis chart.

Keywords: Vitiviniculture, corpus, metaphor, translation, wine text genre, Spanish, English

1 Introduction

First, it is generally acknowledged that Spain has a long and rich wine-growing and wine-making tradition. For example, some data from FEV[1] (Federación Española del Vino, Spanish Federation of Wine) can be pointed out: Spain has 941,086

1 Retrieved December 15, 2022, from http://www.fev.es/sector-cifras/.

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hectares of vineyards (ca. 13% world's vineyards); Spain possesses around over 4,000 wineries of which more than 3,500 are exporting companies; the average wine and must production ranges from 40 to 42 million hectoliters per year (the third biggest wine producer in the world); Spain produces 25% of the wine in Europe, every single Spanish autonomous community produces wine; there are around 150 native grape varieties in Spain, 97 appellations of origin distinguish Spanish wine; and Spain is the top bio wine producer worldwide. All these data prove Spain's importance in wine-making, and wine-growing. Therefore, the long history that Spain treasures within this context is undeniable. This historical importance may be seen in many aspects, such as history, agricultural techniques, a wide variety of wine styles and wine grape varieties, and, of course, the terminology and the language. In fact, the first scientific work belonging to the wine-growing and wine–making field was published in 1792 by Cecilio García de la Leña, *Disertación en recomendación y defensa del famoso vino malagueño Pedro Ximen y modo de formarlo*. Just some years later, the work *Idea de la práctica enológica de Sanlucar de Barrameda* (1806) by Boutelou was also published. These works verify that wine terminology already existed at that time, earlier than the Chemical Revolution in Europe and the birth of enology as an independent discipline (Garriga, 1996: 419–435). In the light of the foregoing, we can affirm that an inherited use of this terminology has been taking place for centuries.

On the other hand, not only is Spain's importance in the wine-making and wine-growing history crucial for our study, but also its commercial importance in terms of money. In this export/import process, a high volume of text genres are directly involved (export and import data or wine labeling, and *e-commerce*, among others), as well as many others which are also indirectly involved regarding wine promotion (wine-tasting sheets or wine evaluation forms/charts, etc.). In order to ensure a fruitful relation between exporters, importers, potential users and drinkers, excellent communication is necessary. Therefore, a good translation or and interpretation is necessary too. It is here that the ES-EN combination becomes interesting, and it could even be said to be very productive from a financial point of view. According to OeMV[2] (Observatorio Español del Mercado del Vino), two of the five leading countries —in terms of economic value, not volume— that import Spanish wine are English-speaking countries: the USA and the United Kingdom. As we can see in Figure 1, the USA, just in the period from January to June 2022, bought Spanish wine that entails a total value of 193 million euros, which makes this country the main Spanish wine importer. The United Kingdom is the fourth Spanish wine importer, since, in

2 Retrieved November 20, 2022, from https://oemv.es/exportaciones-espanolas-de-vino-primer-semestre-2022.

the same time period, this country spent 144,5 million euros on Spanish wine. Also, it is essential to point out other English-speaking countries that import Spanish wine, although the economic value is not that meaningful. For example, Ireland imported Spanish wine of a total value of 14,8 million euros in the first six months of 2022. These figures acknowledge the importance of the English language within the Spanish wine export market. We may say that English is the most important language in this sense; consequently, the ES-EN language combination is more than productive and necessary.

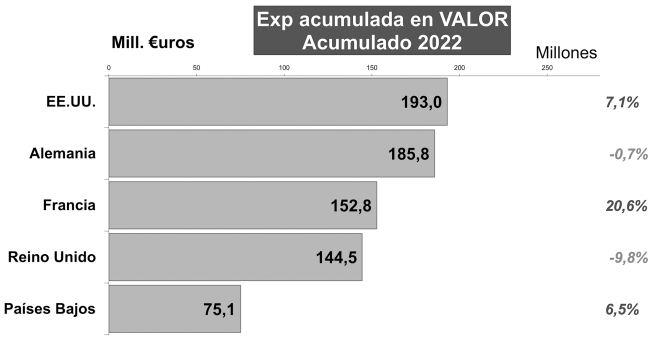

Figure 1: Spanish wine exportation by country and value from January to June 2022.

Thus, we may presume the existence of studies that delve into the metaphor in this context and its translation into foreign languages. Unfortunately, this is not the reality, as this aspect has not drawn the attention of researchers, interpreters, and translators. Just some works defend the use of the metaphor within some subdomains of the vitiviniculture field, mainly in the wine-tasting. Furthermore, these studies have not a contrastive approach. Thus, in this work, we focus on, firstly, the metaphor in the vitiviniculture field in Spanish and, secondly, on its translation into English; hence the importance of this language combination in the Spanish wine export market. Therefore, this work has several goals to meet. First of all, we aim to analyze the metaphors present in the whole vitiviniculture field in Spanish, not only in certain domains or subdomains. As we will point out later, there are no studies to date with this approach. Also, this work examines metaphor translation from Spanish into English, given the importance of this linguistic combination in the Spanish wine export sector. When analyzing the translation, we can ascertain if a metaphor for the same concept exists in English, and, if it does, how English represents the metaphor concept in comparison with the Spanish one, will be examined. In addition, this chapter aims at establishing in what domains and subdomains of the vitiviniculture field metaphors can be

found. To this end, we compile a significant text corpus that is made up of several text genres in Spanish, in which the vitivivinicultural component is present. Once the corpus is compiled, we proceed to metaphor extraction. Subsequently, we go over each metaphor and analyze its translation into English using an analysis chart.

2 Metaphors within the vitiviniculture field

There are many previous studies on the vitiviniculture language from a contrastive point of view covering several linguistic combinations: FR-ES (Álvarez-Jurado, 2017; Ibáñez-Rodríguez, 2006, 2007, 2010; Lerat, 2006); DE-ES (Balbuena-Torezano, 2015, 2018; Balbuena-Torezano & Cobos-López, 2018; Balbuena-Torezano & Ramírez-Almansa, 2017, Corbacho, 2004, Einsenreich, 2006; Martínez-Fraile, 2015; Ramírez-Almansa, 2018b, 2019a, 2019b, 2020a, 2020b, 2021; Sánchez-Nieto, 2006, 2010, 2013) and multilingual (Balbuena, 2017; Ramírez-Almansa, 2018a). Also, several works on the vitiviniculture language with a monolingual approach have been carried out in Spanish either from a historical point of view (Bajo-Santiago, 2002, 2003, 2006–2008) or focused on terminology (Barros, 2008; Carrillo, 2005¸ Jaime & Gómez, 2003; González, 2016, Jurado, 2001; Maroto-García & Sánchez-Ibáñez, 2016; Martínez-Ezquerro, 1995; Pallares, 2005; Sánchez-Ferra, 2005). As we can see, there are many publications from different perspectives on wine terminology in different languages; nevertheless, there are not many publications that look into the metaphor. We can highlight some works that look into the metaphor in Spanish. For example, Negro-Alousque (2013) examines the use of the metaphor in the wine field, more precisely, in the wine-tasting context. The author states that according to the examined metaphors, wine is considered as a living being, as an object, as a tissue, and as food. The study proves the presence of metaphors in a wine-testing context but not in the whole vitiviniculture field. Besides, the work only points out how the metaphors perceive the wine but doesn't pay attention to how they could be translated. Martínez-Lanzán (2006) also demonstrates the repeated use of metaphors in wine-tasting language and affirms that it is due to the sensory component of the wine-tasting. We find it fascinating when Martínez-Lanzán (2006) determines that the metaphors used in the visual phase are more objective and precise than those used in the olfactory and gustatory phases. Other works, such as Fraile-Vicente (2010) or Sancha-González (2006), explain that this change in the precision and objectivity of the wine-tasting metaphors can be understood taking into account that we can all actually see the wine during the visual phase, and it is not the same during the olfactory or gustatory phases.

Conversely, we focus on studies with a contrastive approach. In that case, we can highlight Planelles' (2013) work, who carries out a study with a contrastive perspective in FR-ES, in which the metaphor present in wine reviews both in French and Spanish is analyzed. *A priori,* this study may seem not to focus on wine-tasting, but this is a misperception. As with the aforementioned studies, the applied part of the study divides the analysis of metaphors into several sections, which are similar to the wine-tasting phases. In addition, the study does not delve into how the metaphor can be translated but into the similarities in the wine metaphors between French and Spanish. Luque-Janodet (2019) carries out a FR-ES contrastive study on metaphors but only covers the wine-tasting context. Changing the linguistic combination to EN-ES, some studies can be highlighted: López Arroyo & Roda, (2017) look into the metaphor in the wine-tasting sheets and demonstrate, despite the cultural and linguistic divergences between English and Spanish, the high degree of the universality of the metaphor. Furthermore, López-Zurita (2016) analyzed the translation of the book *Gatherings from Spain* from Spanish into English and established that the metaphor is a common resource when describing wine.

As we have already mentioned, several authors defend the presence of the metaphor within the vitiviniculture field. However, these studies have proved the use of this resource in a concrete domain of the vitiviniculture sector: wine-tasting. Nevertheless, no study researches the use of the metaphor in the whole vitiviniculture field in Spanish or its translation into a foreign language. There is only one work which analyzes the metaphor beyond the wine-tasting context: Ramírez-Almansa (2021). Ramírez-Almansa (2021) shows how the metaphor is present in more domains of the vitiviniculture field and not only in wine-tasting.

3 Corpus compilation and metaphor analysis

This is the applied section of our study, in which —after analyzing previous studies on our object of study— we compile a text corpus and carry out an analysis.

3.1 Text corpus compilation

As previously mentioned, we have compiled a text corpus for our study. This corpus is made up of texts originally written in Spanish. All the texts share a common link: the topic of vitiviniculture. That is, every single text chosen for the corpus deals with wine-making, wine-growing, wine promotion or description, or

something related to the world of wine. This is a very important aspect to highlight since the goal of our work is to study the metaphor in the whole vitiviniculture field and not only in some specific domains. When compiling the corpus, we follow the methodology proposed by Torruella & Llisterri (1999, p. 15). The authors distinguish five stages to compile a corpus: corpus goal, corpus delimitation, corpus type, textual genres present in the corpus and length limit of the sources. As already highlighted, the corpus goal is to study the metaphor within the whole vitiviniculture field. Thus, every text selected for the corpus represents at least one of the vitiviniculture domains, in order to make sure that no domain or subdomain remains unrepresented in the corpus. This feature turns our corpus into a specialized corpus, as it focuses on a very concrete field: vitiviniculture. In addition to this, to ascertain in which domains of the vitiviniculture field the metaphors are used, apart from wine-tasting, once a metaphor is analyzed, we also examine the domain to which the metaphor belongs. To do this, we follow the vitiviniculture domains categorization proposed by Ramírez Almansa (2020a). At the same time, this explains why, a vast variety of text genres made up the corpus given the wide thematic scope: books and book chapters, scientific journals, informative publications, oral presentations and PPTs delivered in conferences, doctoral theses, press articles, web pages and newsletters by institutions, descriptive charts, and business and informative web pages. We did not set any requirement in terms of a minimum number of any text genre, since we consider the thematic component to be more important for the study than the text genre. The same occurred when setting the degree of specialization; in the search for texts that cover the whole thematic field, we found texts that represent all the degrees of specialization, which lead us to select informative leaflets, book chapters, press releases and papers. To sum up, the aforementioned text genres and degrees of specialization were established as a consequence of our aim to cover the whole thematic field. Thus, we have worked with a broad range of text genres, which enables our study to analyze the metaphor in many different text genres, contexts and different degrees of specialization and abstraction.

Regarding the creation date of the texts and their geographical limitations, the oldest text present in our corpus was published in 2000, so the time range of our corpus covers twenty years, given that the newest text was published in 2019. At first sight, texts published sixteen or eighteen years ago may seem too old to be included in a corpus, but our thematic field —vitiviniculture— is not as dynamic as the technology field, such as 5G tech, despite part of belonging to the scientific–technical field also. Moreover, as already mentioned, every single text chosen for the corpus was originally written in Spanish and produced in Spain. In this way, we try to avoid diatopic variation in our corpus, therefore none of the corpus texts belongs to Latin American Spanish, only to Spanish of Spain All the corpus texts are framed in

the Spanish culture and Spain. This is a crucial matter to bear in mind, hence the importance of the culture of the language in understanding the metaphor. In this way, we also avoid any interference caused by diatopic variation. Obviously, from a linguistic point of view, the corpus is monolingual.

When compiling the corpus, we have considered the number of texts it should have, reviewing the existing literature on this matter. Scott (2012, p. 53) states that a corpus can be defined as representative when it is made up of between 10–25 texts; on the other hand, Laursen and Arinas (2012, p. 53) affirm that 15 texts are enough. Vigier (2016) argues that the ideal number of texts for a corpus ranges between 15–25. Ramírez–Almansa (2020c, p. 275) has reviewed some of the most important publications and establishes that the corpus meets the representative requirements by having a minimum of 15 texts. Thus, our corpus is made up of over 15 texts, 45 to be precise. In addition, according to Torruella & Llisterri (1995, p. 9–15), our corpus can be considered a *corpus grande* (big corpus) from a text distribution point of view, since, originally, we did not set any limits in terms of text volume. Also, we consider it important to point out that, of course, there are texts, such as doctoral theses or certain guides, which are rather long; in these cases, we established a range of between 8–12 pages from each text, when the text pages dedicated to our thematic field are over this figure. The exact amount was determined following coherence and cohesion criteria, so we selected text pieces that were interrelated from a structure (same section) or a thematic point of view. Also, some texts are actually over 12 pages, but the pages dedicated to our thematic field are under 12, so we simply extract this fragment. Owing to this variety in text quantity, our corpus is a combination of whole text corpora, because it includes whole texts, and reference corpora, since, in some cases, the whole text has not been selected, only a fragment.

3.2 Metaphor extraction and analysis

After compiling the text corpus, we proceeded to extract the metaphors. This process is done manually since no text corpus tool, such as Antconc or Sketch Engine, is useful in detecting and extracting metaphors. To this end, we have read and examined all the texts —or text fragments— from the corpus carefully, in order to detect and extract all possible metaphors. As previously mentioned, every single metaphor belonging to the wine field was extracted manually and analyzed using an analysis chart. The analysis chart (Table 1) we used is as follows:

Table 1: Analysis chart template.

(1) N.º	
Metaphor	**(2)**
Definition	**(3)**
Domain	**(4)**
Equivalence	**(5)**
Context	**(6)**
Comments on translation	**(7)**
Image	**(8)**

(1) In this field, the analysis chart is numbered.
(2) In this field, the metaphor is indicated.
(3) In this field, the metaphor is defined.
(4) In this field, the vitiviniculture domain of the metaphor is presented.
(5) In this field, the translation of the metaphor into English is presented.
(6) In this field, a context in Spanish to understand how the metaphor is used is given.
(7) In this field, any relevant comments to the metaphor translation are offered.
(8) Finally, in this field, an image that illustrates the metaphor is presented since it may help to understand its meaning.

At this point of our study, we consider it important to highlight some aspects of the metaphor. *A priori*, it may seem that the use of the metaphor is limited to literary language, but this figure of speech is used in many other contexts, such as publicity (Chamizo, 1998; Nieraad, 1978). In addition, Ureña (2011, p. 67) proves how the metaphor is used in specialized languages, such as marine biology language. Also, Ricoeur (1975) stated that the metaphor is more than a replacing or comparing tool; it is a figure linked to text semantics. Therefore, its analysis should be carried out on a semantic, text and syntactic level. According to Lausberg (1975, 1983), the metaphor can be defined as the election of a word against another when the literal meaning of both words has similarities. In order to create a metaphor, an object is identified through a comparison without all the components that make the comparison explicit.

After carrying out the metaphor extraction manually, we found 33 metaphors. As stated above, each metaphor was analyzed using the aforementioned chart.

3.3 Results

As previously mentioned, 33 metaphors were found and analyzed; however the 33 charts cannot be presented in this chapter due to the publication guidelines.

Hence, we have selected some of the most representative ones to illustrate the analysis. We discovered several metaphor translation patterns:

1. The metaphor exists in Spanish, but not in English. English has a term to refer to the metaphor or simply defines the concept. We can see an example of this pattern in chart n.º 18 (Table 2). Nineteen cases of this pattern were found.

Table 2: Analysis chart n.º 18.

	N.º 18
Metaphor	Vino de aguja
Definition	Designation for a carbonated product with an overpressure of 1 to 2.5 bar (for sparkling wine this is 3 to 6 bar) and an existing alcohol content of at least 7% vol. which is produced from wine. The overpressure must be due to endogenous (wine's own) carbonic acid. One also speaks of endogenous carbonic acid if it has arisen during the fermentation of grape must to wine and is later added to the product again. (Source: https://glossary.wein.plus/semi-sparkling-wine).
Domain	Semi-sparkling wine
Equivalence	Semi-sparkling wine
Context	Existen varios tipos de vinos espumosos según su tipo de elaboración. Así se pueden encontrar "vinos gasificados", a los que se les ha incorporado industrialmente la totalidad o parte del gas carbónico que contienen; "vinos de aguja", que son aquellos que por su origen o por su particular elaboración conservan una parte del gas carbónico procedente de la fermentación de azúcares propios o añadidos. Este gas carbónico se desprende en forma de burbujas sin que llegue a producir espuma; y por último, los "vinos espumosos naturales". (Source: http://urbinavinos.blogspot.com/2012/12/diferentes-metodos-para-elaborar-vinos.html).
Comments on translation	In this case, the metaphor is only used in Spanish. English uses a term to refer to this concept. English defines the concept. Thus, the correct translation is not the literal translation *needle wine.* Spanish uses the word *aguja* (needle) since the small bubbles of the wine remind one of tiny needles that can be seen through the bottle.

Table 2 (continued)

N.º 18	
Image	 (Source: https://www.catadelvino.com/uploads/281201511242610924a.jpg)

2. The metaphor exists in both Spanish and English, and there is correspondence, for example, the term *brazo,* whose translation into English is arm. Six cases of this pattern were found. In addition, we have found two different variants of this pattern; firstly, when the metaphor exists in both languages, but it has more denominations in one language, more precisely, in English: *lágrimas del vino* vs. legs, little legs, church windows, tears; secondly, when there are two metaphors in Spanish for the same concept and in English, there is only correspondence with one of the Spanish metaphors: *nieto* vs. grandson, but not *picardía* vs. lateral shoot. One case of each variant was found.
3. There is a metaphor in both languages for the same concept, but the metaphor elements are different: *lloro de la vid* vs. bleeding or *zarcillo* vs. tendril / twig. We can see an example of this pattern in chart n.º 14 (Table 3). Two cases of this pattern were found.

Table 3: Analysis chart n.º 14.

	N.º 14
Metaphor	zarcillo
Definition	Fastening organs of the vine. The vine belongs to the group of climbing plants whose natural supports are other plants, slender ascending woody plants but also hanging climbing plants (lianas). The tendrils are a transformed grape stem structure, the panicle of the inflorescence (clusters or later grapes). They are also closely related to the clusters. (Source: https://glossary.wein.plus/tendrils).
Domain	Growing → morphology
Equivalence	Twig / tendril
Context	También los pámpanos tienen otras ramificaciones delgadas, simples o de dos puntas o más que se llaman "zarcillos" y que se arrollan a cualquier cosa que encuentran. Cuando no tienen dónde agarrarse, terminan formando tirabuzones. (Source: Mijares y Sáez 2007: 40)
Comments on translation	In this case, the metaphor is only used in Spanish. English uses a term to refer to this concept. Thus, the correct translation is not the literal translation *earring.* Spanish uses the word *zarcillo* (earring), since the shapes of the little vine *zarcillos* remind one of earrings. English has a descriptive term for this concept (twig), but it also has a metaphor (tendril), because the vine *zarcillo* shapes are similar to curls.
Image	 (Source: https://www.vinopack.es/wp-content/uploads/2015/02/zarcillos-vid.jpg)

4. There is a metaphor in ES and in EN, but there is no total correspondence on the metaphor elements, only a partial one: *cordon / cuello* vs. foam collar. In this case, English needs to add the word "foam". In addition, Spanish has two metaphors for the same concept; conversely English only has one. One case of this pattern was found.

5. There is a metaphor in Spanish for one concept and, English takes the Spanish metaphor as a loanword: criadera. One case of this pattern was found.

We also consider it very important and illustrative for our chapter to present a list (Table 4) that collects all the metaphors found in our analysis:

Table 4: Metaphors found in the analysis.

Metaphor ES	Metaphor EN	Comments on translation	Domain
ataque	attack	The metaphor exists in both languages and there is correspondence.	Wine-tasting → gustatory phase
botón floral	flower-bud	The metaphor only exists in ES.	Growing → Phenology
bozal	wire / wire-up	The metaphor only exists in ES.	Production → vinification
brazo	arm	The metaphor exists in both languages and there is correspondence.	Growing → morphology
capa del vino	colour	The metaphor only exists in ES.	Wine-tasting → visual phase
cápsula	capsule	The metaphor exists in both languages and there is correspondence.	Production → vinification
collarín	neck-label	The metaphor only exists in ES.	Marketing → labeling
cordón / cuello	foam collar	The metaphor exists in both languages and there is partial correspondence.	Wine-tasting → visual phase
criadera	criadera	The metaphor is the same in both languages taking the Spanish metaphor as a loanword.	Production → types of vinification
cuello de la botella	neck	The metaphor exists in both languages and there is correspondence.	Marketing → labeling
desborre	bud burst/ bud break	The metaphor only exists in ES.	Growing → Phenology

Table 4 (continued)

Metaphor ES	Metaphor EN	Comments on translation	Domain
desfangado	racking must	The metaphor only exists in ES.	Production → processes
despunte	clipping / topping / trimming	The metaphor only exists in ES.	Growing → tillage
empalizamiento / empalizado	tying up	The metaphor only exists in ES.	Growing → tillage
escobajo	stalk / stem	The metaphor only exists in ES.	Growing → morphology
falsete	lower bunghole / tap hole	The metaphor only exists in ES.	Production → vinification
lágrimas del vino	legs, little legs, church windows, tears	The metaphor exists in both languages and there is correspondence. It has more denominations in English than in ES.	Wine-tasting → visual phase
lía	lee	The metaphor exists in both languages and there is correspondence.	Production → storage
lloro de la vid	bleeding	The metaphor exists in both languages, but the metaphor elements are different: *lloro* vs. bleeding.	Growing → Phenology
mosto de lágrima	free-run must	The metaphor only exists in ES.	Production → crushing
nieto / picardía	grandson / lateral shoot	There are two metaphors for the same concept: there is correspondence in the first case, but not in the second one.	Growing → morphology
nudo	node	The metaphor only exists in ES.	Growing → morphology
pulgar	renewal spur	The metaphor only exists in ES.	Growing → morphology
ribete	rim	The metaphor only exists in ES.	Wine-tasting → visual phase
sangrado	drawing off	The metaphor only exists in ES	Production → maceration

Table 4 (continued)

Metaphor ES	Metaphor EN	Comments on translation	Domain
sombrero (flotante/ sumergido/ de sólidos)	(floating) cap (of solids/ immersed or submerged)	The metaphor exists in both languages and there is correspondence.	Production → vinification
vino de aguja	semi-sparkling wine	The metaphor only exists in ES.	Production → types of wine
vino de lágrima	free-run wine	The metaphor only exists in ES.	Production → types of wine
yema	bud	The metaphor only exists in ES.	Growing → morphology
yema ciega	base bud on old wood	The metaphor only exists in ES.	Growing → morphology
zarcillo	twig /tendril	The metaphor exists in both languages, but the metaphor elements are different: *zarcillo* vs. tendril	Growing → morphology

Regarding the vitiviniculture fields in which metaphors are used, we can distinguish a wide variety: eleven belong to the production domain, five belong to the wine-tasting domain, two belong to the marketing domain, and thirteen belong to the growing domain.

4 Conclusions

After carrying out an analysis of the obtained results, we can reach several conclusions. First, in relation to our first goal, we point out the frequent use of the metaphor in the vitiviniculture field since this figure of speech has been found thirty-one times. Also, we can affirm that the metaphor within this field transcends the wine-tasting domain. In fact, the domain in which the highest number of metaphors has been found is the cultivation domain (13 cases), followed by production (11), wine-tasting (5) and marketing (2). In this sense, we followed the vitiviniculture domain classification by Ramírez-Almansa (2020a). However, it is essential to highlight that the use of metaphors may be endless when describing wine, given the sensory component of wine-tasting. Nevertheless, we did not focus only on this context, but on the whole wine field. Therefore, the metaphor

is a frequent and productive way of describing concepts within the whole vitiviniculture field in Spanish.

Moreover, when analyzing the metaphor translation from Spanish into English, several metaphor translation patterns were found. Generally, we can distinguish five of them; the most common one being when the metaphor only exists in ES and does not exist in EN (19 cases), followed by when there is a metaphor in both languages. Another common pattern is that in which there is total correspondence between the metaphor elements (6 cases). Inside this last-mentioned pattern, we found one case in which the metaphor has more denominations in EN than in ES, and another where there are two metaphors in Spanish for the same concept, and there is just correspondence for one of them. Furthermore, —we find this pattern very interesting— two cases were observed, in which both languages have a metaphor for the same concept, but the metaphor elements are different: *lágrima del vino,* tears in English, but also little legs or church windows, and vice versa, *nieto* is grandson, but *picardía* is not lateral shoot. In addition, we found one example in English, where the metaphor is the loanword of the Spanish metaphor, and another case with a partial correspondence between the metaphor's elements in English and Spanish.

Taking into account the above, we conclude that the Spanish vitiviniculture language makes greater use of the metaphor than English does, since there exist nineteen metaphors that are only used in Spanish. In addition, in some cases, the metaphor is literally translated from Spanish into English, or English even takes the Spanish metaphor as a loanword (*criadera*). Thus, the way in which the English language represents the metaphor may be based on the Spanish representation. In only two of the thirty-three cases, has English its own autonomy and entity to create an original metaphor. Nonetheless, the origin of the Spanish metaphor must be analyzed and whether the way of representing the metaphor is shared by the two languages or if Spanish influences the metaphor in English must be ascertained. As experienced researchers and translators in this field, and knowing that we may be wrong, we dare to say that the background of most metaphors in Spanish is its language, culture, and rich wine-growing and wine-making history. This is something that cannot be omitted. In the future, it would be interesting to analyze the presence of the metaphor in the whole vitiviniculture field in English and determine its degree of use. In this way, it could be determined, first, how often the metaphor is used in this specialized language and also in which domains. Moreover, the translation from English into Spanish should also be examined. Finally, these results could be compared to ours, enabling a better understanding of the capacity of each language to create metaphors and their behavior when translating them.

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Part II: **Corpora**

María Teresa Ortego Antón

The design of TorreznoTRAD: The semiautomatic Spanish-English writing and translation aid tool

Abstract: The internationalization of the agri-food sector in Spain has led to an exponential increase in writing and translation services from Spanish to English. In this socio-economic context, the methodology used to build TorreznoTRAD is described. TorreznoTRAD is a corpus-based tool that assists in the writing and translation from Spanish to English of *torrezno* product cards. TorreznoTRAD relies in the results of exploiting a virtual comparable (Spanish-English) corpus (C-MARMEAT). This corpus was compiled, annotated, and exploited following the protocol proposed by Seghiri (2017) and Ortego Antón (2019). Once C-MARMEAT was compiled, the Spanish subcorpus as well as the English subcorpus were rhetorically tagged with the help of OpenTagger (Sanjurjo-González & Andaluz–Pinedo, 2021) to determine the rhetorical structure composed of moves and steps (Biber et al., 2007, p. 23-24). Next, model lines, defined as typical sentences where the content and format are standard (Pérez Blanco & Izquierdo, 2021), were established and enriched with a bilingual Spanish-English terminological database with different categories such as additives, allergens, nutritional elements, packaging, ingredients, materials, origin, etc. Finally, the semiautomatic writing aid tool was developed to guide Spanish speakers through the writing process in English. Thus, it will automatically generate *torrezno* product cards to satisfy the needs of translators and writers who draft specialised texts about this product for the agri-food sector.

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1 Translation and the agri-food sector

One of the pillars of the Spanish economy is the agri–food industry and, more specifically, the meat industry, which has become the most relevant one in terms of turnover and direct employment (MAPA, 2022, p. 4–5). In addition to this, the main economic engines of rural regions located in Southern Sparsely Populated Areas (SSPA) are meat companies, which have a family structure, a small size, and a farming tradition. In order to market their products abroad, they require writing and translation services from Spanish into English.

Although one may think that neural machine translation systems could be the solution to meet the requirements of small and medium sized companies, genres are characterized by different patterns depending on the target culture. Hence, the promotion of a given product needs to be sensitive to cross-cultural differences to guarantee that target texts satisfy the standards and expectations of the target community, "not only regarding the meaning but also register, style, geographical variant, etc." (Durán Muñoz & Corpas Pastor, 2020, p. 164). One of the best tools to shed light on such similarities and differences are corpora, which have prominent roles in translation and contrastive studies.

Aware that agri-food translation is a field of knowledge still little explored in comparison with other domains, the ACTRES research group[1] is developing several corpus-based Spanish/English contrastive studies. This group analyzes pragmatic annotation in the agri-food corpus CLANES (Rabadán et al., 2021a), the promotional texts on the food industry (Rabadán et al., 2021b), promotional texts on cheese (Labrador and Ramón, 2020), texts on wine (Moreno Pérez & López Arroyo, 2021), olive oil (Sanz Valdivieso & López Arroyo, 2022), herbal teas (Pérez Blanco and Izquierdo, 2020, 2022), or dried meat product cards (Ortego Antón, 2019, 2021; Fernández Nistal, 2020; Ortego Antón & Fernández Nistal, 2020). Results enable the development and implementation of applications that can be integrated into linguistic tools based on natural language processing that will assist agri-food companies to overcome language barriers.

1 ACTRES (Contrastive Analysis and Translation English-Spanish) is an interdisciplinary research group led by Prof. Rosa Rabadán and Prof. Noelia Ramón (University of Leon, Spain): https://actres.unileon.es/wp/ (30 November 2022).

2 The development of semiautomatic writing aid tools

Translation efficiency does not only have to do with time and money, but also with quality. Although it could be thought that translation could be threatened by two factors: the popularization of machine translation and postediting, and the emergence of non-professional translation practices (Moorkens, 2017, p. 467), translators should be aware that successful interlinguistic communication depends not only on the use of English as a *lingua franca*, but also on the following factors:

> Successful communication will depend not only on the accurate transmission of relevant subject-specific information within the professional domain, but also on compliance with cultural conventions, both at the big and small cultural levels. To this end, acceptable usage language, plus an awareness of genre conventions, are paramount. (Pérez Blanco & Izquierdo, 2021, p. 148).

Hence, comparable corpora are paramount in Translation Studies because they guarantee that target texts satisfy the standards and expectations of the target community (Bowker, 2002; Laviosa, 2002; Beeby et al., 2009; Corpas Pastor & Seghiri, 2017; Sánchez Ramos, 2019; Seghiri & Arce Romeral, 2021; Ortego Antón, 2022, among others). Consequently, comparable corpora-based tools have multiple advantages for users, as they allow them

> to produce full texts in a foreign language following the rhetorical particularities, norms and conventions of a given genre; they guide the user through the format of the genre in question, suggesting full semantic units and phrases, rather than terms or individual elements. The units offered to the user are based on quantitative and qualitative corpus analysis of that specific genre, so the resulting text will not only be correct in grammar, structure and format, but also reflect the particularities of the genre in the language being used (Moreno Pérez & López–Arroyo, 2021, p. 259–260).

Although writing aid tools are intended for non-native speakers, they provide guidance not only in rhetorical structure and stock phrases and sentences, but also in the overall vocabulary and structures required for a given text (López Arroyo & Roberts, 2015, p. 151). Thus, translators directly produce a proofread text with the words, style, and format that the target community expects, so they fit the needs of the translator in terms of efficiency and provide solutions that machine translation cannot solve in its own.

Thus, in this paper the methodology used to build TorreznoTRAD is described. TorreznoTRAD is a corpus-based writing aid that assists translators and technical writers, among others, in transferring *torrezno* product cards from Spanish into English. It relies on the results of analyzing a comparable (Spanish-English) virtual

corpus (C-MARMEAT) in order to identify typical patterns in Spanish and English related to this genre, so technical writers and translators can directly produce a proofread text with the terminology, the register, and the macrostructure that the target community expects.

3 C-MARMEAT compilation and exploitation

Following the protocol first used by Seghiri (2017) and applied in several studies (Ortego Antón, 2019, 2020, 2023; Fernández Nistal, 2020; Seghiri & Arce Romeral, 2021, or Sánchez Carnicer, 2022, among others), C-MARMEAT is a virtual unidirectional Spanish-English comparable corpus compiled following four steps:

1) Searching for texts on the websites of renowned companies from different countries which sell pork belly, *torreznos,* and marinated meats. The collection of texts published on the Internet ensures authenticity and, at the same time, has allowed us to select texts belonging to a wide variety of authors.
2) Downloading the texts manually in HTML or XML format.
3) Formatting texts to TXT UTF8 so that they could be processed by corpus management software.
4) Storing texts in the C-MARMEAT folder, which was divided into three subfolders, HTML for XML files, and two more subfolders for TXT texts in English (EN) or in Spanish (ES) (see Figure 1).

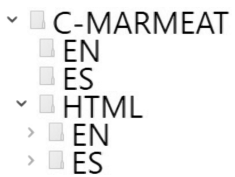

Figure 1: A sample of the structure.

In addition, the files have been named using an ID (e.g., 001MMwsMS211013ES.txt) composed of the number of the file (001, 002, etc.), the abbreviation for marinated meats (MM), the indication that the texts have been extracted from the web (ws), the abbreviation of the company they come from (e.g., MS for Moreno Sáez), the date they were downloaded (aammdd) and the language (EN or ES).

As a result, we have a virtual comparable (Spanish-English) corpus composed of 100 texts about marinated meat product cards originally written in Spanish (14042 tokens) and 100 original texts written in English (26391 tokens). C-MARMEAT is qualitatively representative because of the previously detailed procedure used to compile it. The difference in the number of words in each language in C-MARMEAT

is due to the fact that, in English, product features, packaging, recycling, and preparation and use are detailed, whereas in Spanish this information is much more synthetic. This phenomenon was also found in previous contrastive studies (Ortego Antón, 2019, 2021).

To conclude the process, the quantitative representativeness has been checked with the ReCor software (Seghiri, 2006; Corpas Pastor & Seghiri, 2010), which calculates the minimum number of words that the corpus must include to be representative in terms of the basic terminology in this genre.[2] ReCor provides two charts: A and B. In chart A, the horizontal axis represents the number of documents whereas the vertical axis shows the quotient of types divided by the number of tokens. In addition, there are two functions, the red one for the files listed alphabetically and the blue one for the files listed randomly. When both functions are steady, the corpus achieves the quantitative representativeness. Simultaneously, a second chart (B) is generated, which shows the minimum number of tokens needed.

Regarding the Spanish subcorpus of C-MARMEAT, quantitative representativeness is achieved with 70 documents and 13000 tokens, as shown in Figure 2.

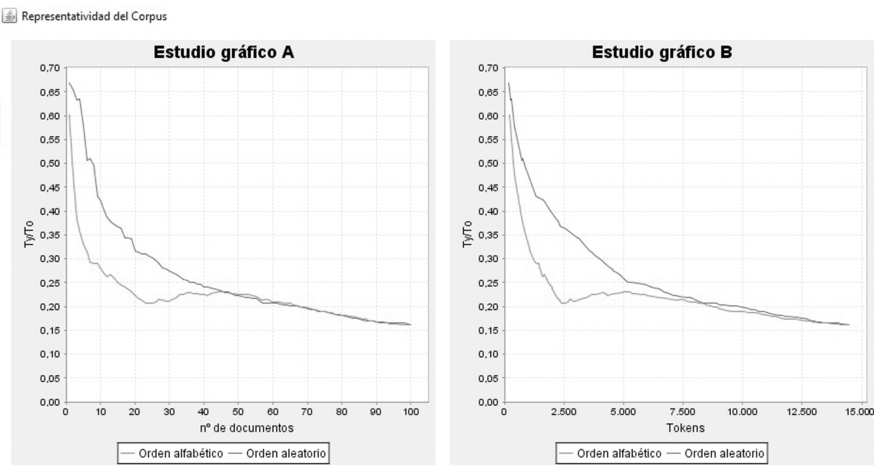

Figure 2: Quantitative representativeness of the Spanish subcorpus of C-MARMEAT calculated with ReCor.

2 More information about ReCor can be found at https://rsoftuma.uma.es/es/software/recor/ (30 November 2022).

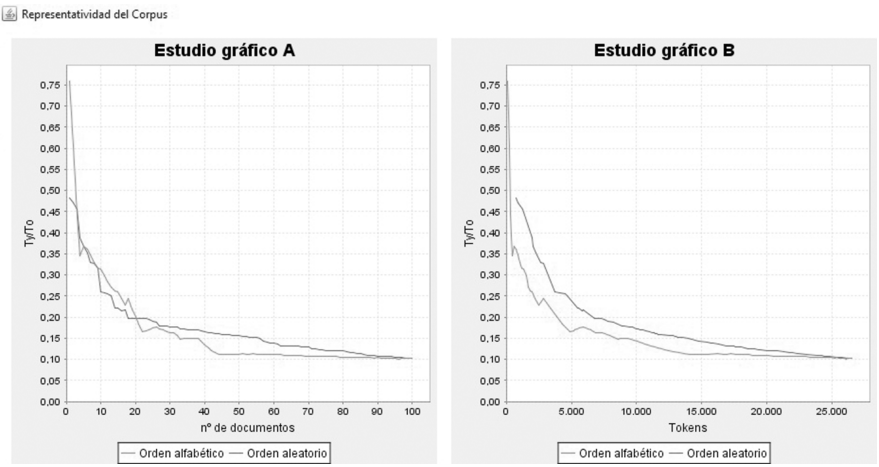

Figure 3: Quantitative representativeness of the English subcorpus of C-MARMEAT calculated with ReCor.

Besides this, in the English subcorpus of C-MARMEAT, more documents are needed to be lexically representative (80) and more words, 25000 tokens, as observed in Figure 3.

Data gathered from C-MARMEAT was examined in a multilevel analysis to develop TorreznoTRAD. Their analysis enabled us to establish the prototypical rhetorical structure, the model lines, and the bilingual terminological database, in line of previous ACTRES-led research results (López Arroyo & Roberts, 2015; Labrador & Ramón, 2020; Ortego Anton, 2019, 2020, in press; Pérez Blanco & Izquierdo, 2020, 2022, among others).

4 The rhetorical structure

To establish the prototypical rhetorical structure – defined as "the hierarchical organization of a text [involving] the various sections and subsections of a text, moves and steps" (López Arroyo & Roberts, 2015, p. 155) – the methodology proposed by Biber et al. (2007) was followed. These authors consider that textual genres are characterized by a series of rhetorical components called "move", which is defined as "a discoursal or rhetorical unit that performs a coherent communicative function" (Biber et al., 2007, p. 23). In turn, these moves can be divided into several steps, whose function is "to achieve the purpose of the move to which it belongs" (Biber et al., 2007, p. 24). The analysis proposed by these authors makes

it possible to identify the linguistic characteristics of the moves; it provides a description of the typical structural and distributional characteristics of each move; it offers data on its relative position in relation to other moves; and it makes it possible to develop a certain textual genre.

Hence, we established a set of tags associated with the moves (see Figure 4).

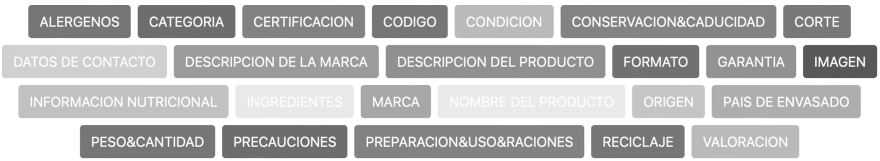

Figure 4: Set of tags used to rhetorically tag C-MARMEAT.

Next, C-MARMEAT texts in both languages were rhetorically tagged with the aid of OpenTagger (Sanjurjo-González & Andaluz-Pinedo, 2021).[3] OpenTagger is an open-source linguistic tagger written in the JavaScript programming language which allows users to include any type of information to the different paragraphs, sentences, or words that compose a text.

Once both subcorpora of C-MARMEAT were tagged, the percentages of moves in each of the annotated subcorpora (Spanish and English) were checked and compared, as well as the occurrence of such moves. The data resulting from this comparison allowed us to develop a rhetorical structure prototype in each of the working languages as shown in Table 1. The frequency of occurrence is represented with stars: from the compulsory nature shown by five stars (*****) to the little frequency labelled with one star (*).

Table 1: Prototypical rhetorical structure of marinated meat cards.

SPANISH	FREQ.	ENGLISH	FREQ.
1. Nombre del producto (*****)	100%	1. Image (*****)	95%
2. Imagen (*****)	98%	2. Name of the product (*****)	93%
3. Descripción del producto (****)	70%	3. Category (***)	39%
4. Categoría (***)	47%	4. Code (*)	12%
5. Conservación, preparación y precauciones (***)	43%	5. Format (*)	15%
6. Peso y cantidad (****)	72%	6. Preparation, use & servings (****)	76%
7. Formato (***)	41%	7. Origin (**)	36%

3 Opentagger: https://actres.unileon.es/opentagger/ (21 December 2022).

Table 1 (continued)

SPANISH	FREQ.	ENGLISH	FREQ.
8. Ingredientes (***)	58%	8. Warning	12%
9. Alérgenos (***)	47%	9. Use by (***)	41%
10 Preparación, uso y raciones (**)	41%	10. Product description (*****)	81%
11. Código (**)	27%	11. Weight (****)	65%
12. Valoración (*)	12%	12. Nutritional values (****)	66%
13. Información nutricional (**)	37%	13. Allergens (**)	32%
		14. Ingredients (****)	73%
		15. Recycling (**)	27%
		16. Review (*)	17%
		17. Brand description (*)	11%
		18. Contact (**)	35%

Having established the prototypical rhetorical structure in Spanish and in English, the most frequently used lexicogrammatical patterns in each move were semi-automatically detected to solve problems in how to string words together, not only correctly and acceptably, but also idiomatically.

5 The model lines

Model lines can be defined as "typical sentences and parts of sentences found in a given text type where the content and format are fairly standard" (López Arroyo & Roberts, 2015, p. 157). They are found in both writing templates and translation-based writing applications.

In C-MARMEAT, when establishing the prototypical sentences, we agree with Pérez Blanco and Izquierdo (2021, p. 157) that phraseological and lexicogrammatical patterns, even though formally diverging, are functionally equivalent. On the basis of this similarity, with the aid of AntConc 3.5.8. (Anthony, 2019), which is a freeware corpus analysis toolkit for concordancing and text analysis, all instances of each move were examined in the English subcorpus of C-MARMEAT. To find the instances, we searched for the tags, i.e. "</INGREDIENTES>", and the content tagged was shown (see Figure 5).

Each occurrence was examined and the most frequent model lines for the moves were identified. This examination was manually handled, paying attention to the phraseology whose content matched the communicative function of the chunk where it was found. Results show three different patterns following the methodology used in Ortego Antón (2023).

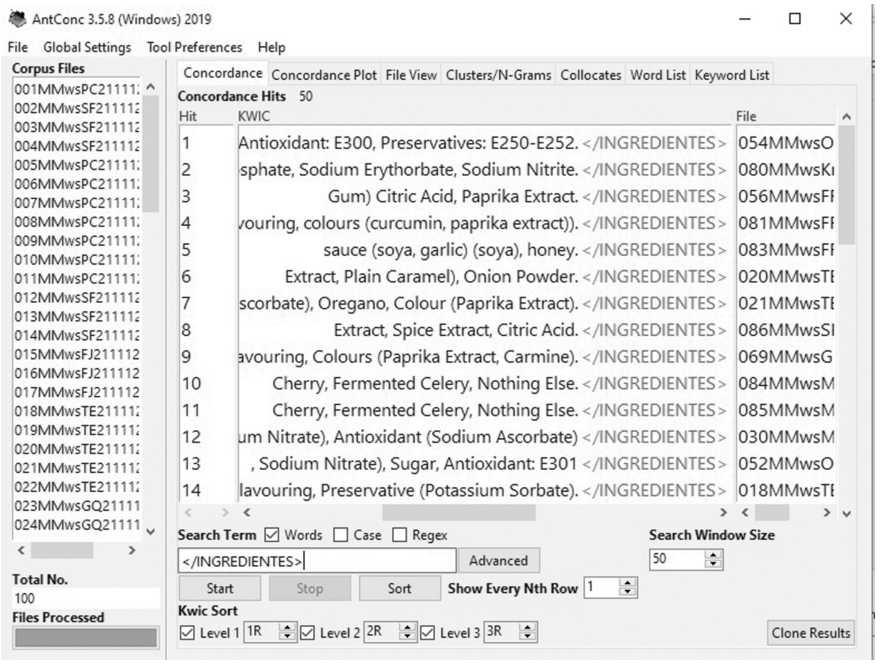

Figure 5: Example of search with AntConc 3.5.8. (Anthony, 2019).

a) compulsory patterns, which are represented with curly brackets, making it necessary to insert a word or group of words from a selection list;
b) optional patterns, which are emphasized with brackets to show that the information included in them is optional and can be omitted;
c) selection between two options delimited with braces and separated by a slash.

For instance, the move "Ingredients" has three different model lines which are shown accompanied by some examples to help translators and technical writers transfer the content into English:

1. [{Ingredients / Ingredients list}[(allergens in CAPITALS)]]: (INGREDIENTE) [(CANTIDAD)] [(INGREDIENTE)]; [Flavouring: (INGREDIENTE) [(CANTIDAD)] [(INGREDIENTE)]].
    a. Example 1: Pork (97%), Demerara sugar (Sugar, Cane Molasses), Sugar, Cinnamon, Salt, Ph Regulator (E500), Preservatives (E252, E250), Antioxidant (E301).
    b. Example 2: Ingredients: British Pork (95%), Sugar, Cornflour, Salt, Honey Powder (Maltodextrin, Honey), Fennel Seeds, Soya Sauce (Water, Soy Beans (Soya), Wheat, Salt), Garlic Powder, Maltodextrin, Onion Powder,

Aniseed, Beetroot Powder, Stabiliser: Guar Gum; Cinnamon, Colour: Paprika Extract; Flavourings, Cloves, Black Pepper.

2. [{Ingredients / Ingredient list}.] [Pork] {Cured / Rubbed} with: (INGREDIENTE).
   a. Example 1: Ingredients. PORK CURED WITH: WATER, SALT, SUGAR, SODIUM PHOSPHATES, SODIUM ERYTHORBATE, SODIUM NITRITE
   b. Example 2: Ingredients. Cured With: Water, Salt, Sugar, Sodium Phosphate, Sodium Erythorbate, Sodium Nitrite.
3. (NOMBRE DE PRODUCTO) is made by curing (PIEZA) with (INGREDIENTE).
   a. Example 1: Pancetta is made by curing pork belly with salt & pepper.

These model lines function as controlled language choices for the Spanish–speaking user to consider during their production of the English texts to ensure the idiomaticity, the grammatical accuracy, and genre acceptability (Pérez Blanco & Izquierdo, 2021, p. 159–160). When a term has to be chosen, TorreznoTRAD also incorporates a terminological database.

6 The terminological database

TorreznoTRAD, the semiautomatic writing and translation aid tool, includes a terminological database with terms and equivalents. First, term candidates were automatically extracted from the Spanish subcorpus of C–MARMEAT using TermoStat Web 3.0. (Drouin, 2003) and then, terms were validated by applying the criteria proposed by L'Homme (2020, p. 72–75). This procedure was repeated in the English subcorpus of C-MARMEAT and equivalents were manually established following the methodology proposed by Ortego Antón (2019, p. 180). Terms and their equivalents were gathered in several Microsoft Excel spreadsheets organized by semantic fields: actions, adjectives, allergens, kitchen gadgets, categories, cooking, additives, cuts, ingredients, nutritional values, unit of measures, etc., accompanied by the part of speech, the equivalents, and an example of use (see Figure 6).

Once we have completed the linguistic data, we have developed the computing tool with the aid of computing engineers.

	ES	EN	GRAM	EX
2	aditivos	additives	N	This product contains additives
3	antioxidantes	antioxidants	N	This product contains Antioxidants
4	apio	celery	N	Contains celery
5	aromas artificiales	artificial flavours	N	Free from artificial flavours
6	azúcares	sugar	N	Sugar free
7	cerdo	pork	N	Contains pork and its derivatives
8	colorantes artificiales	artificial colours	N	Free from artificial colours
9	conservantes	preservatives	N	This product contains Preservatives
10	dióxido sulfúrico	sulfur dioxide	N	May contain traces of sulphur dioxide
11	fenilalanina	phenylanine	N	May contain phenylanine
12	frutos secos	nuts	N	May contain nuts
13	gluten	gluten	N	Gluten free
14	lactosa	dairy	N	Dairy free
15	leche	milk	N	May Contain Milk

Figure 6: Screenshot of terms belonging to the semantic field of allergens.

7 Examples

The previous linguistic work at language level has been transferred to the computational level using a variety of programming language. HTML5 is a mark-up language used in the design of the the graphical user interface. Accordingly, three cascading style sheets (CSS3) were used to achieve a modern-looking interface that adapts to screen size, using the Bootstrap toolkit, and to personalize general views and the sidebar menu with main.css and sidebar-menu.css respectively. In addition, AngularJS (1.5.0) is a JavaScript-based front-end web framework for client-side model-view control. This program is useful to develop single-page applications. MongoDB (2.6.11) is a NoSQL document-oriented database that stores JSON-like documents. Finally, Node.js (4.2.6) is a server-side JavaScript environment that has been used to query the MongoDB database program, and to create API REST, which is a protocol for data exchange on the Internet. We have used it to retrieve query hits in a JSON format. It also enables image storage.

Once logged onto the home page, TorreznoTRAD is a dynamic web-based software with a user-friendly interface that guides translators and technical writers through the writing and translation of *torrezno* product cards. They get suggestions for drafting that they will have to complete, either with the help of the terminological database or by themselves. As the user progresses, the writing is saved, which enables a preview of the output at any time, whether or not the text is fully edited. Users navigate between the different moves (see Figure 7).

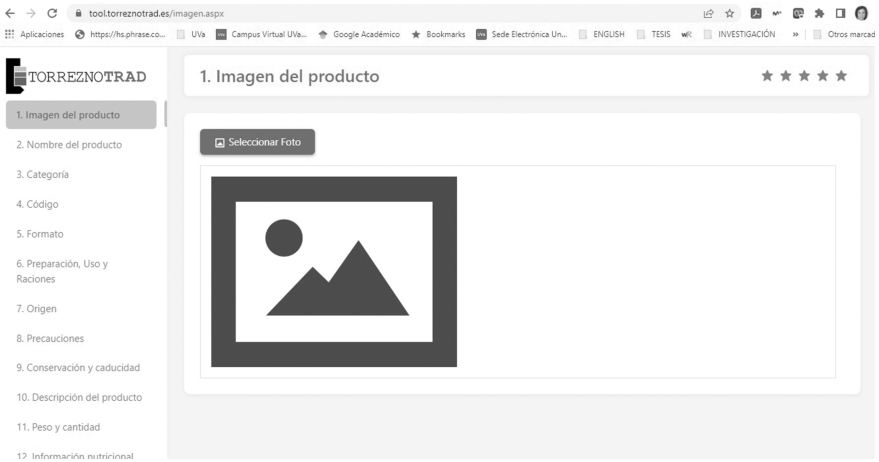

Figure 7: Menu with the structure of the marinated meat product card.

For example, when the move "14. Ingredientes" is selected and the "Sugerencias" button is pressed, a pop-up window appears where the three model lines are shown so that the user must choose one of them by clicking on "Añadir". Besides, when scrolling through each of the model lines, an example appears as shown in Figure 8.

Figure 8: Model lines of the "Ingredients" move.

The tool offers different elements that guide the user with different colored buttons, that is, red indicates that a word or group of words is an optional text fragment, dark grey is used for selecting options from the terminological database, and orange shows two or more options from which the user must choose one.

Therefore, the user completes the content of the marinated product card following the instructions provided by the different windows. When users have to choose a lexical unit from the terminology database, it appears in dark grey. Clicking on "INGREDIENTE" displays a window in which the user types the first characters of the term in Spanish, and the English equivalents are offered (see Figure 9).

Figure 9: Example of a drop-down menu for choosing a lexical unit.

When the user has completed all the fields, the preview button at the left menu provides the final version of the English marinated meat product card, in DOCX format, adapted to the linguistic and cultural conventions of English discourse.

To sum up, corpus-based research has enabled the development of writing aids which are useful and efficient because they rely on the extraction and analysis of real data from comparable corpora. Among the existing writing aids, TorreznoTRAD is a tool that can help increase the productivity of agri-food companies, as it shortens the translation process, since translators and language professionals are not generally trained nor specialized in agri-food genres.

8 Conclusions

The aim of this chapter has been to explain the development and functioning of an English specialized writing and translation tool for Spanish professionals. In particular, the tool is customized to meet the needs of a very specific group of

users in the agri-food sector manufacture and promotion, that is, local meat companies grouped under Asociación de Fabricantes de Torrezno de Soria.

Besides, the development of linguistic applications such as TorreznoTRAD makes it possible to transfer research results to the productive framework so that small and medium sized companies may reach the international market, and translators and technical writers can increase productivity. All in all, dried meat companies can offer quality information on the Internet.

Moreover, the methodology used for design and development of TorreznoTRAD could be easily reproduced in other studies dealing with different genres in this field or other pair of languages, so new resources could be built in.

From an academic perspective, future multilingual translators and technical writers must be trained in the particularities of the different specialized genres so that they are not limited to transferring the content to another language but can also ensure quality and acceptable texts that suit the communicative situation of the target culture. Thus, it is important to transfer these results to specialized translation courses.

Finally, a neural machine translation module is currently being added to TorreznoTRAD to supplement data which have not been included in the terminological database. At the same time, multilingual writing aids for other areas of the agri-food sector will continue to be developed.

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Isabel Pizarro-Sánchez, Leonor Pérez-Ruiz

Rhetorical structure and promotional language in baked product descriptions: An English-Spanish contrastive analysis

Abstract: This study explores the relation between rhetorical communicative functions and grammatical categories and more specifically between persuasion and adjectives in online biscuit descriptions. Promotional genres make use of linguistic and non-linguistic strategies to achieve their persuasive function and among the linguistic ones, we find the use of positive adjectives. The purpose of this paper is twofold: (i) to describe the rhetorical structure of online descriptions and the distribution of adjectives in the different rhetorical sections of the genre, and (ii) to analyze the relationship between rhetorical communicative purposes and adjective frequencies to figure out how the communicative purpose of each move/step influences adjective distribution, in English and Spanish. The research is based on an English-Spanish comparable corpus of online baked descriptions, including cookies, cakes, muffins, pastries, crackers, and bread. The contrastive analysis was carried out in two stages, first the rhetorical level was described and then the grammatical one. The most frequent adjectives and their concordances were analyzed to classify them to establish common features that would explain their use in specific rhetorical moves and steps. There is an association between the frequency of positive adjectives and the different rhetorical moves of the genre in both languages. Objective moves and steps show a lower use of adjectives, whereas subjective ones show a greater frequency of adjectives in general and of positive evaluative adjectives in particular, which can be explained by the rhetorical function of the sections where they are used.

Keywords: Product description, rhetorical structure, persuasion, adjective, English, Spanish

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1 Introduction

Online product descriptions are the main elements that make up catalogues or e-catalogues when published on the Internet, being their function to increase mail order sales, phone sales, or in-store (Bennett, 1995), i.e., to sell the product. As many other genres and subgenres, they have evolved from being mainly informative to a "hybrid partly promotional genre" (Fairclough, 1993). This evolution is the result of a pressure to sell products and services in our consumer society and subsequently it leads to increasing promotional concerns and to the inclusion of elements of promotion in many social, professional, or academic genres that were not originally considered promotional (Bhatia, 2005), among them we can find food descriptions in general, and more specifically descriptions of baked products.

Total expenditure on advertising including all major media shows "a long-term stable growth factors" (Janoschka, 2004, p. 14), although there are media-related differences with online advertising showing the best figures, probably due to its comparatively low costs and the growing number of people using the Internet (Janoschka, 2004, p.15). In the professional marketing industry, marketers are particularly interested in how language influences people's purchasing decisions and how to use it to improve the sales of the products and services they advertise by means of different promotional genres, such as e-catalogues including online descriptions, web-ads, posters, radio spots, or billboards, to name a few. It is therefore common for advertising and marketing-related university degrees to include in their syllabus modules such as Advertising language, Creative communication, Professional writing, Content creation and the like. This interest is also reflected in the websites and blogs that deal with this topic and its specificities, such as the choice of words, so it is easy to find lists with marketing words to use or avoid in order to boost a brand, and even list of advertising adjectives or adjectives with punch.

In view of this interest, the present study explores the relation between rhetorical communicative functions and grammatical categories and more specifically between persuasion and adjectives. Promotional genres make use of linguistic and non-linguistic strategies to achieve their persuasive function (Bhatia, 2004) and among the linguistic ones, we can find the use of positive adjectives (Labrador, Ramón, Alaiz-Moretón, & Sanjurjo-González, 2014; Izquierdo, & Pérez Blanco, 2020). The purpose of this paper is twofold, on the one hand to describe the rhetorical structure of online baked descriptions and the distribution of adjectives within it, on the other hand to analyze the relation between rhetorical communicative purposes and adjective frequencies and find out how the communicative purpose of each move/step influences adjective distribution and types, in English and Spanish.

2 Online advertisements and persuasive language

Online product descriptions can be categorized as a genre since they fulfil Swales' (1990) definition of genre, i.e., they share a set of communicative purposes, shape the schematic structure, and constrain the choice of content and linguistic style. More specifically, they are a promotional genre as they show the main promotional communicative purposes, namely, to inform potential customers, to persuade them to buy the product or service, and to promote the image of the product and the brand (Bhatia, 1993). Although they are part of the colony of promotional genres, i.e., group of genres sharing promotion as their main communicative purpose, online product descriptions are a distinctive genre with differences in its communicative purposes (Bhatia, 2005): informative and persuasive, and promotional in the marketing sense. Like any other genre, product descriptions are made up of functional components called 'moves' that may include one or several functional subcomponents or 'steps' (Swales, 1990; Bhatia, 1993) whose specific communicative functions contribute to the general purpose of the move and thus of the genre (Biber, Connor, & Upton, 2007).

Online advertising differs from traditional advertising such as print, radio, or TV in their interactive approach (Janoschka, 2004) and its medium. The medium, the Internet, frees advertisers from space restrictions and allows them to decide the length of the promotional text based on purely advertising criteria, being either a long or short copy (Cook, 2001). The interactional approach is found in rhetorical elements such as *Follow us*, *Reviews* or *Contact us* where there is the possibility of an exchange of ideas between participants, potential buyers and sellers in human or machine form, though online descriptions, as part of e-catalogues, are characterized as static web ads with a low level of interactivity, according to Janoschka's classification of web ads. As we will see below, this is reflected in the very low frequency of use of moves with interactive function, *Opinion* and *Contact* in the genre under study.

Persuasive and promotional strategies have been approached from different fields of expertise, mainly linguistics and marketing, and always with a similar objective, to find out how language is used to increase sales or promote the image of a company and its products. Fuentes Rodríguez and Alcaide Lara (2002) describe the linguistic mechanisms of persuasion, and, because of their relevance to our research, we single out the macro-textual structure (sequential organization), lexical resources, and technicisms as a specific persuasive technique. According to these authors, each genre has a pre–established organization in which the sequencing of information differs, hence creating different rhetorical structures

with moves and steps as defined by Swales and Bhatia. Their description of lexical resources includes emphatic lexical structures, repetition of lexical elements to emphasize part of the message whether opinion (subjective) or information (objective), and the use of positive evaluative adjectives sometimes with a pejorative or even ironic character, among others. Finally, technicisms are lexical elements whose original usage was intended as a mechanism of communication in the field of science and technology, since they are designations of specific concepts within a specific discipline. However, in the field of advertising and marketing, they are used to persuade the audience, which makes them argumentative techniques of a lexical nature. They are signifiers that acquire a positive meaning contextually, and although most readers are unable to decode their meaning, they can decode the positive context of use and hence predict a positive meaning; in short, technicisms act as purely promotional elements with an important appellative value. However, they are devoid of information because they cannot be decoded by most receivers, so they merely convey positive connotations and simply sound good to the target audience (Fuentes Rodríguez & Alcaide Lara, p. 348–358).

As mentioned before, adjectives are an essential element in the persuasive function of the language. Major grammars provide a detailed study on the lexical word class *adjective*, which is described by its morphological, syntactic, and semantic features (Quirk, Greenbaum, Leech, & Svartvik, 1985; Biber, Johansson, Leech, Conrad, & Finegan, 1999; Huddleston, & Pullum, 2002). Central adjectives characterize nominal expressions, serve attributive or predicative roles, and denote different attributes like color, material, size and dimension, shape, age, origin, material, etc. which are used in diverse conceptual semantic categorizations such as Dixon's (1982), on which we have partially relied for our own classification. Other categorizations follow morphological, syntactic, semantic, or pragmatic criteria or even a combination of these (Fragaki, 2010; Edo-Marzá, 2011). It should be noted that we have not made a grammatical distinction between participial adjectives and adjectives.

Numerous studies deal with the language of advertising and persuasion in general (Leech, 1966; Hyland, 1998; Rush, 1998; Cook, 2001; Fuertes-Olivera, Velasco-Sacristán, Arribas-Baño & Samaniego-Fernández, 2001), describing commonly found linguistic features such as catchphrases, abundance of non-finite clauses with positive information, complex noun phrases with premodifiers and postmodifiers, the frequent use and high variety of compound adjectives, and others. More recent research has investigated a similar matter although from a genre approach, but few are the studies published on the use of persuasive language in online food descriptions. Edo-Marzá (2011) describes the use of evaluative adjectives in promotional hotel websites giving her own categorization based on a collocational analysis. Labrador et al. (2014) analyze online advertisements of electronic products to establish their rhetorical structure and the linguistic ele-

ments that contribute to the persuasive function of the genre, including multiple modifications with two or more adjectives, compound adjectives, quantifying expressions with positive connotations, and emphatic devices, to name a few. Finally, Izquierdo and Blanco (2020) conducted a similar work although on food descriptions; they analyzed herbal tea promotional texts being their results consistent with previous research; furthermore, they categorized six promotional strategies "which are conveyed using descriptive and evaluative language" (p. 52) with features such as "evaluative adjectives that invoke something positive and pleasant" among others. Our work analyses the relationship between rhetorical communicative purposes and adjectives frequencies to gain insight into how the communicative purpose of each move or step of online biscuit descriptions affects the adjective distribution in English and Spanish.

3 Data and method

3.1 Corpus Description

This research is based on an English-Spanish small comparable corpus which is genre-specific, C-BakedGoods corpus. It includes online descriptions of bakery product such as cookies, cakes, muffins, pastries, crackers, and bread. It is part of CLANES, a comparable English/Spanish corpus consisting of seven sub-corpora in the fields of food and drink, with almost 1.5 million grammatically and semantically annotated words (Rabadán, Ramón, & Sanjurjo-González, 2021). C-BakedGoods is made up of 330 complete texts in each language, totalling 49468 running words in English and 59770 in European Spanish. All texts were originally produced and published under similar conditions and were randomly collected between 2014 and 2017. They were downloaded directly from manufacturers' or retailers' websites and were converted into UTF-8 encoded txt files. Images, illustrations, and any other non-verbal and multimodal elements were automatically deleted in this process. To avoid author or brand bias, texts belong to different well-known brands and were downloaded from the corresponding website brands or from well-known online shops, 42 in English and 40 in Spanish; examples are Cadbury, McVities, Burton, Wowbaking, PlumIsland, Archway, Nabisco, FarmHuse, Lismore, etc., in English, and Lu, Gullón, Milka, El Gorriaga, Cuétara, Belsi, Marbú, Reglero, Hero, etc., in Spanish. The complete list of files, including file tokens and sources, is available at http://contraste2.unileon.es/web/es/corpus0_C-BakedGoods.html.

Given that the size of the corpus is a key issue that depends on the type of research, we used ReCor computer program to evaluate the representativeness thresh-

old of the corpus, in terms of number of words and files (Seghiri, 2010; Corpas Pastor, & Seghiri, 2009). ReCor has to be used a posteriori, once the corpus has been compiled. It analyses "the lexical density of a corpus in relation to the increase in documentary material included" (Corpas Pastor, & Seghiri, 2009, p. 88); it thus establishes the representativeness for the most demanding type of study, the lexicographical, compared to grammatical or rhetorical studies whose elements show an even distribution due to a frequency effect (Hilpert, & Correira Saavedra, 2017). ReCor results indicate that the English subcorpus is representative from 55 texts and 8000 tokens onwards, whereas the Spanish one requires more data to achieve representativeness: 80 texts and 12000 tokens. In the light of these results and given that manual tagging is a labor-intensive and time-consuming task, we randomly selected 100 texts per language, which were manually tagged at the rhetorical level for further analysis. We set this number for two main reasons: it exceeds the number of texts and words marked by ReCor as representative of the corpus (significant sample), and because of the number of works related to grammatical and rhetorical aspects that use 100 files when working with specialized corpora.

3.2 Procedure

Once the corpus was compiled, the same procedure was applied to the Spanish and English sub-corpora. First, we conducted an analysis of the rhetorical structure of the texts to identify not only the moves and steps but also their frequencies, which was necessary to determine whether they are obligatory or optional and, thus, establish a common structure for the genre under study. Then, we retrieved and analyzed the adjectives of the moves and steps which are not used occasionally.

The rhetorical structure of the texts was manually tagged with *Rhetorical move tagger*® (ACTRES Tagger), a tool designed to help in the tagging process. Previously, we had to define the specific tag set for the genre of our interest (baked online product descriptions), load the corpus, and then tag it. As already mentioned, this is a laborious task carried out on a significant sample of the corpus (100 texts). To retrieve the tagged information, we used the complementary tool *Comparable corpus browser*® (ACTRES Browser), which allows the automatic retrieval of any previously used rhetorical tag to obtain as many subcorpora as rhetorical sections (moves and steps).

The set of rhetorical tags was established using Bahtia's (2005) generic structure of advertisements as the starting point. Since online product descriptions are not advertisements as such, they do not fully conform to Bhatia's structure, hence, the rhetorical tag set was modified to fit the corpus data. The final rhetorical tag set

was established after conducting a pilot coding test in a randomly selected small sample of the corpus and redefining the categories as needed. ACTRES Tagger was fed with these categories (Table 1) and two researchers manually chose among them to annotate the corpus at its rhetorical level. The identification of the different moves and steps of each text was a complex task since these functional elements do not necessarily have clear boundaries like punctuation marks. To solve this, we used all kinds of evidence, including content and linguistic clues such as section headings, titles, subtitles, key words, verbs, non-verbal elements (bold and italic types, layout), etc. and we applied a functional–semantic approach, which requires a very close reading. This tagging process was carried out by two researchers working together who had to agree on the tags prior to adding them; when discrepancies arose, a language informant helped to reach an agreement. The researchers coded the corpus manually, however, the coding was inserted electronically with the ACTRES Tagger so that it can be reused with other linguistic analysis tools. Then, each rhetorical subcorpus was automatically retrieved by ACTRES Browser, together with its statistic information referring to the frequency of use and the number of tokens. Thus, the description of the rhetorical structure includes their frequencies of occurrence (100 files per language) which we used to classify its moves and steps as compulsory (>80%), high priority (80–60%), medium priority (59–40%), low priority (39–20%) or occasional (<20%). It should be noted that there is no established threshold that delimits these categories as different scholars use different scales (Biber, Connor, & Upton 2007; Connor, 2000; López Arroyo, & Roberts, 2014; Rabadán, 2016; Pizarro-Sánchez, 2017). Following López Arroyo and Roberts (2014), we decided to discard any rhetorical element with low frequency, although we set a threshold of 20%, instead of the 40% used by them.

Table 1: Rhetorical tag set.

Moves	Steps
1.- Presentation	1.1- CompanyName 1.2- ProductName 1.3- ImageBiscuit 1.4- ImagePackaging
2.- Slogan	2.1- Slogan
3.- Main Product Description	3.1- Description 3.2- Ingredients 3.3- NutritionalValues 3.4- AllergenInformation 3.5- SuitableFor

Table 1 (continued)

Moves	Steps
	3.6- Packaging 3.7- StorageConditions 3.8- UseBy 3.9- Disclaimer 3.10- CodeReference 3.11- Video
4.- Opinion	4.1- Comments 4.2- ShareOn 4.3- FollowOn
5.- Tastyfacts	5.1- TastyFacts
6.- Flavours	6.1- FlavourName 6.2- FlavourDescription 6.3- FlavourNutritionalV 6.4- FlavourAllergenInfo 6.5- ImageFlavourBiscuit 6.6- ImageFlavourPack
7.- Contact	7.1- e-mail 7.2- Address 7.3- Telephone 7.4- Map
8.- Order	8.1- Order
9.- Other	9.1- Other

After identifying the rhetorical subcorpora with frequencies higher than occasional, we automatically retrieved the lists of their adjectives, cleaned them manually if necessary, and analyzed them. To retrieve them, we used SketchEngine (Kilgarriff, 2014), software designed for linguistic data analysis that fully supports English and Spanish. It annotates corpora with part-of-speech and lemma information, English corpora with TreeTagger and Spanish with FreeLing; its tagged output features an acceptable amount of noise (non-adjectives) that we only filtered out when the amount was excessive i.e., in *Nutritional Values*. We activated the case-insensitive option in the SketchEngine Advanced tab to get lowercase attributes. Next, we analyzed the adjectives from a semantic point of view, consulting the concordance lists generated with SketchEngine when in doubt about their use, which allowed us to study them in their specific context of use, and we grouped them according to Dixon (1982) and Edo Marzá's (2011) categorization. Finally, we identified the patters of use connected to the rhetorical move

or step in which they are used. This was done to determine any common feature that would explain their use in each rhetorical element. The English-Spanish contrastive analysis of the adjectives was conducted in an attempt to establish differences and similarities in their use.

4 Results and discussion

4.1 Rhetorical structure

Table 2 compares the rhetorical structure of the genre in English and Spanish and provides detailed information on this structure, including frequencies.

Table 2: Contrastive rhetorical structure. Moves and steps frequencies.[1]

Moves	English %	Spanish %	Steps	English %	Spanish %	English	Spanish
M1 – Presentation	100	100	CompanyName	55	79	Med.	High
			ProductName	96	99	Comp.	Comp.
			ImageBiscuit	43	39	Low	Low
			ImagePackaging	77	88	High	Com.
M2 – Slogan	10	24	Slogan	10	24	Occ.	Low
M3 – Main Product Description	96	91	Description	95	82	Comp.	Comp.
			Ingredients	55	72	High	High
			NutritionalValues	66	62	High	High
			AllergenInformation / Contains	40	61	Med.	High
			SuitableFor / Diets	26	4	Low	Occ.
			Packaging	25	56	Low	Med.

1 Comp. stands for compulsory, High for high priority, Med. for medium priority, Low for low priority, and Occ. for occasional.

Table 2 (continued)

Moves	English %	Spanish %	Steps	English %	Spanish %	English	Spanish
			StorageConditions	7	17	Occ.	Occ.
			CodeReference	11	17	Occ.	Occ.
			Disclaimer	3	3	Occ.	Occ.
			Video – video	3	1	Occ.	Occ.
			UseBy	0	10	Occ.	Occ.
M4 – Opinion	9	2	Comments	6	0	Occ.	Occ.
			ShareOn	9	0	Occ.	Occ.
			FollowOn	1	1	Occ.	Occ.
M5 – TastyFacts	7	0	TastyFacts	7	0	Occ. Occ.	Occ. Occ.
M6 – Flavours	10	5	FlavourName	10	3	Occ.	Occ.
			FlavourDescription	5	5	Occ.	Occ.
			FlavourNutritional	3	0	Occ.	Occ.
			ImageFlavourBiscuit & Image Flavour pack	8	0	Occ.	Occ.
			FlavourAllergenInfo	0	0	Occ.	Occ.
M7 – Contact	2	1	e-mail	0	1	Occ.	Occ.
			Address	1	0	Occ.	Occ.
			Telephone	0	2	Occ.	Occ.
			Map	0	0	Occ.	Occ.
M8 – Order	18	9	OtherOrder	18	9	Occ.	Occ.
M9 – Other			Other	9	10	Occ.	Occ.

The macrostructure is common to both languages. As the table shows, there are only two moves in both languages whose frequencies are higher than 20% (occasional) and both are classified as 'compulsory' (frequency >80%): M1 and M3. They are the mandatory elements of the online product description structure, while the other moves can be classified as optional since their frequency of use is low or very low. M1 function is to provide basic information to identify the product and the company, and its steps refer to this in several ways including the com-

pany and product proper names, and non-verbal elements, namely the image of the product and its packaging; thus, there are no elements of linguistic interest for our research within M1.

M3 is the key move of this genre, being its function to describe the product in detail. If we compare English and Spanish subcorpora (Tables 2 and 3), we find that within M3 steps, there are five whose frequencies are not occasional and among them, *Description* is the most interesting from a linguistic point of view. The other steps include a low amount of running text (*Packaging*, *SuitableFor / Diets*), their frequencies of use are low, or they are lists of terms of great terminological interest, such as *Ingredients*, *Nutritional values*, or *Allergen information* but not so much to analyze their adjectives, as we will see below.

Table 3: M3 steps tokens and frequencies.

M3 – Main Product Description (En 96, Es 91). Steps:	Tokens English	English step Frequency	English	Tokens Spanish	Spanish step Frequency	Spanish
Description	4483	95	Com.	3054	82	Com.
Ingredients	2412	55	High	3172	72	High
NutritionalValues	4068	66	High	3255	62	High
AllergenInformation / Contains	712	40	Med.	1311	61	High
SuitableFor / Diets	108	26	Low	26	4	Occ.
Packaging	328	25	Low	523	56	Med.

Move 2 is classified as a low priority move in Spanish (24%) and occasional in English (10%). This move is not relevant for our research as it contains few words to analyse (119 in Spanish and 55 in English), furthermore, its specific character as a memorable phrase and marketing tool makes it short and simple, imposing clear restrictions on its wording, whereas our interest lies in a more natural use of the language. Finally, the other identified moves show very low frequencies in both languages and account for very few words out of the total corpus, thus, we treated M4, M5, M6, M7 and M8 as occasional results not worthy of further study. We hardly used M9 as most of the tagged text could be classified under one of the previous moves.

These results are consistent with the findings of Izquierdo and Blanco (2020:50), Labrador & Ramón (2015, 2020), and Ortego Antón (2019, 2020) who described the macrostructure of online descriptions of herbal teas, cheese, and dried meats, respectively. They reported that the compulsory moves refer to the product and company identification and the description, M1 and M3 in our work. Izquierdo and Blanco also identified a third common move (*Suggestions*), which we did not find, whose main steps are to advise customers on how 'to make the infusion' and on

how 'to consume', the second function is equivalent to the one described by Labrador & Ramón *Offering service suggestions*. The inclusion of this move in the description of certain products, such as herbal teas, is meaningful, but not in the products we have analyzed since they are ready-to-eat baked products and as such require no preparation. As for the M3 steps, the results are also similar, with the most frequent steps being *Description, Ingredients, Nutritional Values* and *Allergen Information*, although Izquierdo and Blanco (2020) classified each of them as independent moves and not as steps of a single move (*Main Product Description*), Ortego Antón (2019, 2020) included them as steps within the move *Información del producto* (product information) distinct from *Descripción del producto* (product description), and Labrador and Ramón (2015) identified *Ingredients* as a step within *Describing the product* move. Whether they are classified as move or step, they are identified as an essential part of the genre macrostructure. We considered that all these elements have the common function of describing several features of the product and, thus, we included them as part of the description move. The *Description* move provides information in either an objective or subjective way, corresponding to the objective characteristics of baked products such as ingredients, nutritional values, allergen information or storage conditions, and to the subjective, promotional, and persuasive elements: slogan and promotional description. This finding supports the work of Labrador et al. (2014) who also found this objective-subjective dichotomy in online electronic product advertisements: "promotional genres in general have two main parts, one describing the product to be sold and the other one evaluating it positively to convince the reader to purchase it" (2014:40).

The rhetorical macrostructure of online product descriptions in the agri-food domain seems to be pre–established, at least in terms of the obligatory common elements that always include *Identification*, *Description*, *Ingredients*, *Nutritional Values* and *Allergen Information*, the latter three being mandatory since the entry into force of EU Regulation 1169/2011 on the provision of food information to consumers in 2016. Our corpus was compiled in 2014–2016, so not all texts include this information, as it was not yet compulsory at that time. As we have discussed, previous similar research includes in the macrostructure other rhetorical elements with frequencies between 40–79% that we have not found such as *Tasting Note / Describing smell and taste*, *Suggestions*, *Processing / Describing the process.* This may be due to the type of food described, in the sense given by Izquierdo and Blanco who refer to 'origin, ingredients and taste', but also to the type of food in terms of the level of processing according to the NOVA food classification (Monteiro et al., 2018). Herbal teas are natural or minimally processed food, cheeses are processed products that retain the basic identity and most of the components of the original food (milk), whereas most baked products and dried meats are highly processed or ultra-processed food with more than five ingredients including preserva-

tives, colorings, or chemicals. Finally, there may be a purely practical reason related to the number of characters of the information included in the descriptions. The list of ingredients of ultra-processed products is long, so rhetorical elements such as serving suggestions or tasting notes may be left out of the description. It is also interesting to note that, although move sequencing is not the subject of our study, the obligatory moves appear in the same order in the macrostructures of all online food descriptions. M1 is always at the beginning of the text, followed by a slogan if included, and then the product description; the other functional elements do not show a fixed sequencing. We also found that the Ortego Antón's (2020) rhetorical structure is the most similar to that of the baked product descriptions, probably because both deal with highly processed food.

4.2 Rhetorical structure and key adjectives

The distribution of adjectives within the moves and steps of the product descriptions reflects the same frequency patterns as the rhetorical elements of the macrostructure, and based on the results described above, we decided to analyze those whose frequencies are higher than occasional (20%) and include running text, i.e., M2 and M3. Table 4 shows the quantitative data related to the number of types and tokens in each move/step subcorpora and the adjectives used within them. As we have already discussed, we classified M3 steps according to their frequency, but they can also be classified according to the type of content they convey, which is either objective or subjective. Objective steps deal with verifiable information and data, without personal opinions or preferences such as *Ingredients* or *Nutritional Values*; subjective ones, on the other hand, refer to personal opinions, views and feelings, or even marketing-biased descriptions.

Table 4: Frequencies and rhetorical distribution of adjectives.

Move / Steps (SketchEngine data)	English adjectives Types / Tokens	Spanish adjectives Types / Tokens	Content type
M2.- Slogan	8 / 11	12 / 17	Subjective
M3.- Main Product Description. Steps:			
Description	231 / 618	130 / 407	Subjective
Ingredients	48 / 209	76 / 440	Objective
NutritionalValues	122 / 669	33 / 160	Objective
AllergenInformation / Contains	9 / 37	17 / 70	Objective
SuitableFor	5 / 25		
Packaging	17 / 28	14 / 37	Objective

As shown in Table 4, M2 includes few adjectives and with low frequencies of use, moreover, M2 is a move with distinctive wording as it refers to slogans (catchy phrases), so the results should be interpreted with caution. Furthermore, its frequency of use in English is 10%, clearly below our set threshold (20%). Even though there are few adjectives, most are subjective (wonderful, good, exquisite, delicious, chocolicious; sencillo, irresistible, delicioso, exquisito), one third of them coincide in both languages (healthy/sano, exquisite/exquisito, delicious/delicioso), and we found an English adjective coined for marketing purposes: chocolicious, made of chocolate and delicious.

Turning now to the next move, among M3 steps there are three of particular interest due to the number of adjectives they include in terms of types and tokens; two of them are objective steps (*Nutritional Values*, *Ingredients*) and one is subjective (*Description*). Most adjectives used in *Nutritional Values* can be described as technical and neutral in meaning in both languages, thus, reflecting the content of the step (saturated, monounsaturaded, carbohydared, nutritional, fat; energético, nutricional, graso, poliinsaturado, monoinsaturato, glucémico, etc.). Interestingly, although the total number of tokens in English (4068) is higher than in Spanish (3255), the relationship seemed to be the opposite when it comes to the analysis of the adjectives as we found 122 in English and 33 in Spanish, hence the need to examine the English adjectives more in detail. This closer analysis revealed that most of them were actually noise, referring to quantities related to weight and calories (e.g., 63g, 400mg, 414kj, etc.), leaving only 19 valid adjectives, all of them technical, with the exception of healthy, delicious, golden, and active.

Adjectives used in *Ingredients* show a greater variety than those found in *Nutritional Values*, with 48 types in English and 76 in Spanish, reflecting the higher diversity of the Spanish language in this step. As expected, most English adjectives are technical and objective (whole, unbleached, citric, organic, dried, inverted, condensed, defatted, etc.); on the other hand, and unexpectedly, Spanish adjectives reflect origin (árabe, italiano, chino, español, portugués, francés, alemán), colour (rojo, blanco, verde, negro), and opinion (delicioso), besides the expected technical content (emulgente, sódico, amónico, oléico, fólico, antioxidante, emulsionante, etc.) Among them, 'natural' and 'artificial' are of special interest. An analysis of their frequencies shows that both languages use 'natural' and 'artificial' with significant differences: 28 vs. 8 in English and 17 vs. 2 in Spanish, being the most frequent result in English. This extensive use of 'natural' reflects the general function of the genre (persuade) and although this step includes objective content, it also highlights the positive features of the ingredients, so that we find the persuasive function even within a simple list of ingredients that we would expect to be neutral.

Description adjectives show a great variety and many of them contribute to the function of this step 'providing a promotional description', therefore, as expected,

they are subjective adjectives used with a positive meaning such as delicious, perfect, special or delicioso, ideal, rico. A more detailed analysis made it possible to describe their main semantic features and revealed some differences in their use in English and Spanish. We would like to point out that some adjectives were classified into more than one category as they express different shades of meaning and that the classification, although based on the analysis of the use of the adjectives, is nevertheless a subjective process. However, our aim is to identify general trends rather than to conduct a more delicate study which will be the object of future research. Table 5 includes adjectives with frequencies higher than one due to space limitations. The list of adjectives was obtained using SketchEngine's lowercase attributes, so all adjectives are in lowercase as given by StechEngine, including adjectives of nationality.

Table 5: *Description* step adjectives and frequencies (English / Spanish).

***Description* step: English adjectives and frequencies**	***Description* step: Spanish adjectives and frequencies**
delicious 28, perfect 22, sweet 14, fine 12, good 12, rich 11, real 11, great 10, smooth 9, unique 9, chewy 9, fruity 9, golden 9, french 8, dark 8, special 8, crunchy 7, original 7, soft 7, free 7, crispy 7, crisp 7, new 7, available 7, organic 6, white 5, creamy 5, traditional 5, moist 5, simple 5, biscuit 5, thick 5, little 4, wonderful 4, big 4, beautiful 4, delightful 4, crumbly 4, artificial 4, old 4, fresh 4, generous 4, delicate 4, pure 4, classic 4, tasty 4, chocolate 4, hand-designed 4, high 4, sure 4, whole 4, single 4, corporate 3, everyday 3, natural 3, outside 3, belgian 3, full 3, popular 3, italian 3, raspberry 3, strawberry 3, different 3, wholemeal 3, juicy 3, mini 3, modern 3, indulgent 3, irish 3, more 3, various 2, fragrant 2, mid-afternoon 2, other 2, decadent 2, mouth-watering 2, possible 2, multi-packed 2, nice 2, oatmeal 2, orange 2, right 2, deep 2, reminiscent 2, green 2, disabled 2, easy 2, distinctive 2, chunky 2, subtle 2, homemade 2, iced 2, irresistible 2, blue 2, licensed 2, lemon 2, european 2, wrong 2, wide 2, famous 2, bubbly 2, favourite 2, winning 2, yellow 2, first 2.	delicioso 22, natural 18, crujiente 17, único 13, ideal 13, alto 11, conservante 9, grande 9, solo 8, integral 8, pequeño 8, colorante 8, relleno 7, mejor 7, original 7, auténtico 6, suave 6, rico 6, fresco 6, dulce 5, ecológico 5, mayor 5, exquisito 5, clásico 5, mediterráneo 5, glucémico 5, general 5, tradicional 5, marinero 4, artesano 4, nuevo 4, nutritivo 4, saludable 4, artificial 4, perfecto 4, irresistible 3, agradable 3, largo 3, diferente 3, ligero 3, bueno 3, especial 3, vitamínico 3, orgánico 3, fólico 3, habitual 3, cremoso 3, sano 3, trans 3, bajo 3, intenso 2, intestinal 2, diario 2, digestivo 2, blanco 2, menor 2, alimentario 2, mundial 2, esponjoso 2, neutro 2, extra 2, primero 2, completo 2, fácil 2, rojo 2, riquísimo 2, sabroso 2, práctico 2, sutil 2, cómodo 2

Most frequent usages relate to general appraisal, sensory appeal, and high-quality appeal in both languages. General appraisal is expressed in a neutral way in English (sweet, good, fine, beautiful), or with a strong positive or superlative meaning in both languages (perfect, unique, irresistible, wonderful; ideal, perfecto, irresistible, exquisito, mejor, auténtico, riquísimo). Few sensory appeal adjectives refer to general appeal (delicate; agradable, sabroso) and most of them relate to the food content of the genre (delicious, sweet, smooth, chewy, crunchy, soft, crispy, crisp, creamy, tasty, moist, crubly, fresh, juicy, mouth-watering, etc.; delicioso, crujiente, suave, rico, fresco, dulce, esponjoso, cremoso, exquisito, agradable, riquísimo, etc.); this finding is valid for both languages. High-quality appeal is found in both languages with similar frequency and variety (organic, fresh, natural, traditional, classic, hand-designed; natural, fresco, tradicional, artesano, ecológico). Close in meaning, we could identify some adjectives that express health appeal in Spanish (nutritivo, saludable, vitamínico, orgánico, glucémico, intestinal, sano), but none in English. There are other English-Spanish differences that refer to origin related adjectives, which are more frequent and specific in English than in Spanish with just one example (French, Belgian, Italian, Irish, etc.; mediterráneo), and size/strength related adjectives, which on the other hand are more common in Spanish (grande, pequeño, mayor, largo, bajo, menor), with only two examples in English (mini, wide). Finally, few adjectives show a natural negative meaning, but the concordance analysis revealed that they are in fact used in a positive (decadent) or neutral (disabled; trans, artificial) sense. Surprisingly, and contrary to Fuentes Rodríguez and Alcaide Lara (2002), we did not find technical adjectives used as promotional language in this informative-persuasive step, most probably because they are relatively frequent in other M3 steps.

Finally, as noted before, there are three small steps in terms of tokens, which is reflected in the number of adjectives used. *AllergenInformation / Contains* includes adjectives related to different allergens as we could expect (wheat, coconut; crustáceo, sulfuroso, etc.) but we also found the use of 'involuntario' four times in the repeated concordance "Presencia involuntaria de leche y sus derivados". *SuitableFor* step reflects a cultural difference, as we found four times the used of Kosher in English but none in Spanish. *Packaging* adjectives either make reference to size and weight in both languages (large, small, net, approx.; alto, largo, neto), or to origin in Spanish (europeo, castellano). Due to the limited data obtained from these steps, we cannot draw any conclusions, as the data might only be incidental data and therefore not indicative of any linguistic trend.

These results broadly support Edo-Marzá's (2011) previous research on adjectives. Since her work deals with promotional hotel websites, we introduced two food-related categories: sensory appeal and health appeal, the latter based on Izquierdo and Pérez Blanco's (2020) promotional strategies (strategy 2, praising the benefits); also based on their work, we added a third category, high quality ap-

peal (strategy 5, uniqueness). Furthermore, we use some of Dixon's (1982) classical categories: color, origin, dimension (size/strength in Edo-Narzá's).

Although we did not morphologically analyze the adjectives, it is interesting to note the use of compound adjectives in English, most of them with very low frequencies of use (mouth-watering, multi-packed, high-quality, perfectly-sized, fudge-like, fruity-delicious, chock-full, etc.). This finding was also reported by Rush (1998) and Labrador et al. (2014) among others. We also found some adjectives coined specifically for advertising use, such as dunkable or twistable in English and delizia in Spanish.

5 Conclusion

The rhetorical structure of online descriptions of bakery products is consistent with that of other food-related products; interestingly, the more processed the food product to which we compared baked products, the more similarities are present, as in the case of dried meats. Irrespective of the food under analysis, compulsory moves always head the rhetorical structure. The English-Spanish contrastive study reveals no interesting differences in the rhetorical structure, probably due to the globalized use of this genre.

Objective moves/steps show a lower use of adjectives, whereas the subjective step *Description* displays a greater frequency of adjectives in general and of positive evaluative adjectives in particular. This difference is explained by the rhetorical function of the sections where they are used, persuading potential customers to buy products or services in the less informative and more subjective steps, and merely informing in the objective ones, such as nutritional values, ingredients, or allergen information. Another finding revealed that both languages use positive evaluative adjectives in a similar way, to stress the positive characteristics of bakery products, although with some interesting differences. Our study revealed the use of health appeal in Spanish that is not found in English, and a more frequent occurrence of origin-related adjectives in English and size-related adjectives in Spanish. Within the persuasive *Description* step, we did not find technical adjectives used as promotional ones, nor negative adjectives used with their natural negative meaning.

It is expected that this study will contribute to a better understanding of the relationship between rhetorical functions and grammar and in particular adjectives. This research explored a specific genre, online baked product description, from an English-Spanish contrastive perspective and although further research on other promotional genres is required before generalizing results, these results may be of interest to professional technical writers, mainly marketers and advertisers, as they

can be applied to their work and training. The contrastive linguistic data we have described on the rhetorical structure and use of adjectives (types and frequencies) are valuable when writing online product descriptions and teaching how to write them.

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From corpora to a semi-automatic tool: The use of model lines for the development of TorreznoTRAD

Abstract: TorreznoTRAD is a corpus-based tool aimed to linguistically support the current internationalization of the Spanish agri-food sector. From its conception, the main objective of this tool was to assist Spanish producers write and translate product cards so that they would appeal to an international clientele. To this end, two Spanish and English corpora (P-MARMEAT and C-MARMEAT) were compiled, tagged, and exploited following the protocols proposed by Seghiri (2017) and Ortego Antón (2019). This process was key to comprehend and analyze the expectations of an Anglophone market. However, for the results of this analysis to be usable by the TorreznoTRAD tool, it was imperative that these findings were adapted. Using the tagged version of our comparable corpus (C-MARMEAT) we extracted examples of product cards that can be found in English-speaking countries using AntConc (Anthony, 2020) and traced the similarities and differences between them in order to categorize them. Those served as a base to create the model lines that feed the tool and serve as a template for the users. Each model line is based on at least one real life example that has been standardized and offers a series of variables—all of which trace back to the similarities between examples found in the corpora—and is supported by a built-in bilingual glossary. This combination of clear patterns, variability, and adaptability allows the user to create unique texts that adapt perfectly to their needs in a very intuitive way and that cater to the wants of the international market.

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1 Introduction

Society runs on the grounds of communication. In all of society's manifestations, it is always possible to trace back to a communication act. However, said communication can sometimes be hindered by the context in which it happens, be it because of a cultural, linguistic, or technological hindrance, to name a few. At present, we observe that this is the case when referring to the Spanish agri-food sector in the context of globalization.

Exports have become essential for the sector and the presence of Spanish products abroad has increased over the years, positioning Spain as one of the big exporters in the EU when it comes to food and derivatives (Access2Markets, n.d.). According to the yearly report published by the Spanish Ministry of Agriculture, Fisheries and Food (MAPA for its acronym in Spanish), between 2012 and 2021 the exports in the Spanish agri-food sector have gone up by 67.3%[1] (MAPA, 2022, p. 22).

This globalization of the sector implies an increase in the need for non-native speakers to skillfully communicate in English (Pérez Blanco & Izquierdo, 2021, p. 152), as it has become the lingua franca. Nevertheless, the Spanish agri-food sector is mainly composed of small and medium sized companies, in many cases following a family structure, that have limited resources — a fact that, of course, affects and limits their ability to interact with potential international buyers, as they might not have the resources necessary to establish or outsource a stable, appropriate, and professional communication in English.

These obstacles conform a language barrier that researchers have aimed to ease in the last few years. At present, although the agri-food sector is still relatively unexplored from a linguistic point of view, a considerable amount of initiatives that explore the sector from different perspectives have surfaced. Said initiatives have resulted in the creation of various linguistic software and resources which address some of the concerns that arise from the internationalization of the sector in different areas.

Despite the varying areas of expertise, these resources and software have one thing in common: they are founded in the use of corpora. Specialized comparable corpora for the most part, as they "have proven to be particularly helpful

1 The 2021 data mentioned in the yearly report was acquired in March 2022. However, MAPA still considers it to be partial information that could be subject to change.

for highly domain-specific translation tasks" (Pérez Blanco & Izquierdo, 2021, p. 151), since they allow to accurately describe the differences in the structure of the genres in all the languages the corpus is being compiled in (Moreno-Pérez & López-Arroyo, 2021, p. 264). However, the use of both parallel and comparable corpora at the same time has proven to be quite useful for data triangulation, hence it is not uncommon for a study to use both.

The key to the creation of successful resources that help non-native users communicate in English, however, lies in the ability to transform the specific information shown in the corpus into a blank template that the end user can transform at will to create a tailor-made text.

2 The TorreznoTRAD Project

As mentioned above, in recent times various studies related to the linguistic aspect of the agri-food sector have been carried out. Of utmost relevance for this project is the study on dried meats carried out by Ortego Antón (2019, 2020, 2021). There have been, however, other linguistic studies related to the agri-food sector, mostly developed within the ACTRES research group, and cover topics such as cheese (Labrador & Ramón, 2020), herbal teas (Pérez Blanco & Izquierdo, 2020–2022), wine (Moreno-Pérez & López-Arroyo, 2021), or olive oil (Sanz Valdivieso & López Arroyo, 2022), among others.

Keeping these in mind, it was decided that this project would focus on pork products, more specifically in *torreznos* (a traditional cured pork belly snack) and marinated goods, both typical products of the region where this project took place that are trying to find their place abroad.

The final product is TorreznoTRAD, a semi-automatic corpus-based writing tool designed with the objective of helping Spanish producers write and translate *torrezno* and marinated pork product cards in/into English in order to facilitate their communications with international buyers. To this end, two different purpose-built virtual corpora were compiled: C-MARMEAT and P-MARMEAT. The compilation was done following a protocol first proposed by Seghiri (2017), and that has been used in multiple studies (such as Ortego Antón, 2019, 2020, 2023; Fernández Nistal, 2020; Seghiri y Arce Romeral, 2021; Sánchez Carnicer, 2022).

The first one, C-MARMEAT, is a comparable corpus, while the second one, P-MARMEAT, is a parallel corpus. In both cases we are dealing with bilingual corpora that include texts in Spanish (in this occasion, only examples of the European Spanish variant have been taken into account) and in multiple variants of English (American, Australian, British, Canadian, Irish, and New Zealand English),

as it is intended that the end user is able to create texts that can be adapted to the cultures, expectations, and laws of their target countries, whatever those might be.

From this process resulted two corpora that accurately represent the linguistic reality of product cards in English and Spanish. Having said that, for corpora to be of use when creating a semi-automatic writing tool, it is needed to rhetorically tag and exploit them, which in this project was done using OpenTagger (Sanjurjo-González & Andaluz-Pinedo, 2021) and AntConc (Anthony, 2020). Tagging and exploiting the corpora allows to analyze in depth the rhetorical structure (RS) of the texts and the differences between these languages of specialty in English and Spanish, key to comprehending the expectations of an Anglophone market and the first step towards the creation of the tool. Therefore, understanding the rhetorical structure of the texts in both languages allows to create a solid base for the writing aid tool.

3 From corpora to the TorreznoTRAD tool

This RS — i.e. the general arrangement of the text followed by the original authors, which is deeply rooted in the culture, the tradition, and the legislation of each country — showcases the hierarchical organization of the rhetorical components or sections that make up a text. It explains the text coherence as well as the relations between them (Hao et al., 2020), which must hold across two or more text spans (Taboada, 2009, p. 125). These sections, called *moves* and *steps*[2] by Biber et al. (2007), who proposed the methodology adopted in this research, describe the internal structure of a text or a textual genre.

Based on the information gathered from each text during the manual compilation of the corpora, the members of the research group suggested a series of denominations that would represent the internal reality of the texts analyzed. To proceed, the list was narrowed down to those that were present in a wider array of texts and therefore were considered to be standard of the genre. The result is a list of twenty-four denominations — consequently turned into tags (see Table 1) — that describe the general structure of the texts, and which will also reflect the final structure of the tool and, hence, the structure of the text created by the users.

2 Biber et al. (2007, p. 23) define *moves* as "a discoursal or rhetorical unit that performs a coherent communicative function," being the *steps* the subdivisions of each move that have to be achieved to complete it.

Table 1: List of the twenty-four tags used to annotate the corpora.

Nombre del producto	Formato	Corte
Imagen	Descripción de la marca	Conservación y fecha de caducidad
Categoría	Origen	Preparación, uso y raciones
Código	País de envasado	Garantía
Certificación	Ingredientes	Reciclado
Marca	Alérgenos	Advertencias
Descripción del producto	Información nutricional	Información de contacto
Peso y cantidad	Condición	Valoración

Table 2: Translation into English of the twenty-four tags used to annotate the corpora.

Product name	Format	Cut
Image	Brand description	Storage and expiry date
Category	Origin	Preparation, use, and servings
Code	Country of packaging	Warranty
Certification	Ingredients	Recycling
Brand	Allergens	Warnings
Product description	Nutritional values	Contact information
Weight and quantity	Condition	Reviews

3.1 Unveiling a pattern

Having put the corpus through a process of rhetorical annotation using OpenTagger (Sanjurjo-González & Andaluz-Pinedo, 2021), it is possible to further investigate the corpus per segment — as, in order to "transform" the corpus into a semi-automatic writing aid tool, it is necessary to analyse the phraseological and lexico-grammatical patterns in depth and discover where the similarities lie. For this purpose, AntConc, a tool specialized in corpus analysis, was used.

This process was carried out using only the annotated version of C-MARMEAT, the comparable corpus, more specifically the English subcorpus, as it was the language in which the patterns needed to be identified for the creation of Torrezno-TRAD. One of AntConc's core tools, the Concordance tool, was used throughout this process. Concordance displays all the occurrences in which a specific query appears in the text files of the selected corpus. The results are shown in a Key Word in Context (KWIC) format. That is, the data is presented in such a way that the context in which the query happens is easily identifiable (see Figure 1). For the purposes of the project, the terms used in the search were the components of the tag-set.

It should be pointed out that the annotation was carried out without the use of the diacritics characteristic of the Spanish language in order to avoid any possible problems and interferences that these could cause in the process, thus none of these were included in the search either. In addition, in order to avoid the duplication of contexts for their analysis, it was decided to: (a) use the closing XML tag created during the annotation phase, characterized by the use of the slash, or (b) use the opening XML tag and set the search filter "Show Every Nth Row" to 2.

Although initially each of the contexts shown in the KWIC view may appear extremely different from a semantic perspective — especially in cases like *Descripción del producto* or *Descripción de la marca* ("Product description" and "Brand description", respectively) that have such complex structures and are so unique in their approach—, when reducing the segments to their basic purposes, a guide can be easily traced. Put in a different way, "phraseological and lexicogrammatical patterns, even though formally diverging, are functionally equivalent" (Pérez Blanco & Izquierdo, 2021, p. 157).

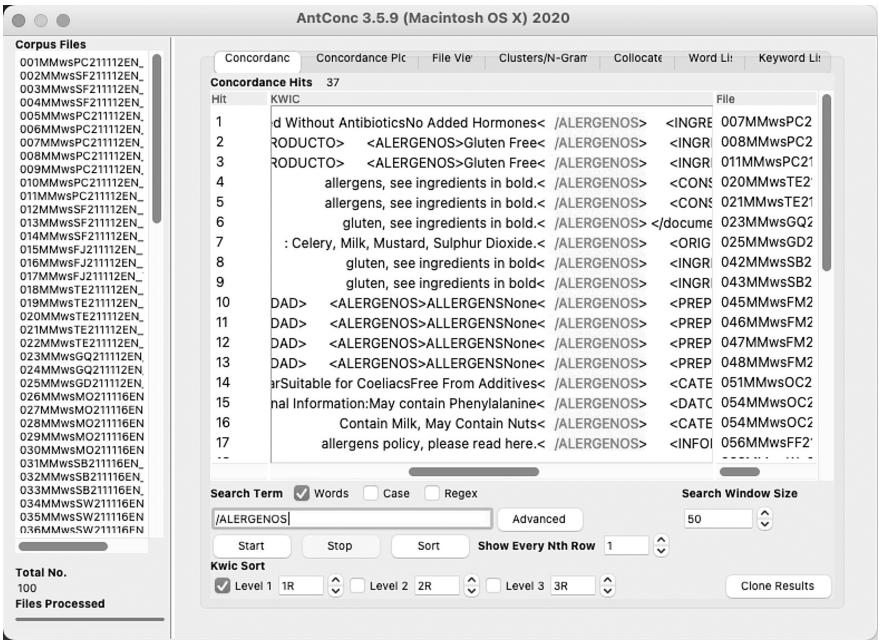

Figure 1: Query example as shown in the Concordance tab.

3.1.1 Pattern categorization

In order to find these lexicogrammatical and phraseological patterns, each instance was assessed individually, but also in comparison with its counterparts. The scrutiny was carried out manually, paying special attention to the context that surrounded what were considered the keywords[3] of each of the rhetorical annotation segments (see Figure 2), such as *meat type, cut*, or *curation*, to name a few, in the case of product descriptions.

This process allowed the researchers to compile information about the series of linguistic guides present in the texts and group the contexts by tag according to the formal similitudes found when compared. Once the data was gathered and analyzed, the project would be able to proceed onto the creation of the model lines (cf. 3.2.) for each category contemplated within the TorreznoTRAD tool.[4]

<DESCRIPCION_DEL_PRODUCTO>Two freshly trimmed and cut lean pork chops in a tasty marinade of your choice. Options: Chinese Garlic, Italian Tomato, Sticky Maple, Sweet Chilli.</ DESCRIPCION_DEL_PRODUCTO>

Figure 2: Example of keyword localization within the tag *Descripción del producto* (Product description).

In this example it is possible to identify keywords referring to the cut (*pork chops*), the processes it has gone through (*marinade*), the flavor profile (*Chinese garlic, Italian tomato, sticky maple, sweet chilli*), and descriptors of the meat (*lean*). It is also possible to appreciate how these are linked together. For example, *marinade*, this term then triggers a multiple choice pattern which is clearly marked by the terms *choice* and *options.*

By the end of the scrutiny, the patterns that could be found within each rhetorical tag were established. The end result were three different options which were described using the methodology proposed by Ortego Antón (2023):

3 Key words found during this phase were also of use later on, as they were included into a bilingual glossary that would be then integrated into the tool and serve as an extra support for the user.

4 The tool contemplates 18 categories, all of which have their counterpart in the tag-set and, therefore, in the original rhetorical moves. The four that did not become a category in the tool (those referred to condition, brand, origin, and country of packaging) appear as fillable gaps within other categories.

a) Compulsory Patterns: they contain information that has to be included and the user has to, therefore, provide it when asked
b) Optional Patterns: indicate that the information included in them could be omitted if the user so desired
c) Selection Patterns: the pattern presents a choice between at least two options and the user must then decide which one to include in their text

3.2 The creation of the model lines

The patterns found in the texts were then extrapolated to design and create model lines. A model line (ML) is understood as:

> Suggestions with the prototypical lexico-grammatical structures and phrasings most commonly employed in each move and step, but without any specific reference to a particular product or industry. The model lines contain gaps to be filled by the user in each particular case . . . (Ramón & Labrador, 2015, pp. 242–243)

The number of MLs included in each move ranged from one in *Nombre del producto, Categoría,* and *Precauciones* (Product name, Category, and Warnings, respectively) to five in *Reciclaje* and *Datos de contacto* (Recycling and Contact information).

A special case is that of *6. Preparación, Uso y Raciones* (Preparation, use, and servings), where each of the elements mentioned in the title has its own MLs within the tool as at first all the elements were considered to be different tags but. However, due to the limit on the number of tags allowed by OpenTagger, some had to be combined. The aim was to do so while still keeping the tags logical, which in most cases meant understanding the elements as a unit, but in this case it was deemed inappropriate to do so.

Before venturing into ML creation, it is necessary to further explain how the three pattern types proposed by Ortego Antón (2023) are represented and applied in this project. The innate complexity of natural languages is, of course, evident in the corpora, which added to the difficulty of reflecting the structural similarities found between the segments analyzed and compared earlier on (cf. 3.1.), and makes it so that the application of patterns is not always straightforward.

The Compulsory Patterns (CP) are represented with the use of curly brackets, hence these imply the need to include what is contained. CP are heavily intertwined with Selection Patterns (SP), where each of the eligible elements is separated from the others through the use of the slash. Because of the combination of both types of indicator, the curly brackets imply a clear, strict limit to the choice options at the same time that marks the compulsory nature of the choice. In these situations, the model line would take the form of

{Element 1 / Element 2 / Element 3 / . . . / Element N}.
E.g.:
{Featured in (NOMBRE DE LA RECETA) / Recipe Inspiration: Try served with (NOMBRE DE LA RECETA) / Ideal for (NOMBRE DE LA RECETA) / Goes nicely with (INGREDIENTE)}.[5]

The last type, the Optional Patterns (OP), is also tightly linked with the above, albeit it is not as much of a regular occurrence in the TorreznoTRAD project. OP are indicated with brackets and, therefore, imply that any text contained within the brackets can be included or not. Sometimes, these brackets will encompass a CP+SP combination. In such cases the line would imply that once it has been decided to include the text within brackets, the user will have to choose one of the elements contained as well.

Another option is for the OP to be encompassed in a CP+SP combination as part of one of the options, in which case it would be understood that the elements of the choice that include it have two possible levels of completion. This takes the form of

{Element 1 [Option] / Element 2 [Option] / . . . / Element N [Option]}.

Both of the combinations built using Optional Patterns that were described above can be observed in the following ML, extracted from category *8. Precauciones* (Warnings) in the TorreznoTRAD tool:

{[Safety] Warning / Warnings / Caution / Other Information}: [Handling raw meat safely:] This product {contains {bones / raw meat} / is raw} [and must be [fully] cooked {before use / according to the cooking instructions}].

On top of the basic patterns and the main combinations already mentioned, it can be observed that the model line above includes as well a case of CP appearing within another CP and, likewise, a case of OP appearing within another OP. Both of these occurrences have been common throughout the project, thus constituting a recurrent combination on their own.

However, MLs require more than patterns. As it was mentioned at the start of section, "model lines contain gaps to be filled by the user in each particular case . . ." (Ramón & Labrador, 2015, p. 243). This means that the MLs should be able to indicate to the end user where to include said information. In the TorreznoTRAD tool, these gaps have been marked with the use of parentheses that contain a short description — fully capitalised — of the information required to fill

5 Model line for *Uso* (Use); extracted from category *6. Preparación, uso y raciones* (Preparation, Use, and Servings) in the TorreznoTRAD tool.

them. The information required can be either numeric or lexical as seen in the following example:[6]

Net {Content/weight}[:] (PESO) (UNIDAD DE MEDIDA)

This example showcases both cases. On the one hand *(PESO)* (weight), requires to be filled with a number, while *(UNIDAD DE MEDIDA)* (unit of measurement) would require either a word, abbreviation, or symbol.

In total 50 model lines that follow the prototypical structures of product cards in the English language — thus guaranteeing their acceptability among both native and non-native English speakers in a professional and commercial setting — were created following this method for the TorreznoTRAD project. This number includes the ML for category *1. Imagen* (Image), as well as three MLs in table format.

All of the MLs are presented in the tool accompanied by examples to help guide the users when they are creating their own texts. The examples have all been taken from the corpus.

E.g.:

4. [No artificial colors. No artificial flavors.] {(ALÉRGENO) free [and contains no artificial ingredients]/Contains (ALÉRGENO)/ Free from (ALÉRGENO)}.
   a. Example 1: Gluten free and contains no artificial ingredients.
   b. Example 2: Contains: Sulphites.
   c. Example 3: No artificial colors. No artificial flavors. Gluten free.
5. {{Allergen/Allergy/Additional/Dietary} {Information/Info} / Allergens /Additives/Allergy advice}: {[This product] {May Contain/Contains} (ALÉRGENO)/ For allergens, [including cereals containing gluten,] see ingredients {in bold/in CAPITALS}/(ALÉRGENO) free/None/May contain traces of: (ALÉRGENO)}.
   a. Example 1: Allergen Information: May Contain Milk, May Contain Nuts.
   b. Example 2: Allergens: For allergens, including cereals containing gluten, see ingredients in bold.
   c. Example 3: Allergen Information: Gluten Free.
   d. Example 4: Allergens: None.
   e. Example 5: Additional Information: May contain Phenylalanine

6 Model line extracted from category *11. Peso y cantidad* (Weight and Quantity) in the TorreznoTRAD tool.

4 Model lines in the TorreznoTRAD tool

Within the TorreznoTRAD tool the appearance of the model lines changes. While the marks by which the pattern types were differentiated are still present, it is possible to perceive some differences.

The first and most apparent one is the presence of color, where each of the four colors available in tool (see Figure 3) represent a different action that needs to be carried out by the user and, thus, making the tool more user-friendly.

Figure 3: Color examples within the TorreznoTRAD tool. In reading order: cream, dark grey, red, light grey.[7]

The red color is the equivalent to the Optional Patterns described above, while the cream color displays the combination of Compulsory and Selection Patterns which, as mentioned earlier (cf. 3.2.), is incredibly common. Although the color represents both of those patterns at once, because of the way the tool works, it can be said that when the cream color appears in the text field as shown in Figure 3 it acts like a CP, but that after interacting with it and getting the pop-up window (see Figure 4) to appear, it acts the way a SP would.

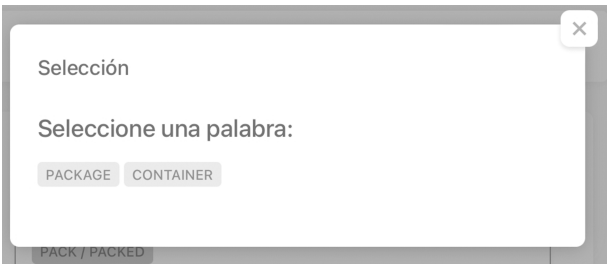

Figure 4: In tool example of a pop-up window matching a Selection Pattern.

7 Please, note that for the purposes of showing all four colors at once in an easy to read example both MLs of category *5. Formato* (Format) have been added to the text field.

The two shades of grey represent the gaps that need to be filled in by the user. These colored blocks correspond to the indications that appeared as capitalized text contained in parentheses on the original ML and the difference between the two lies on how they act.

On one hand, the light one opens a pop-up window that contains a text field with no restrictions. It is thought for cases such as writing the product name or the company name, but also for numerical gaps. On the other hand, the dark grey fragments open another pop-up window with a text field, however in this case the text field is linked to a terminological database that contains the terms that were considered to be keywords during the scrutiny phase (cf. 3.1.1.). When typing in this text field, a glossary in the style of a drop-down menu will appear in order to assist the user complete the information required for the model lines to create an acceptable final text able to meet the objectives the user set.

The second change when compared to the original model lines is actually a key component for the tool to work properly. When creating MLs, one of the objectives is to simplify. However, in some instances this simplification implied the "elimination of repeated elements". Some of the MLs are based on what initially were lists (an example of which can be seen in Figure 2), namely those regarding ingredients, allergens, categories, and packaging and recycling.

When those lists were converted into the ML format, they got reduced to a fillable gap that would later on appear in grey in the tool as shown in this example from category *14. Ingredientes* (Ingredients):

> [{Ingredients / Ingredients list}[(allergens in CAPITALS)]]: (INGREDIENTE) [(CANTIDAD)] [(INGREDIENTE)]; [Flavouring: (INGREDIENTE) [(CANTIDAD)] [(INGREDIENTE)]].

The problem that arose from this was that the possibility of repetition of these elements was not apparent. Linguistically this was solved by adding an apostrophe at the end of the element or elements that might need to be repeated within the model line. However that did not make an impact in the tool from a user point of view so, in the end, the apostrophes were omitted in favor of the addition of a new button in the conflictive categories. This button allows the user to individually add as many repeated elements as needed in a more intuitive way. Therefore, this small change in the tool made it possible to maintain linguistic accuracy without sacrificing the minimalist nature of model lines nor sacrificing on user experience.

5 Conclusions

The creation of corpus-based writing aid tools for specific purposes helps alleviate the problems that language barriers create within the context of the international market, especially for small and medium sized businesses with limited resources.

This chapter, aimed to explain the process followed during the creation of one such tool for the TorreznoTRAD project. More specifically, the process by which a representative corpus, both qualitatively and quantitatively, is converted into a template that follows the prototypical grammatical structures of product cards in the English-speaking world.

An in-depth analysis of said corpora gives the researcher a better insight into the expectations that potential international clients of the tool's users have of the products and how those are presented to the public. However, from a language perspective, it makes it possible to go beyond the meaning of the words used, and detect the basic linguistic patterns of this textual genre — that, once understood in both form and implications, become the key to be able to recreate, using model lines, specialized texts that maintain the structure and the acceptability, but without the commercial ties the original texts once had. And so, model lines become a blank canvas towards the internationalization of the products.

Therefore, having the ability to see what lies below, makes it possible to create an easy to use tool, available for a wider range of users, that delivers texts ready to be used for their business, ensuring that the written presentation of their products — and consequently their business — will be professional, stable, and suitable for the communicative situation throughout.

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Contrastive study of translation techniques used in agri-food translation of food labelling: The product's name (Spanish-French)

Abstract: Translation of labelling is an important step in the marketing of a product and, thus, the translator's contribution to this process is extremely valuable. Despite its appearance as a microtext, in the sense that it may appear to be a simple text, the reality is far more complex. There are a variety of characteristics of specialist discourse, both verbal and non-verbal, that make labelling a distinct textual genre in its own right, with a series of particularities not found in other specialized texts. Based on the idea underlying this reflection, we are led to question the challenges that the specialized translator faces when translating food labels; in particular, we will focus our attention on the product's name. The purpose of this empirical study is to identify the difficulties involved in translating the product's name on food labels using real examples found on the market today. As part of this analysis, we focus on the individualization of translation techniques, in order to provide the translator with a methodological framework. In this research paper, a corpus of Spanish and French labels will be compiled, which will be used to obtain information about the translation techniques that have been used as well as to determine, based on observation, which are the most commonly applied, and which are most appropriate. Due to all of the factors above, together with the lack of research in this field to date, this study represents an innovative contribution to the scientific literature on this area of specialization.

Keywords: Agri-food translation, food labelling, translation techniques, labelling translation, corpus-based study

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1 Introduction

Agri-food translation implies considering the subject as the backbone of a multidisciplinary field of specialization that encompasses a multitude of texts and discourses. Transversality contributes to the heterogeneity of this fascinating and complex sector, making its translation extremely challenging. Based on the above, the fact that we can identify as many texts in a given situation as there are acts of communication is undeniable when discussing translation for the food industry. A wide variety of communicative situations exist within this field, each of which generate a different type of document, with varying degrees of specialization and textual genres (for example, agricultural legislation, product data sheets, advertising brochures, management and food safety system manuals, technical hygiene and safety documents or tasting notes). Thus, under the term agri-food sector, both the primary and secondary sectors are included, and recently, due to its opening and extensive development, it has also been regarded as a service sector. This is therefore a very broad sector that encompasses agriculture, livestock, fisheries, forestry, as well as the processing of raw materials in industries (Álvarez Jurado, 2021).

The identification of the dominant communicative function or set of communicative functions which can be identified and interacted within a single text is considered in this study as a first step in the analysis of each document to be translated. Enumerating a list of common characteristics can serve as a starting point for identifying potential problems that the translator may encounter, which can be alleviated by implementing a variety of translation strategies and techniques.

Focusing our attention on food and the different processes to which a product intended for food consumption is subjected, one of the documents that we consult most frequently, on a daily basis, although we are probably not even aware of it, is the labelling. Any company wishing to market a product must also translate this text (or microtext) and must adhere to the regulatory constraints that apply in the country of destination.

In order to proceed with the study, we would like to point out that the concept of "label" refers to a textual genre, recognized as such by various authors (Belmonte *et al*., 2002, Miranda and Coutinho, 2010; Ibáñez Rodríguez, 2017; Policastro Ponce, 2018, among others), which consists of various textual elements that are attached to or written on a product's packaging, referred to as "labelling". Therefore, labelling can adopt various textual forms, verbal and non-verbal, contained within the label.

The main objective of this research is to ascertain the translation techniques used by the translator to transfer the information provided by the labelling from one language to another. For the purpose of validating this hypothesis, we must set out a series of main objectives:

- To briefly make out the particularities and communicative functions of this type of text, and its interaction within it.
- To highlight and identify the possible problems that the translator will encounter during the translation process with a view to finding the appropriate translation solutions, paying particular attention to its cultural dimension.
- To compile a bilingual (Spanish and French) textual corpus comprising a wide variety of food labels containing representative examples of potential translation problems and allowing us to identify the translation techniques applied.
- To expand and enrich the scientific literature on this type of translation, which is in great demand in the international market but with little documentary support from the scientific community.

Following the consideration of the general objectives outlined above, we will move on to more specific objectives based on the results of our analysis. Following a list of the communicative functions that labels may present, as will be seen below, our analysis will focus on the translation of the designation of the product. This section of the label presents numerous translation challenges as well as conjugates a number of communication functions that must be considered by the translator at the same time. Thus, we highlight the following as secondary objectives:

- To identify the communicative functions that the product's name can adopt in the labelling.
- To become familiar with the translation techniques most frequently applied to the translation of this section of the label.
- Based on the analysis of our corpus, to offer the translator the possible translation solutions that will be most appropriate in each case, bearing in mind the communicative function exercised in each situation.

2 The food labelling translation process: Important aspects to consider

As part of the present study, we will combine the functional-communicative approach to determine the most appropriate "translational method" in keeping with the objective of the translation, while also addressing the socio-cultural and sociolinguistic dimensions necessary to recognize the differences between the source and target cultures.

2.1 Labelling communicative functions

The specification of the textual function of the document to be translated is the starting point for defining the parameters that characterize our text and which are essential for defining the most appropriate methodology to approach the translation process. We believe that this approach highlights an essential aspect that makes a difference when dealing with the translational act of labelling: the particularity of its communicative functions. The effects of this microtext, apparently simple and easy in the eyes of any user, have been studied by several authors, being the taxonomic proposal by Kotler and Keller (2006, p. 394) the one we consider the most complete and which, moreover, corresponds to Nord's four-functional model (2010) (see Table 1).

Table 1: Communicative functions of labels according to Kotler and Keller (2006) in correspondence with the communicative functions of Nord (2010). Own elaboration.

Kotler and Keller's functional taxonomic proposal (2006, p. 394)	**Nord's four–functional model (2010, pp. 244–246)**
1. Identification of the product or brand they represent. The label is the point where the manufacturer and the consumer meet.	1. Phatic function. Responsible for how communication develops between sender and receiver.
2. Grading of the product, which makes it possible to classify or sort products by grade.	2. Expressive function. Describes how the sender feels about things or phenomena in the world, whether they are positive or negative feelings, for example.
3. Description of the product: who manufactured it, where, when, what it contains, how it is used and indications for safe use. It is through this function that the product fulfils its informative purpose, which also must meet the requirements of the applicable regulations. It is characterised by its objectivity, precision, and terminological accuracy.	3. Referential function. This refers to the object of communication. Some sub-functions of the referential function are descriptive, metalinguistic, instructive, or declarative.
4. Product promotion. This refers to the different linguistic and extra-linguistic resources used by the manufacturer to attract the consumer's attention, reinforcing its competitive role in the market, and linking it to the product or brand's identity (function 1). The presence of advertising language in labelling, which carries particular cultural markers and a clearly persuasive intent, is of particular importance in this regard.	4. Appellative function. It is based on sensibility, experience, general and cultural background, emotions, values, etc. Some sub-functions of the appellative function are the persuasive function, the request function, the warning function, or the allusive function.

We agree with Nord (2010, p. 241) that "the most important factor in the communicative situation that is defined in the translation assignment is the function or hierarchy of functions that the target text must fulfil in the target culture". Consequently, the translator is responsible for assessing whether the objectives and functions of the source text are fulfilled in the target text, "or whether they have to be transformed or adapted for that purpose" (Nord, 2010, p. 240). For this communicative act to be successful, and in order to resolve the contrastive differences, it is essential that we consider the socio-cultural approach that is particularly relevant in this situation. This microtext must adapt the linguistic and extralinguistic elements, based on both cultural particularities and regulatory frameworks applicable to the target country, as well as the possibility of culture-bound terms for which a translation must provide an effective solution (Hatim and Mason, 2005; Hennecke, 2015).

2.2 Labelling translations problems: the name of the food product

2.2.1 The product's name when it comes to food labelling

Having acknowledged the communicative objectives pursued by the text in question, we proceed to recognize the translation problems that may occur in this microtext. One of the main problems lies in the product's name which, as Jiménez Fernández (2007, p. 57) points out, "is similar to a person's own name", forming part of the product's identity. Consequently, this portion of the label was selected as our translatological object. As will be discussed below, more than one communicative function may be identified in this short textual fragment or may directly or indirectly influence its interpretation and subsequent translation.

Before proceeding further in this section, it is necessary to elucidate a number of particularities regarding the product's name when it comes to labelling. Given that our study is based on the study of labels in France and Spain, both countries are governed by the labelling requirements that apply under Community law. In this regard, we must refer to "Regulation (EU) no 1169/2011 of the European parliament and of the council on the provision of food information to consumers", which constitutes the core of community labelling legislation. This Regulation provides an overview of several key concepts, including the various

terms that can be applied to a product's name or "name of the food". Specifically, Article 2.1 *et seq*. differentiates between:

> n) "legal name" means the name of a food prescribed in the Union provisions applicable to it or, in the absence of such Union provisions, the name provided for in the laws, regulations and administrative provisions applicable in the Member State in which the food is sold to the final consumer or to mass caterers;
>
> (o) "customary name" means a name which is accepted as the name of the food by consumers in the Member State in which that food is sold, without that name needing further explanation;
>
> (p) "descriptive name" means a name providing a description of the food, and if necessary of its use, which is sufficiently clear to enable consumers to know its true nature and distinguish it from other products with which it might be confused.

In addition, we should refer to the article 17 of the aforementioned Regulation concerning the "product's name", which is considered a mandatory food information, and which provides as follows:

> 1. The name of the food shall be its legal name. In the absence of such a name, the name of the food shall be its customary name, or, if there is no customary name or the customary name is not used, a descriptive name of the food shall be provided.
>
> 2. The use in the Member State of marketing of the name of the food under which the product is legally manufactured and marketed in the Member State of production shall be allowed. However, where the application of the other provisions of this Regulation, in particular those set out in Article 9, would not enable consumers in the Member State of marketing to know the true nature of the food and to distinguish it from foods with which they could confuse it, the name of the food shall be accompanied by other descriptive information which shall appear in proximity to the name of the food.
>
> 3. In exceptional cases, the name of the food in the Member State of production shall not be used in the Member State of marketing when the food which it designates in the Member State of production is so different, as regards its composition or manufacture, from the food known under that name in the Member State of marketing that paragraph 2 is not sufficient to ensure, in the Member State of marketing, correct information for consumers.

As a result of the above considerations, we can affirm that the translator must be familiar with all regulatory requirements, since the legal imperative could determine the translator's decisions, thereby limiting their creative potential. For this

reason, this study does not refer to the concept of "transcreation", even if it is a concept widely applied in advertising and commercial translation, as well as intimately related to cultural adaptation. Various authors have defined this term in the context of advertising, such as Ray and Kelly (2010), who state that the term can be applied when:

> either a direct translation is adapted, or when content is completely rewritten in the local language to reflect the original message. Most often, transcreation includes a hybrid of new content, adapted contend and imagery, and straightforward translation. (In Carreira Martínez, 2020, p. 24).

In our view, this concept has no place in the translation of labelling. Due to the fact that the labelling involves a very different process which involves a modification of the text in order to create a new version according to a given culture, language, and context, i.e., a translation process. In contrast, transcreation focuses more on creative marketing adaptation, where persuasion function plays a major role (Pedersen, 2014).

As another notable difference, creativity and expressive capacities emerge as an essential component for transcreators. Contrary to this, labelling translation is always limited to regulatory issues, in some form or another. As a result, this constraint restricts the translator's creativity. However, it is important to note that, as the empirical study of our work will demonstrate, the translator may apply translation techniques and translation decisions according to their discretion as long as the provisions of the law are complied with.

To conclude, the translator must pay attention to two fundamental aspects concerning product's name during the translation process: if there is a name prescribed by law, the legal name must be used, and if not, a customary or descriptive name of the food must be provided. Likewise, it is essential that the name of the product is sufficiently clear for the target consumer to be able to recognize the true nature of the product and distinguish it from other products that may confuse him or her. Throughout the following sections, we will note that this is not always an easy task.

2.2.2 Food labelling translations problems based on communicative functions regarding the product's name

On the basis of the above, we proceed to list the possible translation problems that the product's name may present, taking as a reference the communicative functions referred to above. We must bear in mind that the four functions will

not necessarily be present in the same example or that cases of mixed functions may be found.

– With regard to the referential function, all food labelling must fulfil an informative purpose by legal imperative. It provides the consumer with the necessary considerations for consumption, due to the importance of the information provided and the possible consequences that may affect the consumer's health if not adequately specified. The sections of the labelling that fulfil this function usually coincide with the mandatory or optional indications established by the regulations, being the product's name one of them, among others (such as list of ingredients, nutritional information, presence of allergens, special storage and/or use conditions, etc.). On the face of it, these should not pose much difficulty for the translator, but the reality is quite different. Firstly, the translator must be objective and rigorous when translating this section (in clear contrast to the presence of elements of the appellative or expressive function) and must apply the relevant linguistic considerations in perfect balance in each case. Secondly, they should be familiar with the legal requirements that must be strictly followed (as pointed out in point 2.2.1). Translator must be up to date with the regulations in force both horizontally and vertically in the country where the product is marketed. It is important to point out that this aspect requires a process of regulatory compilation which implies an arduous documentation task, given the lack of a specific regulatory repository that classifies all the legal precepts applicable to the name of a food product in question, together with the provisions referred to labelling, in general terms (i.e., Regulation (EU) no 1169/2011). Legislation may also include additional indications referring to a specific treatment to which the product has been subjected or to its physical state and which could be present on its name (e.g., sugar-free, powdered, frozen, etc.). It could also involve changes in the layout of information or aesthetic changes to semiotic resources (e.g., font size, font type and style).

Likewise, we must pay special attention to the presence of culture-bound terms concerning the product's name, as this is a very characteristic aspect and can serve a variety of purposes which, depending on the context, may pose specific translation difficulties:

– In the case of cultural references that are covered by regulations (traditional terms (e.g.: *crianza, reserva, gran reserva*) designations of origin, geographical indications, production methods, preparation, maturation or ageing of a product (e.g.: cured, salted, *serrano*, dried) that may be present in the product's name. In these situations, the translator must abide by the provisions of the law.

  In other cases, i.e., specific terms associated with a product (its name, place or source of origin, customs, culture, fauna, ecological environment, etc.), the translator will encounter problems associated with misunderstandings, possi-

ble confusion, a cultural reality that does not exist in the target culture, etc. Translators must decide between retaining the original term, thus getting the consumer's attention, giving the text a touch of exoticism and a certain appeal; accompanying the original term with an explanation or brief explanation; or using any other translation technique or strategy they deem appropriate.

– As far as the phatic function is concerned, labelling reflects the distinctiveness of a product within a socio-cultural context that may differ in the receiving culture. This is the first point of contact between the manufacturer and the consumer, as the product's name on the labelling is its letter of introduction. Consequently, the translator is responsible for ensuring that, when the user reads its name, they are able to recognize which foodstuff is being described. This function is closely related to the appellative function, in that the consumer is explicitly involved.

– The space constraints are especially characteristic of this microtext, and add an additional limitation to any labelling translation process. This not only restricts the translator's creative capacity, but often prevents them from resorting to techniques such as linguistic amplification, description, clarification, or translator's notes. A particular example of this is when there is no exact equivalent or there are cultural references that may influence the interpretation of the meaning of the product, affecting phatic function.

– The expressive and appealing function is linked to the presence of marketing and/or advertising language. This includes a description of the product's functionalities that aim to highlight a specific quality in the product's name that will differentiate it from its competitors, in order to make the consumer choose a product over other similar products. The presence of common language elements, such as rhetorical elements, that appeal to the product's contributions to our body, for example, makes special sense in this function. When these symbolic meanings are translated into another language, they may lose their meaning, their strength, or their referential function. In promotional language, semiotic resources also represent a very important part of the message to be transmitted, manifesting particularities of persuasive and poetic functions. The common problem of this type of element for the translator lies in the failure of establishing the same relationship between the text-image binomial in the target text, or in the impossibility of modifying the presence of this type of element. Translating expressions of this type is closer to the localization task, in which the translator is required to gain an understanding of the original social context and to adapt the original term as closely as possible, both in terms of content as well as idiomatic meaning and particularity. Despite their limited syntactic and semantic configurations, their correct translation will result in a text with fluency and communicative efficiency.

All of the above marks the main particularities that the translator must consider when dealing with the methodological aspects necessary for the translation of the name a food product. Once the main translation problems present in the labelling have been detected, we will proceed to analyze the translation techniques that will lead us to adopt the relevant translation and translatological solutions and will help to bridge the contrastive differences.

3 Translation techniques applied to corpus analysis

Ever since Vinay and Darbelnet first coined the term *"procédés techniques"* in 1958, a number of authors have been researching the taxonomy of translation techniques applied to the resolution of terminological, linguistic, cultural, etc. problems (Orozco Jutorán, 2014). The purpose of this research is not to review authors' approaches in depth, but rather to determine how they can be applied to the translation of food product labelling. After a thorough review of studies conducted within the framework of the translation techniques analysis, we found that very few scientific publications focusing specifically on the study of translation techniques applied to agri-food texts, or food labelling, exist.

Bearing in mind said background, this paper aims to detect the most common translation techniques which are used in the product's name of food labelling. Based on the analysis of the main labelling translation issues discussed earlier, we will use real examples drawn from an *ad hoc* textual corpus. In accordance with the purpose of this investigation, we do not intend to offer a new taxonomy because the "traditional" techniques are sufficient for bridging the contrastive differences from a combined functional-communicative and sociocultural perspective. The authors would also like to point out that, despite the fact that its denomination is still being debated within our discipline, in this paper we will adopt the concept of "translation techniques", based on the postulates of Molina and Hurtado (2002), and Zabalbeascoa (2000).

As Molina and Hurtado point out, we agree that "the relevance of the use of one technique or another is always functional, depending on the textual genre and type of translation in question, the purpose of the translation and the method chosen" (Molina and Hurtado, 2002, p. 173). Additionally, Hurtado (2001) clarifies beforehand that the concept of "technique" describes the equivalence between the translated and the original text, providing an analytical tool for describing and comparing translations, although other parameters are also required.

Meanwhile, according to Zabalbeascoa (2000, p. 123):

> The notion of translation technique comes from a prospective (and prescriptive) approach, which involves looking at the ST and deciding what its smallest constituent parts are for the purpose of translation, (. . .) The difficulty, complexity, and even the frequency and desirability of each technique is more or less implicitly measured against the "ideal" of literal translation, following Newmark's motto "translate as literally as possible and as freely as strictly necessary". (. . .) Once these bitextual units are established, what remains to be done is to describe the nature of the relationship between the ST segment and the TT segment, and it is precisely the name given to the relationship between these two segments of ST and TT that we can call "solution-type.

In this context, we intend to analyze the translation techniques identified in the field of labelling translation using both approaches: taking as a reference the communicative functions, the relationship between ST and TT, which will lead us to the most appropriate solution-type for each case, while keeping in mind that there are no mutually exclusive categories, but rather a variety of possible solutions and proposals.

In this paper, we will present concrete examples taken from the labels of our corpus and analyse them in accordance with a study-specific analysis model, which include: the name of the foodstuff, the Spanish brand that markets it, as well as a translatological analysis describing the characteristics of the designation of the product, the factors to be considered by the translator, the communicative function, the identification of the translation techniques(s) and any relevant translation comments. The taxonomy criteria developed by Molina and Hurtado, under Zabalbeascoa's approach, will be used as a guide, although this does not exclude the possibility of integrating other techniques or strategies in the future. Given that these are widely known authors, we do not consider it necessary to list their proposed classifications. Instead, they will be directly applied and discussed on in the empirical analysis.

Our corpus consists of a set of 50 food product labels in electronic format extracted from online label archives. In accordance with the criteria of balance and representativeness of Ortego-Antón (2020), on the compilation of a corpus of agri-food texts, we have selected labels that illustrate different types of labelling with real examples, where it is possible to appreciate the different translation solutions to be adopted to the product's name. Labels of recent consumption (the last decade) have been collected from leading Spanish products in the food sector that market their products in France, and therefore have had to adapt the product's name from Spanish to French. In spite of our best efforts, it has been quite difficult to locate labels that matched the criteria established and served the purpose of the study. A manual search was the only method available for conducting the research, which made the fieldwork even more challenging and time-consuming.

3.1 Case studies analysis

In order to take space into consideration, we will only show the findings that are of greatest interest to the translator.

Example 1

Figure 1: Spanish version. *"Macedonia de Legumbres*".

Figure 2: French version. "Macédoine de Légumes".

Product: Vegetables

Spanish Brand: Bonduelle

Translatological analysis:
In this example (see Figure 1 and 2), we identified an informative purpose in the name of the product. However, the use of the term "*macedonia*" (fruit salad) could imply the intention to give the name a certain exotic quality in order to attract the user's attention, due to the imprecise use of the noun phrase used. This is a particular case that generates certain problems for the translator. Apparently, there is a lexical error in the original text, which is maintained in the translation into the target language. The word "*macedonia*" carries the conceptual connotation of "fruit salad" and should therefore only be used for a preparation in which pieces of different fruits are mixed with their own juice. For that reason, it should be incorrectly used for vegetables. However, there is a provision in the Spanish legislation which specifies that certain preserved vegetable mixtures may be referred to as "*macedonia*". According to Annex 35.2 of the Corrigendum to the Order of 21 November 1984 approving the quality standards for preserved vegetables: "*macedonia o macedonia de verduras*" refers to the "elaboration of vegetable mixtures which must contain: potatoes, peas, carrots and green beans, and may also contain other vegetables". In addition, the legislation requires a very important clarification: "under no circumstances may it be called "macedonia" if any of the four compulsory components are missing or are not in the proportions listed in the following paragraph. Consequently, the translator would be forced to consult the list of ingredients of the product in question to verify that it complies with the regulations applicable in the country of origin, and to verify the provisions of the legislation of the target country. In this case, the type of vegetables covered by the French legislation is the same.

The translation technique used is calque, i.e., literal translation. In the target language, the syntagma has been translated literally.

In this example, it is illustrated how vital and essential it is for a translator to consult the regulations during the terminology translation process.

Example 2

Figure 3: Spanish version. *"Yogur griego".*

Figure 4: French version. *"Yaourt à la grecque".*

Product: (Greek) Yogurt

Spanish Brand: Danone

Translatological analysis:

A number of issues have arisen in relation to the naming of this dairy product (see Figure 3 and 4). This is because the use of the demonym "Greek" to describe a product made in Spain may be considered an act of unfair competition since the consumer is misled, as well as being accompanied by semiotic elements that are evocative of Greece and the colours of the Greek flag (blue and white). The label should include explanatory terms so as to avoid this type of confusion, as Danone did in its labelling.

By engaging in an evocative parallelism, both in the name and in the non-verbal elements that accompany it, it serves as an expressive and appealing function.

From a translation point of view, in the Spanish labelling, the demonym "*griego*" (Greek) is used; however, in French, it is translated as "*á la grecque*", i.e., in the Greek way or manner. Therefore, the French has been adapted in order to facilitate clearer understanding about the product's origin and characteristics, in addition to being linguistically more natural. Therefore, we can identify a modulation along with an adaptation.

Example 3

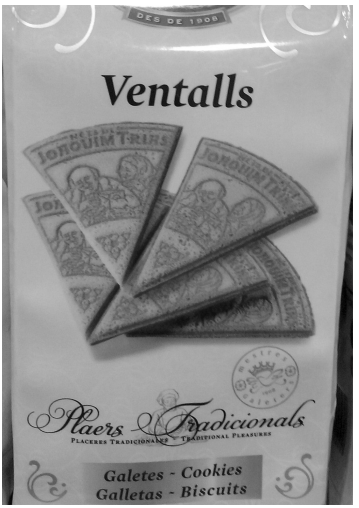

Figure 5: Spanish and French version. *"Ventalls".*

Product: *Ventalls* (Catalan biscuits)

Spanish Brand: Trías

Translatological analysis:
By identifying the product with its region of production, the name creates an appeal to the consumer through its cultural significance. The product's name in Catalan (*ventalls*) refers to the shape of the product (see Figure 5).

The type of product to which the name refers is indicated in Catalan, despite the fact that the name of the food is clearly indicated in several languages. The product's name in Catalan (*ventalls*) refers to the shape of the product. It should be clarified that the original name may also be its trade name. If this is the case, the original name must be preserved, in accordance with the provisions of the legislation in force.

Whatever the case may be, the Spanish label maintains the Catalan name, and therefore it is translated into French by pure borrowing. To make it easier to understand, we recommend clarifying (using amplification or explanation paraphrasing), when legally possible.

Example 4

Figure 6: Spanish version. "Actimel" (Brand name) ***"ayuda a tus defensas y a tu vitalidad . . ."*** **(descriptive name).**

Figure 7: French version. "Actimel" (Brand name) ***". . . pour le système immunitaire"*** **(descriptive name).**

Product: Actimel

Spanish Brand: Danone

Translatological analysis:
We have selected this example (see Figure 6 and 7) in which we find the trade name (Actimel) accompanied by its descriptive name, in this case provided by a description of the health benefits of the nutrients contained in the product. This assures the consumer's right to information. The inclusion of nutrition or health claims on food labels should be in accordance with the Regulation 1924/2006. Additionally, this information serves as a communicative claim that appeals to the customer's intention to purchase.

On the Spanish label, the labelling information under analysis is referred to as a product that improves your defences and vitality (*ayuda a tus defensas y a tu vitalidad*), while on the French label, is referred to as a product that enhances your immune system (*pour le système immunitaire*), suggesting its use as a general health-enhancing product.

We can consider that either a technique of generalisation or compensation technique has been employed in the French version, adapting the meaning, and amplifying it by introducing clarifications that are not formulated in the original text, in a more neutral way.

Example 5

Figure 8: French version. "*Tapas al minuto*" "*Mini brochettes de poulet au citron*".

Product: Tapas al minuto. *Mini brochettes de poulet au citron*

Spanish Brand: Espuña

Translatological analysis:
Based on the culturally marked nature of this label (see Figure 8), our analysis is limited to its French version, as it is in this translation that the translatological function of the term is fulfilled. Since it is not relevant for our study, no reference will be made to the designation of the foodstuff in question, in this case.

We could consider this example in which the term "*tapa*" is kept in the original language as a communicative strategy that aims to highlight the fact that it is a Spanish product sold in a foreign market, and to arouse the consumer's interest for commercial purposes.

It is worth noting that the brand's slogan on its website is "the best of traditional products adapted to today's lifestyle". This gives us a clue that we will find cultural references in the name of the products. As it turns out, this is the case. The term "*tapas*" is used twice on the packaging: in the centre of the label, "*Tapas al minuto*"; and in the upper left corner, "*Nouvelles tapas légères*" (at the top left corner). In the first case, it corresponds to a range of products of the Espuña brand named in this way, the designation of which we consider should be maintained in the original language. Nevertheless, only in the second case could it be considered a pure loan, with lexical import, reflecting a characteristic element of the culture of the source text, presented with the corresponding adjective translated into French.

Example 6

Figure 9: French version. *"La Tortilla Bio".*

Product: *Tortilla*

Spanish Brand: Palacios

Translatological analysis:
This is another example where Spanish cultural terms are integrated into a French label. The product's name, "*tortilla*", is retained in the French version, along with other borrowings such as "*bocadillo*" or "*tapa*", which appears in the description of the product. Additionally, other specifications aim to emphasize the product's cultural origin, such as the explanation "*veritable tortilla espagnole*" (real Spanish omelette) (see Figure 9).

In spite of the fact that "*tortilla*" has a French equivalent (*omelette*), the decision to keep the loanword was a result of an attempt to emphasize the uniqueness of the Spanish product being marketed in France. The intention is to exalt its cultural qualities and traditional origin, which has the clear purpose of appealing to the consumer as well as an obvious marketing and advertising aim.

Example 7

Figure 10: French version. "*Torta turrón de Alicante*".

Product: *Turrón*

Spanish Brand: Palacios

Translatological analysis:
Another type of label is one that is presented in several languages. The original label, in Spanish in this case, offers the translation of certain parts of the labelling in other languages, such as the description of the food (see Figure 10).

In this case the product's name is "*torta turrón*", which refers to a product that is traditionally consumed at Christmas in Spain, as well as in other South Mediterranean countries. The name of the product again refers to a culturally marked term. For the translated solution in French, a culturally equivalent description has been provided. This technique makes it possible to replace a term or phrase with a description that is easily understood by the new addressee, who does not share the same reality as the recipient of the source text, by also using an equivalent term in the target culture.

4 Conclusions

The findings of this study allow us to conclude that the process of translating the product's name of food products in labelling is not straightforward. It requires a thorough prior analysis which is associated with the particulars of this textual genre, its communicative purposes, and knowledge of the regulatory requirements applicable to the product in question.

A key aspect of this analysis has been the determination of the communicative functions pursued in each situation. Our study has confirmed that it helps to understand the intended message and interpret the text more accurately and effectively, to adapt communication strategies in order to effectively convey a message from one language to another, being aware of and sensitive to cultural and linguistic differences.

Through our study, we have come to the following conclusions regarding the determination of communicative functions within the product's name on food product labels.

Referential content generally adopts a more objective criterion, which is closer to technical language and respects the information contained in the original. Accordingly, it is accompanied by techniques such as adaptation, calque or modulation, linguistic extension, or transposition without significant modification.

In contrast, information which aims to persuade or convince typically requires the formulation of an original text, linked to the process of localization. This involves changing the concept's focus or point of view, bringing it into a context that is closer to the language of the target consumer, and where the intention of the sender plays a more significant role. Translation techniques most commonly used in this scenario are adaptation, equivalence, linguistic amplification, amplification by description or explanation paraphrasing, and discursive creation or compensation.

Regarding the phatic function, it also implies a process of localization of requirements from one legal system to another, which in turn may entail alterations to the original text associated with terminological or expressive issues. The translator, as a mediator, will try to preserve the intercommunication between the sender and the receiver, in this case the manufacturer and the consumer, in order to create a communication channel that satisfies and fulfils the expectations of the potential consumer.

In addition, the socio-cultural dimension, which is most evident through the use of cultural terms, establishes new lines of research because they entail specific characteristics on their own and within labelling. In some cases, regulations may govern the criteria to be adopted, while in others, translators' decisions will determine the outcome. Culture-bound terms have a particular place in the trans-

lation of a product name, since the name of food products often reflects the cultural significance of certain ingredients or dishes. They not only indicate their geographic origins but also highlight the cultural traditions and history associated with them. In this manner, it provides an important window into the cultural significance of gastronomy and how it contributes to interpreting the significance of a particular product within a society, as well as the social context in which that product is embedded.

Despite the fact that, in our analysis of real examples, we have primarily focused on studying the product's name, our corpus analysis has revealed that other linguistic issues may exist in other sections of the labelling, such as ingredients, nutritional information, nutritional claims, and advertising content, as well as non–linguistic particularities, which open up possibilities for future research.

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Part III: **Translation and interpreting technology**

Marta Alcaide-Martínez, Gloria Corpas Pastor

Interpreting for the agri-food sector: A gamified approach

Abstract: The agri-food sector plays an important role in the economic system of the European Union (and particularly Spain). In this regard, international exports of agri-food products are becoming increasingly significant, making document translation and interpreting necessary in this area. However, little attention has been paid to this branch of specialization in Translation and Interpreting University curricula. In this chapter we present a protocolized gamified methodology to prepare for an interpretation on this particular domain. We will focus on the acquisition of domain-specific terminology through gamification, corpus-driven and technology-mediated stance. After providing a brief overview on the agri-food sector and its multilingual communication needs, we will focus on interpreter preparation. Our methodology draws on gamification for a better learning experience. It is a three-step corpus-based protocol for the creation of terminology-orientated game-based activities. To the best of our knowledge, this is one of the first studies on the use of gamification to prepare for an interpretation (real or simulated).

Keywords: Gamification, agri-food sector, professional interpreter, trainee interpreter, terminology preparation

1 Introduction

In an environment of climate crisis characterized by escalating pollution and the problem of climate change, the flourishing agri-food industry appears to be on the spotlight worldwide. Being a fundamental part of the economy of all countries, this sector faces several challenges nowadays, such as the need to improve the sustain-

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ability and quality of food while reducing its consumption of natural resources and the use of inefficient and costly processes. This lies at the root of current attempts to apply artificial intelligence (AI) in this sector, as several AI techniques (e.g., machine learning, deep learning or artificial neural networks) could help automate tasks, save time, improve sustainability and product quality, and could even contribute to lighten linguistic mediation tasks, like translation and interpreting, in a more cost-effective way for companies (Rejeb et al., 2022).

In the case of Spain, the agri-food sector has been traditionally considered a strategic production activity (Fernández Núñez, 2000), mainly due to the steady rise of exports, especially to the European Union (Medina Reguera & Álvarez García, 2014). As Álvarez García (2018) highlights, based on statistics from the Spanish Instituto de Comercio Exterior, exports are having an increasing impact on the Spanish economy, and this also has a direct repercussion on an upsurge in the demand for language-mediated tasks.

The same rising trend can be observed with regards to translation and interpreting demands for commercial purposes. In these commercial exchanges, it is common to use the language of the exporting or importing country or a third agreed language as *lingua franca*. A clear example is the wine sector in Spain. The study by Ibáñez Rodríguez et al. (2010) reveals a tendency to use English as *lingua franca* for international communication, although most respondents consider translation to be very or fairly important for the performance of their commercial activity in foreign countries. Interestingly enough, the wine industry also tends to dispense with professional translators and interpreters and rely instead on in-house staff, as technical expertise in the sector is considered more important than linguistic competence (Ibáñez Rodríguez et al., 2010; Medina Reguera & Álvarez García, 2014).

In this chapter we intend to make a significant contribution to the didactics of Translation and Interpreting, with special reference to interpreters. Against this background, our research focuses on the potential of gamification to assist interpreters working in the agri-food sector in their advance preparation phase of a given job assignment. With this aim, we present a variety of gamified activities that will allow professional interpreters and trainees to practice their mastery of domain-specific terminology in an innovative, entertaining, and meaning way.

The rest of the chapter is organized as follows. Section 2 is composed of two subsections dealing with gamification, some key concepts and its benefits, as well as the advantages of applying it to translation and, especially, to the preparation phase of an interpretation. In Section 3, we explain the methodology, the target audience, the compilation of our corpus and the extraction stage of seed terms for the gamified activities that we have developed on two open access gamification platforms and that we have described in Section 4. In Section 5 we state our

conclusions and in Section 6 we cite all the bibliographical sources that underpin our chapter. To the best of our knowledge, this is one of the first studies on the use of gamification to prepare for an interpretation (real or simulated).

2 The advantages of game-based interpreter preparation

Domain-specific terminology preparation is considered central to improving the quality of interpretation, as already argued by Díaz-Galaz (2011), Pöchhacker (2016), Fantinuoli (2017) and Xu (2018), among others. Interpreters usually acquire domain and terminology knowledge in the preparation phase, as an anticipatory strategy to support the interpreting event and overcome the inherent difficulties of the interpreting process (cf. Pöchhacker, 2016). Typical preparatory activities include glossary compilation, bilingual lists, and terminology management (Díaz-Galaz, 2011; Chang, Wu, & Kuo, 2018). However, these techniques have a number of disadvantages that could be avoided by using gamification as a preparation method for interpreters, as it will be explained in the following subsections.

2.1 Gamification: Key concepts and benefits

The term *gamification* has its origins in the digital media sector, although it has been spreading and becoming popular in other contexts, such as healthcare, labor, education, tourism, etc. This term was coined by Nick Pelling, a British videogame programmer, in 2002, but its first documented uses were not until 2008 in a blog post by Brett Terril. Since then, the concept of gamification has been growing to achieve the scope and importance it has in today's society due to the multiple advantages of its implementation in the various fields in which it has been investigated (Deterding et al., 2011, Contreras Espinosa & Eguia, 2017). It is worth noting that gamification, under another denomination, has been applied and studied by other authors before, such as Ellenor Fenn in the eighteenth century, whom Gallego-Sturla and Taillefer (2021) consider a precursor of ludology, currently better known as gamification. Despite this, it was not until mid-2010 that the notion began to gain more relevance and to be defined by the academic world, with the definition by Deterding et al. being one of the most widely accepted and cited: "Gamification is the use of game design elements in non-game contexts" (2011, p. 2).

From this definition, we extract a series of key concepts that are essential to distinguish and understand in depth when creating gamified activities. The concept

of *game* is different from *gamification*, as *games* focus on making users entertained and having fun (Xu et al., 2017). Gamification involves meaningful learning and real problem solving, while in games fictional situations are more usual. Moreover, in their paper, Alcaide-Martínez and Taillefer (2022) expose the definitions of the terms *play* and *serious games*. They emphasize that *play* seeks the amusement of the participant without the need to use rules, since enjoyment is the important thing. As with games, in plays the user does not face real problems. *Serious games*, on the other hand, focus on individual experience, take place in a specific space and context and are related to the acquisition of knowledge and skills (Kapp, 2012; Xu et al., 2017). Therefore, gamification is not a game as such, but a set of fused elements that aim to evoke the feelings provoked and the skills awakened by games, plays and serious games.

The *elements*, mentioned in the definition of Deterding et al. (2011), are also crucial in the design of gamified scenarios and activities. Werbach and Hunter (2015) divide these elements into three categories: dynamics, mechanics, and components. Hence, it is necessary to take into consideration that the dynamics constitute the general elements that are not directly introduced in the gamified system. The mechanics are the processes and procedures that involve the player in the activity and encourage engagement between the user and the gamified exercise. Finally, the components are the specific parts and accessories of the games that, correctly combined with the mechanics and dynamics, constitute the gamified structure (Werbach & Hunter, 2015). In the conception of the gamified activity, the appropriate elements should be chosen according to the target audience of the given exercise and the objectives to be achieved, as detailed in the description of our activities designed for professional interpreters and trainees (cf. the pyramidal classification of dynamics, mechanics, and components in Alcaide-Martínez and Taillefer, 2022, p. 286).

Cornellà et al. (2020) state in their paper that game is a cornerstone in the development and learning of human beings. Unfortunately, it is not usually used in the educational world because it is associated with leisure, so it is often reserved for early childhood education. However, these authors argue that game has great educational potential, since its entertaining, relaxed and fun nature fosters the acquisition of significant theoretical and practical learning. A properly designed or selected gamified exercise enables students to increase their attention and effort, memorize and learn in a rewarding and amusing way, as opposed to traditional and more serious methodologies. Likewise, gamification should not be confused with Game Based Learning (GBL).

As Cornellà et al. (2020) point out, gamification consists of the creation of a scenario characterized by game elements in which users/students are the protagonists and have to achieve a proposed challenge, while GBL is the use of games so

that users/students learn something through them. Both are active methodologies that either separately or in combination would have many advantages for the learning process and the process of preparing for a possible interpreting assignment, because games and their elements generate stimulation, promote concentration, awaken curiosity, elicit feelings, enable teamwork and relationships with peers, increase motivation and the ability to react in order to solve problems, decrease stress, teach how to use information effectively, make it possible for participants to face real problems and situations, etc. (Marín et al., 2015). All these positive aspects could be very beneficial not only for interpreting students, but also for professional interpreters, especially in the preparation phase, which is so important for the quality of an interpreting (Díaz-Galaz, 2011; Pöchhacker, 2016; Fantinuoli, 2017; and Xu, 2018). Gamification would help, for example, to lighten the tedious task of collecting and memorizing domain-specific terminology.

2.2 Gamification in translation and interpreting

Among the scientific productions on gamification, we have no evidence that a three-way connection between gamification, interpreting and agri-food has been previously drawn. Nonetheless, we have located studies linking gamification with translation and interpreting, such as those by Gutiérrez-Artacho and Olvera-Lobo (2016), Alcalde Peñalver and Santamaría Urbieta (2020), Alcaide-Martínez and Taillefer (2022), among others. Despite these works, gamification has not been frequently applied in the aforementioned disciplines or in the university degree. In this case, our focus will be on interpreting, as it is well known that translation students and professional translators have many more technological tools at their disposal for their preparation and professional development.

As mentioned at the beginning of this section, advance preparation is crucial in all types of interpreting (simultaneous interpreting, conference interpreting, etc.). Díaz-Galaz et al. (2015) remark that prior documentation and preparation is an indispensable activity for interpreting students and professionals, as it allows them to anticipate the speech and, thus, experience lower levels of tension and stress. Both students and professionals dedicate plenty of time to this preparation phase and, normally, the result of this invested time is a glossary with specialized terminology in the two working languages. Depending on the interpreter, glossaries can simply be a list of terms in the source language and their equivalents or a bilingual list together with more complementary information that offers more insight into the different concepts.

However, glossaries and bilingual lists have several disadvantages: the interpreter has to invest a lot of time in their compilation, they are not interactive or visually attractive tools, the only way to work with this resource is memorization and repetition, they are more useful for translators than for interpreters because of their textual nature, these glossaries and lists are not eye-catching and do not arouse curiosity or interest, they are not adapted to the fast pace of modern society, etc. Apart from that, attempts to develop technological tools for interpreters include Intragloss for Mac OS, Terminus or LookUp for Windows, InterpretBank for Windows and Android, Interpreters' Help accessible via the Internet, and so on. These tools also have some limitations, such as that they cannot handle documents, they cannot include meta-information, terminology processing has to be done manually, most of them only allow the creation of bilingual glossaries, etc. (Corpas Pastor, 2018).

All the disadvantages of traditional training methods lead us to think of gamification as an alternative and innovative methodology with numerous advantages, as mentioned in the previous subsection. In addition, Corpas Pastor (2022) highlights that the prior preparation phase is especially relevant for interpreters when the subject matter is technical and specialized, since the terminology, phraseology and syntactic constructions will be more complex, as in the case of agri-food. This author also indicates that this complexity is compounded by the fact that interpreters usually have little time or no time to prepare and memorize domain-specific terminology. This is a problem that must be solved, since the mastery of domain-specific and specialized terminology and phraseology has a direct impact on the quality of the interpretation (Corpas Pastor, 2022). In fact, as stated by Álvarez García (2018) in a survey to Andalusian exporting companies, knowledge and mastery of specific, specialized and technical terminology is the aspect they regard as the most fundamental in the profile of an interpreter who is going to participate in an international negotiation.

Hassan (2017) outlines that both intrinsic and extrinsic stress is a phenomenon that interpreters often experience and that they have to learn to manage successfully. In this scenario, gamification is presented as a technological methodology that could facilitate the work of professional interpreters and trainees who have to cope with specialized agri-food discourse in a real or simulated context. One of the perks of gamified approaches is that they enable participants to suffer less stress (Patricio et al., 2022). Additionally, Fajri et al. (2021) conclude in their paper that gamification not only boosts learners' motivation, but also makes it possible to reduce technostress, which is the tension and stress produced by having to use and interact with technologies. Equally, gamification makes participants more involved and focused on the exercise, allows them to work on a specific skill in a meaningful and more fun way, increases users' confidence and

academic achievement, etc. (Dehghanzadeh & Dehghanzadeh, 2020; Manzano-León et al., 2021). Actually, Nistor and Iacob (2018) emphasize that bringing gamification into all levels of education is more of a necessity than an option.

Besides, González Cabanach (1997) already noted that memorizing superficial information can be a tedious, boring and monotonous activity for both the student of interpreting and the professional interpreter. The memorization of long lists of specialized terminology in two languages in a short period of time would be stored in the short-term memory and would not constitute meaningful learning, especially when this vocabulary is part of a technical subject, as happens with the agri-food topic. Thus, in this chapter we propose the use of gamification as an active preparation methodology for professional interpreters and trainees, since it will allow them to memorize specific simple and multi-word terminology most frequently employed in the agri-food sector in an engaging, fast and effective way by means of gamified dynamics, mechanics, and components. In this way, interpreting students and professionals will be more motivated than when they have to memorize endless bilingual lists and this will lead them to unconsciously learn domain-specific terminology and become familiar with complex syntactic structures of the subject at hand. Lastly, to exploit all these advantages it is paramount to properly design gamified activities and not reduce them only to rewards, points, and badges, since gamification involves much more than these three elements (Kapp, 2012).

3 Methodology

Despite the enormous potential of gamification, it has been rarely used to prepare for an interpretation, let alone for job assignments in the agri-food sector. For this reason, the main aim of this chapter is to develop corpus-based gamified activities on open access platforms in order to provide interpreters (professionals and trainees) a better learning experience when preparing for an interpretation within the agri-food sector. We advance the use of game-based exercises as a better alternative to traditional lists of equivalents. Our focus is terminology preparation (including multi-word terms) through gamified activities as a more enjoyable and meaningful way to acquire domain-specific knowledge for a given interpretation assignment related to the agri-food industry.

Our protocolized methodology comprises three phases: (i) compilation of a domain-specific corpus on agri-foods; (ii) extraction of gaming seeds (e.g., simple/multi-word terms and sentence concordances); and (iii) creation of seed-based exercises on two open access gamification platforms. In this section we cover the

first two phases of our methodological approach, including intended target audience, data collection and analysis and choice of corpus management system. Gamified activities designed and gamification platforms selected are presented in Section 4.

3.1 Target audience

The gamified activities created in this research are intended especially for professional and trainee interpreters. In the case of professional interpreters, these exercises could be helpful for the preparation phase of interpreters engaged in any of the existing types and modes of interpreting: conference interpreting, simultaneous interpreting, consecutive interpreting, remote interpreting, etc. However, it should be underlined that they would be particularly beneficial for simultaneous interpreting, as interpreters have less time to react and have to be very well prepared because they will most likely not have enough time to do word searches.

Regarding trainee interpreters, these exercises would be especially useful from the second or third year of the Bachelor's Degree in Translation and Interpreting, as it is when students begin to take subjects related to interpreting. As we mentioned for professional interpreters, these gamified activities could be put into practice in the modules of bilateral interpreting, conference interpreting, simultaneous interpreting or specialized interpreting. Hence, the socio–demographic characteristics of target students would be as follows: age range between 20–24 years old, native knowledge of the Spanish language and at least a B2 level of English.

3.2 Corpus compilation

For the task at hand in this chapter, we have compiled an ad hoc corpus via Sketch Engine (see below).[1] An ad hoc corpus is a virtual corpus that is compiled for a specific assignment and is usually characterized by its quality rather than its quantity of texts. This type of corpus can be created fairly quickly, and it helps translators/interpreters to meet their documentation needs in relation to an assignment on the same subject matter (Corpas Pastor, 2004). We also chose to create our own ad hoc monolingual corpus in English in order to take advantage of the benefits that Aston (2002) points out in his work: knowing the corpus in depth

1 https://app.sketchengine.eu/#dashboard?corpname=user%2FMartaAlcaide%2Fagri_food_corpus (Retrieved March 3, 2023).

and knowing how to control it, being aware of its positive aspects and its limitations, and having the knowledge of how to exploit it appropriately. We selected texts that deal with agri-food from different perspectives and in various economic systems. Moreover, to further delimit the field of our corpus, we applied design criteria adapted from Varela Vila (2009):

- Size: we have elaborated a corpus consisting of 45 documents and a total of 601,438 tokens, 431,674 words, and 21,730 sentences. Our corpus is not excessively large, but it can be deemed fit for our purposes.
- Specialization: the compiled corpus is of high quality, since it is made up of scientific papers extracted from Google Scholar and published in journals indexed in quality databases. We opted not to modify the publications, so we have introduced in Sketch Engine the documents in PDF format, since interpreters are sometimes provided with the speaker's bibliography, related documents, etc. when they are hired for an interpretation; data that could also be useful.
- Topic: we selected scientific publications that examine the agri-food industry from different approaches and in different cultures (Egyptian, Italian, etc.). All are domain-specific and well-documented. Specialized and technical terminology from the agri-food sector can be found in all the texts.
- Date: the scientific publications that we included in the corpus are recent and range from 2005 to 2022. We did not incorporate documents prior to 2005 in order to obtain the most frequent specialized terminology currently used in this sector.
- Language variety: we have selected documents written in English, regardless of the authors' place of origin. Due to the processes of internationalization and globalization in which we are immersed, we considered it convenient to include several English varieties so that interpreters can recognize domain-specific terms, even if they are diatopically restricted.
- Genre: our corpus is composed of specialized scientific papers covering agri-food in relation to new technologies, sustainability, resource waste, supply chain, etc.

As previously noted, we made use of the corpus management and text analysis software called Sketch Engine. Thus, for the creation of our own corpus, we used the function enabled in this tool for this purpose, which can be found in the upper right corner of the dashboard on a button labeled "New corpus" after logging in. We then wrote the name of the corpus, indicated whether it is monolingual or multilingual, the language of the texts and provided a description. Once the characteristics were set, we added our 45 documents previously downloaded from Google Scholar and inserted them in PDF format with the "I have my own texts" button. When we had

added all the scientific publications, we compiled our corpus by clicking on the "Compile" button on the next screen in a simple and fast way.

3.3 Extraction of seed terms

Terminology extraction from our corpus has been performed with Sketch Engine through the "Wordlist. Frequency list" functionality ("Advanced" option). On the right-hand side, the settings are modified until the 50 most frequently used nouns in the 45 scientific publications are obtained. As soon as the characteristics have been adjusted, the "Go" button should be clicked to retrieve the 50 most frequent nouns and their absolute frequency, i.e., the number of times the element has been found in the corpus, as shown in Figure 1:

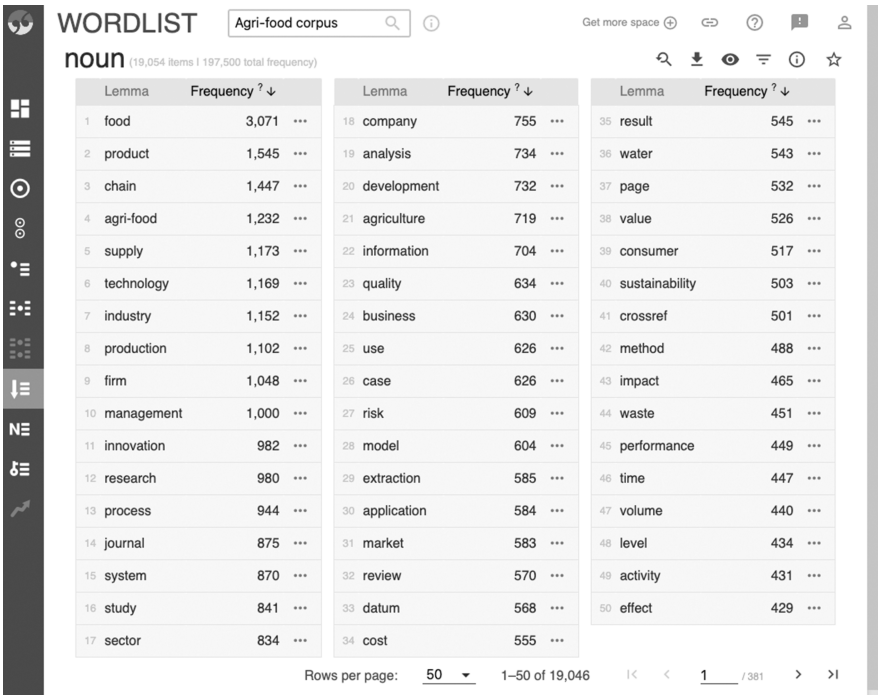

Figure 1: List of the 50 most frequent nouns extracted from our corpus on agri-foods.

Nouns, verbs, and adjectives are among the most important components of a discourse. Indeed, mastery of these units on a given topic will be essential for professional interpreters, as it will enable them to be more confident and at ease when

dealing with a specialized discourse. Hence, following the same procedure, we also retrieved the 50 verbs and 50 adjectives with the highest absolute frequency in our specialized corpus, which can be consulted in Figures 2 and 3 (see below).

These lists of the most frequent terminology (nouns, verbs, and adjectives) extracted from a specialized corpus are of particular interest to interpreters and translators not only from a linguistic standpoint, but also for the information that can be gleaned from them. For example, it is worth noting that words, such as *technology* or *innovation*, are found in the sixth and eleventh positions in the list of nouns. Likewise, it is also relevant that the verb *develop* is in the fifth position in the list of verbs, and adjectives such as *different* and *new* in the third and fourth position in the list of adjectives. This data is very valuable, since the professional or trainee interpreter can deduce from it that this is a sector that is innovating in its processes by means of new technologies.

The retrieval of multi-word expressions and sentences containing the most frequent terminology and these multi-word expressions is explained below by way of an example. The expressions and sentences concerned can be consulted through the gamified activities collected in this book chapter. We take as an illustration the word *food*, which is the most frequent noun. As can be appreciated in Figure 1 (see above), next to the absolute frequency, there are three dots at our disposal. Thanks to them, we can access the "Concordance" function and thus obtain sentences containing the noun *food*, which we then incorporate into our gamified activities. Figure 4 (see below) shows the list of some sentences containing the noun *food*.

In the same way, we use the "Word Sketch" option to choose multi-word expressions that we add later to our gamification exercises. Clicking again on the three dots, we can locate in sentences the multi-word expressions we need, which can be seen in Figure 5 (see below) for the case we are discussing.

As can be noticed in the lists compiled, it seems that the agri-food sector uses quite accessible terminology characteristic of a non-specialized language despite being a specialized field, which facilitates the task for interpreters and translators who want to work for this industry. Following these steps, we will recover the terminology, multi-word expressions and sentences that we consider most suitable for the practice and preparation of professional interpreters and trainees for a given assignment in the agri-food industry. Finally, multi-word expressions deserve special attention, since they would allow the practice of common collocations in the sector.

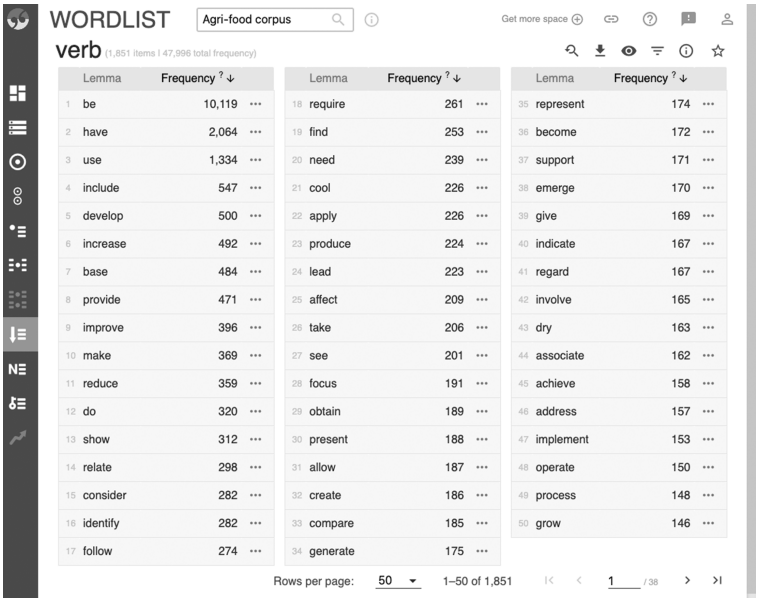

Figure 2: List of the 50 most frequent verbs extracted from our corpus on agri-foods.

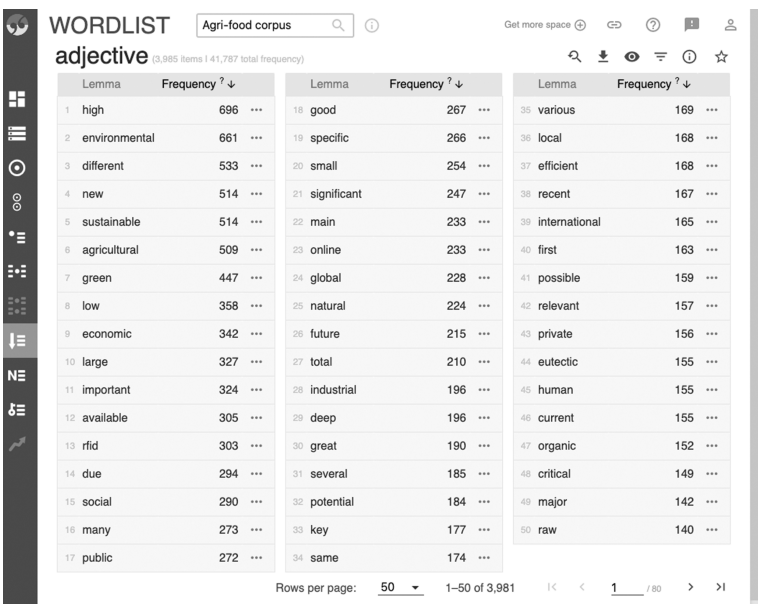

Figure 3: List of the 50 most frequent adjectives extracted from our corpus on agri-foods.

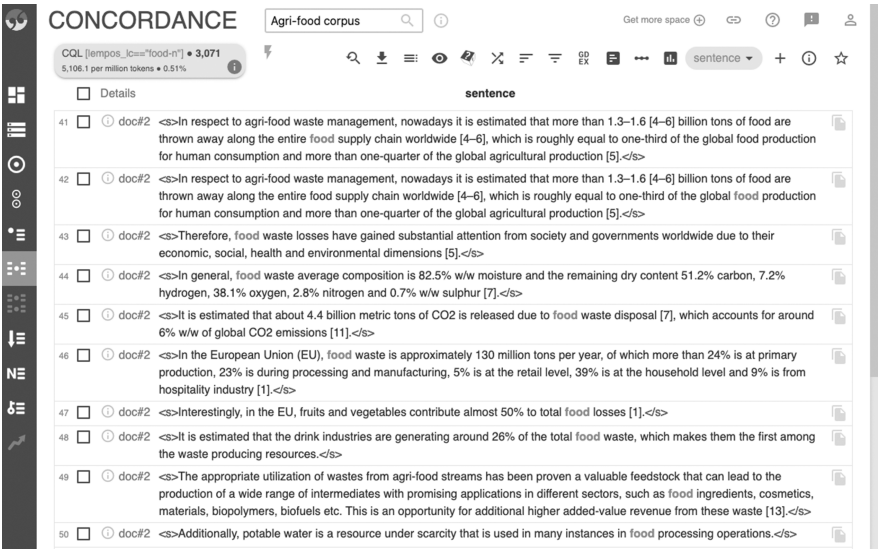

Figure 4: List of some sentences containing the noun “food”.

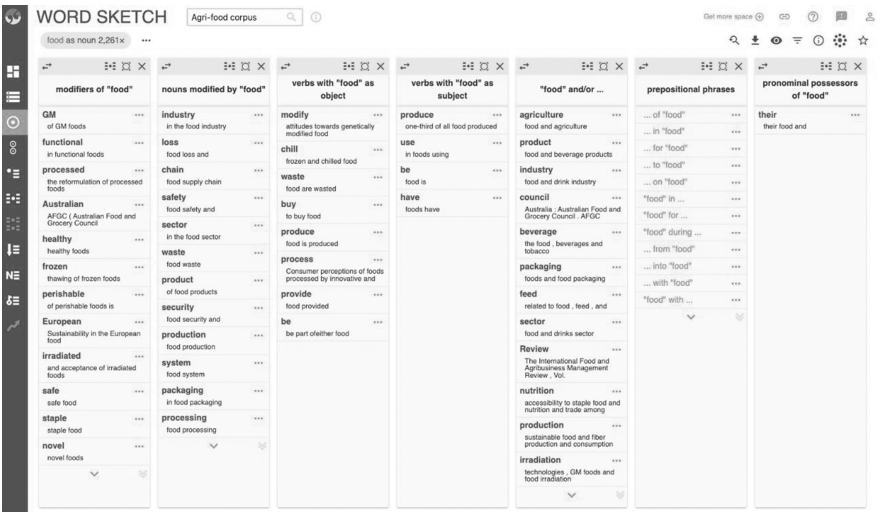

Figure 5: Word Sketch function for the noun “food”.

4 A structured set of terminology-orientated gamified activities

Below we present the set of seed-based gamified activities (GAs) that we have created according to the specifications and targets indicated in Section 3. For the design of these exercises, we have selected the mechanics, dynamics and components of gamification that we considered most appropriate among those offered by the chosen gamification platforms available on the web for the training of vocabulary about the agri-food industry and for the potential target audience. By means of these activities, it will be possible to work with this terminology contextualized in real texts compiled in the form of a corpus. These activities are available on the free and open access platforms where they have been developed and can be accessed through these platforms and through the links we share in this chapter.

On the one hand, we have chosen the Genially platform because it is an online tool that enables users to create and use interactive and visual content in a simple and fast way. This tool has a multitude of fully editable templates available and even a gamification templates section. Users can create their own design from scratch or modify existing templates as much as they want. This software contains very striking templates, sometimes inspired by existing games, TV shows, etc. that will arouse the curiosity and motivation of players. It is possible to introduce all the internal and external gamified dynamics, mechanics and components desired without any programming or design knowledge. This platform is especially interesting for the creation of activities for interpreters, as it allows the uploading of audios, YouTube videos, etc.

On the other hand, we have also selected Baamboozle, since it is a free tool to create games or to play available games designed by other users. The development of gamified activities is very simple. For each question you can enter words, sentences, images, memes, stickers or GIFs, which give the questions a more fun twist. With the free version, the gamified activity can be played with 1 to 4 teams, so it can also be played individually. In addition, visual elements can be added to the question numbers and power-ups, which can benefit or harm the different teams (win 5 points, lose 10 points, etc.), can be included. Moreover, the teacher can add more conditions orally before starting. This is a platform with many possibilities and is very motivating because of the internal and external elements that can be introduced in the different questions.

Regarding gamification platforms, Kahoot! is one of the most popular game-based platforms used not only in the educational environment, but also in the business world. Indeed, it has more than 70 million users actively using the platform per month (Wang & Tahir, 2020). However, more and more different gamifi-

cation platforms, such as Gimkit, Quizizz, Quizlet, Educaplay, Socrative, etc. are emerging and being applied in different sectors. The choice of one platform or another will depend on the objectives to be attained and the participants for whom the activity or gamified system is intended.

4.1 GA1: The lucky roulette wheel for interpreters

This gamified exercise has been designed from an existing template to which we have introduced modifications on the open access platform known as Genially. In this gamified activity, interpreters have to click on the roulette wheel to spin it and check how many points they will win if they choose the correct answer. When the roulette stops spinning, the interpreter can read a sentence in Spanish about agri-food. Our corpus is in English, so the Spanish sentence is a translation we propose from the original English sentence extracted from our corpus. This activity is created to practice especially some of the most frequent nouns retrieved from our corpus, but as we added complete sentences, there are also adjectives, verbs, and multi-word expressions that the interpreters will be able to work on.

This lucky roulette wheel consists in that the interpreters, after reading the sentence in Spanish, will have to listen to choices A and B in English as possible interpretation options, inserted in audio form using the voices of Google Translate and DeepL Translator, for the proposed sentence in Spanish. Only one of the options is correct and corresponds to an exact sentence taken from our corpus. In the incorrect option, we introduced grammatical errors, false meanings, etc.

Following the classification of Werbach and Hunter (2015), we used the next gamification elements: dynamics (emotions and progression, since users will be curious about a new exercise and will have to get the correct answer to move on to the next question); mechanics (challenges, opportunity, feedback, and rewards, because they will be challenged to get the maximum number of questions right and will have several opportunities to do so. Moreover, they will be checking their correct and wrong answers as they go along and at the end, they will pick a fictitious reward); and components (achievements, points, and virtual goods, as they will be able to select the correct interpretations and for each correct answer, they will win different virtual points. Finally, they can get a virtual prize). A sample of the activity can be seen in Figure 6.

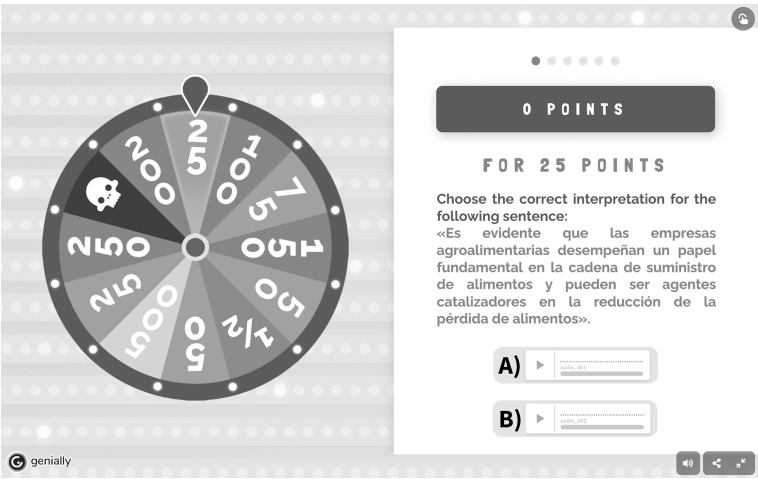

Figure 6: First question of GA1: The lucky roulette wheel for interpreters.[2]

4.2 GA2: Think fast and interpret!

This gamification exercise has been created to work mainly on some of the most frequently used adjectives in the agri-food field. Nevertheless, by incorporating real complete sentences obtained from our corpus, the interpreter will also be able to work on other interesting terminology. In this gamified activity, the user acquires an active role that will be very useful when they have to cope with a possible interpreting assignment.

It has been developed on Baamboozle, a web application for creating games for free. This activity can be played alone or in teams. Users will find a virtual board with squares numbered from 1 to 14. To start practicing, the interpreters will have to randomly select squares. By clicking on any box, an English sentence related to the agri-food sector will appear. At that moment, the interpreter or the team playing the game will have to interpret the phrase aloud in Spanish and click on the "Check" button below to check the answer. If they have given the same or a similar answer, they must click on "Okay!" to get the points. On the contrary, if they make a mistake, they will have to choose the "Oops!" option and will not score any points. Then, it will be the other team's turn or, in the case of a single player, they will have to choose another square.

2 https://view.genial.ly/638dde21083ef100195f28c7/interactive-content-the-lucky-roulette-wheel-for-interpretersmarta-alcaide-martinez (Retrieved May 10, 2023).

In Think fast and interpret! we have implemented the following gamified elements: dynamics (emotions, progression, and relationships between classmates, since it is a striking game in which progress is made in turns and teamwork is essential); mechanics (challenges, opportunity, competition, cooperation, feedback, rewards, and turns, as the interpreter is put to the test and has a single opportunity for each square. In the case of the team game, a competition is created in which the teams have to work coordinated in turns to win, while at the same time checking their hits and misses on each question. A real or fictitious reward could be awarded to the winning team); and components (achievements, points, and teams, because the interpreters get to prepare for a specialization topic and for each correct interpretation, they add points to their team's scoreboard).

This website also enables the activation of power-ups (to steal points from the other team, gain points without answering any questions, etc.), which can be very motivating and arouse the competitiveness of the participants. We have also included related GIFs in each question to give it a more attractive and playful appearance. A sample of the exercise can be found in Figure 7.

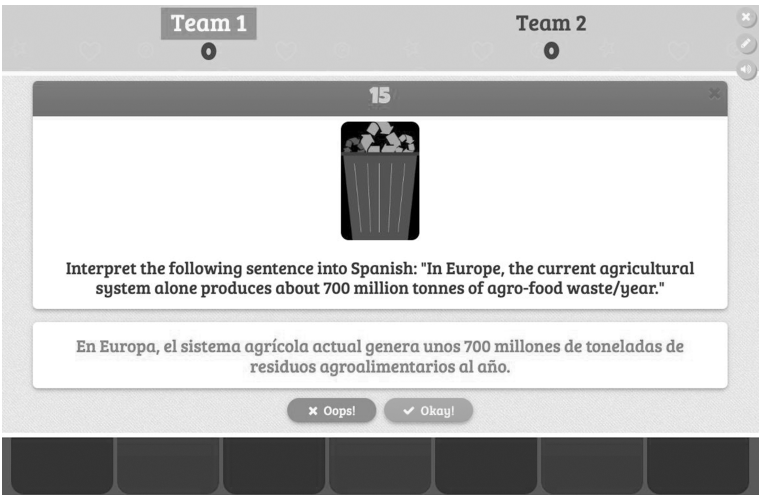

Figure 7: Random square of GA2: Think fast and interpret!.[3]

3 https://www.baamboozle.com/classic/1320304 (Retrieved May 10, 2023).

4.3 GA3: Interbomb

This gamified exercise has been prepared by modifying an existing template on the Genially platform. As can be appreciated in the aesthetics of the game, Interbomb is inspired by the Spanish TV quiz show known as ¡Boom! which has a similar dynamic to this exercise. This activity has been conceived to encourage the practice of the most frequent verbs of our corpus used in the agri-food industry. Interpreters will find two types of questions:

(1) the interpreter(s) will be able to read a sentence in which there is a gap that they must fill in with the appropriate verb. They will have to choose between four possible options, which are the four wires of the bomb and are in audio form);
(2) the interpreter(s) will have to listen to an audio available at the top containing a sentence in English about agri-food. Then, they will have to select the correct interpretation into Spanish, after listening to the four available audio options. They will have to be very attentive, as only small details change between the options.

It should be noted that, as in the other activities, by working with full sentences taken from our corpus, interpreters can also learn other domain-specific terminology and other skills. As our corpus is in English, the interpretations into Spanish have been elaborated by us, although we have used the voices of Google Translate and DeepL Translator for the recordings.

The gamification elements we have employed are: dynamics (emotions and progression, since the players will be more motivated and concentrated than with traditional exercises and will have to pick the correct answer to continue advancing); mechanics (challenges, opportunity, competition, cooperation, feedback, rewards, and turns, as the participants will have to be very focused to get the right answer and will have several opportunities to achieve this. Interbomb can be played by a single person or by several teams. If played in teams, a competition will be set up in which the teams will have to be united and respect the turns to get the final agreed reward. Users will receive immediate feedback for each question); and components (achievements and teams, because individually or in teams they will have to select the correct options to become the winners of the activity). Figures 8 and 9 show a sample of the exercise.

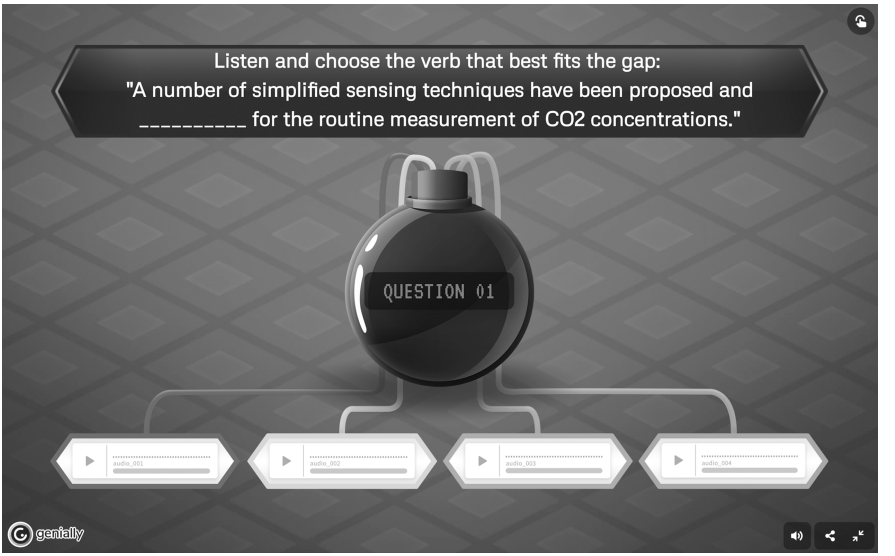

Figure 8: Question 1 Type 1 of GA3: Interbomb.[4]

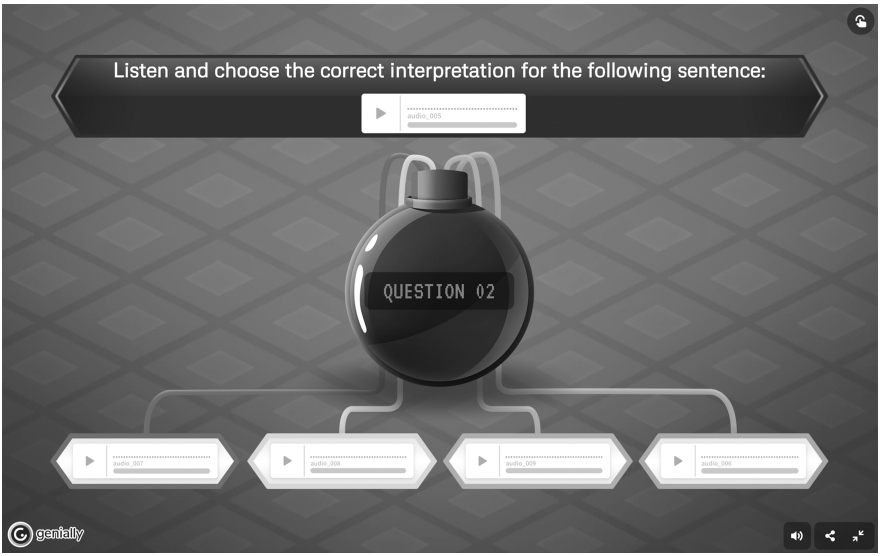

Figure 9: Question 2 Type 2 of GA3: Interbomb.

4 https://view.genial.ly/638f1e7f0f5aa900118b5519/interactive-content-interbombmarta-alcaide-martinez (Retrieved May 10, 2023).

5 Conclusions

Today, interpreters have hardly any innovative tools to carry out the preparation phase before an assignment. In this chapter, we offer three gamified activities for professional interpreters, trainees and interpreting instructors that are available on the open access platforms Genially and Baamboozle. At this point we would like to mention that, on the Baamboozle platform, users can see how many times their activities are played. Our Think fast and interpret! activity has been published for only a month and has already been played 19 times, which means that gamification is already starting to have an impact in the area of interpretation.

This result encourages us to continue creating gamified exercises, which we will be able to design by further exploiting the corpus we have compiled. Likewise, as future work, we would like to conduct an empirical study with interpreting students with the designed gamified exercises to test the benefits of using gamification in the preparation phase of the interpreters as opposed to the traditional preparation by means of glossaries and bilingual lists. It would be interesting to divide a group of students into two subgroups and compare the degree of quality achieved in the interpretations provided by the group that has prepared with the gamified activities and the group that has prepared with traditional methods.

Throughout this paper, we have shed light on a relevant economic, environmental and social sector and we have emphasized the benefits of linking this industry with interpreting and gamification. We have also made accessible to the academic world a series of gamified and technological activities that will help interpreters to train for a specialized assignment on agri-food. In addition, the production of these activities has been made feasible thanks to the domain-specific ad hoc corpus of 45 scientific articles on agri-foods that we have previously compiled in Sketch Engine and from which we have retrieved real, non-adapted sentences.

The memorization of domain-specific terminology is one of the major challenges that interpreters have to face in their daily work. Thus, this chapter presents a novel method of preparation that aims to facilitate the difficult work that interpreters have to do during the preparation phase. As far as we know, this is the first research study to propose a gamification-based methodology for the preparation phase that both students and professionals of interpreting in its different modalities have to carry out. In this way, we hope that this chapter will serve as an inspiration to other researchers, lecturers and interpreters.

Finally, even though our gamified activities have been designed for interpreters, they could also be beneficial for professional translators and translation students. These exercises focus mainly on terminology practice in the specialized subject area of agri-food. Therefore, they could help translators do their work faster, without having to spend a lot of time on the task of documentation or

searching for equivalents. Ultimately, these activities could also be used by interpreting and translation trainers to get their students to work on domain-specific terminology through playful activities, as well as by academics researching how to innovate in this field.

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M. Cristina Toledo-Báez

Is a *San Jacobo* a *Cordon Bleu*? Designing a virtual course in agri-food translation

Abstract: Despite the economic relevance of the agri-food sector in Spain, agri-food translation is a pending subject in Spanish academia and is taught only in 9 out of 29 Universities. The aim of this chapter is to detail the revised designing of the "Agri-food translation (English-Spanish)" virtual course taught at the Master's Degree in Translation of Specialized Texts at the University of Córdoba (Spain). Following a constructivist teaching method along with a task-based learning approach, the course starts with an introduction to agri-food translation and is divided into four main units: 1) text typology in agri-food translation; 2) advertising agri-food translation; 3) culinary translation and 4) scientific agri-food translation. The main innovation of this revision of the course is the introduction of translation technology for agri-food translation. First, given that students are familiar with corpora and corpora management, students will be asked to compile both a parallel and a comparable English-Spanish virtual corpora. Second, students will be introduced to Menutech, a software-as-a-service that has been created to automize, among others, allergen labelling and menu translation. A future direction would be the implementation of the course as well as its evaluation using both feedback from students and a SWOT analysis.

Keywords: Agri-food translation, culinary translation, virtual course, master's degree, text typology, Menutech, corpora

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1 Introduction

According to the Spanish Ministry of Agriculture, Fisheries and Food (2019, 2021), the agri-food sector is key for the Spanish economy having a GVA of 107,743 billion euros, which accounts for 9.6% of GDP. Five are the reasons behind these figures: 1) its leadership in world markets, 2) its export potential (with over 50 billion euros), 3) its contribution to creating wealth and employment (2.6 million jobs), 4) its direct relationship to the success of other sectors such as tourism and services and 5) the fact that it is the main economic activity in rural areas. Different campaigns such as "Marketing of Spanish foods in international markets" (Spanish Ministry of Agriculture, Fisheries and Food, 2019) have been promoted to encourage the marketing of Spanish agri-food products all over the world.

As Rivas Carmona & Ruiz Romero (2021: 11) point out, "the role of translators could be a determining factor in the success of export activity and the internationalization process of companies". However, agri-food translation is a pending subject in Spanish academia: not only has it been barely researched (Ortego Antón, 2020; Ibáñez Rodríguez, 2020; Rivas Carmona & Veroz González, 2018; Gaustad, 2016; Moreno Paz & Rodríguez Tapia, 2015, among others) when compared to other specialized translations such as legal translation or medical translation, but the courses in agri-food translation in Spanish universities are also scarce, having only 9 out of 29 Universities where agri-food translation is taught (Rivas Carmona & Ruiz Romero, 2021).

The aim of this chapter is to detail the designing of the "Agri-food translation (English-Spanish)" virtual course taught at the Master's Degree in Translation of Specialized Texts at the University of Córdoba (Spain). Starting with an introduction to agri-food translation, the course is divided into four main units: 1) text typology in agri-food translation; 2) advertising agri-food translation; 3) culinary translation and 4) scientific agri-food translation. The different activities, readings and translation briefs will be explained.

2 "Agri-food translation (English-Spanish)" virtual course

The "Agri-food translation (English–Spanish)" virtual course was offered at the Master's Degree in Translation of Specialized Texts[1] at the University of Córdoba (Spain) during two academic years (2019–2020 and 2020–2021). The course had 4

1 https://www.uco.es/estudios/postgrado/mastertrad/ (10 May 2023).

ECTS. Since 2021-2022, the course became more specific and changed to "Translation in the agri-food sector (English–Spanish): viticulture and olive growing". The proposal detailed in this chapter is a revision of the course offered in Semester Two (or Spring Semester) during 2019–2020 and 2020–2021 with new materials and different activities, including, for instance, an activity with a professional menu translator, Menutech, and activities with parallel and comparable virtual corpora.

Following a constructivist teaching method (VonGlaserfeld, 1989) along with a task-based learning approach (Willis, 1996), the purpose of the course is familiarizing students with agri-food translation. Nine learning objectives are pursued:

1. Understand technical agri-food texts.
2. Search resources and documents to accurately translate agri-food texts.
3. Use translation technologies to translate technical agri-food texts.
4. Familiarize with agri-food linguistic features and text types.
5. Learn to use correct agri-food terminology.
6. Develop a methodology to solve difficulties when translating technical agri-food texts.
7. Accurately translate agri-food texts from English into Spanish.
8. Acquire a professional approach to agri-food translation.
9. Reflect upon the professional aspects of agri-food translation.

Starting with an introduction to agri-food translation, the course is divided into four main units: 1) text typology in agri-food translation; 2) advertising agri-food translation; 3) culinary translation and 4) scientific agri-food translation. All the units share the same structure: first, the readings of several papers focused on the topic of the unit and, second, an individual activity to be carried out. In the same vein, the other tasks from the different activities will be assessed as follows:

1. Inadequacies affecting the comprehension of the original text
   - 1.1. Countersense −1
   - 1.2. False sense −0.5
   - 1.3. Nonsense −0.75
   - 1.4. Addition −0.25
   - 1.5. Omission −0.25
   - 1.6. Cultural reference −0.25
   - 1.7. Different sense −0.25
   - 1.8. Linguistic variation −0.25
   - 1.9. Terminology −0.5
2. Inadequacies affecting the expression in the translation language
   - 2.1. Spelling and punctuation −1
   - 2.2. Grammar −1
   - 2.3. Lexicon −1
   - 2.4. Textual −1
   - 2.5. Writing −1

3.	Pragmatic inadequacies		−1
4.	Good solutions		
	4.1.	Good equivalence	+0.75
	4.2.	Excellent equivalence	+1
5.	Style		

As to the evaluation of activities, the translation briefs will be assessed using the following scale based on Hurtado Albir (1999, 2001):

1. Compilation of parallel and comparable corpora. Two main aspects will be assessed: on the one hand, relevance and appropriateness of design criteria and corpora compilation process, and, on the other hand, adequacy of the corpora sources.
2. Reports. The following criteria will be assessed: purpose, content, organization, length, use of references, and capacity for reflection.

2.1 Introduction to agri-food translation

Given that most students have limited knowledge or experience related to agri-food translation, the course starts with five recommended readings to learn some basic aspects of this type of translation.

1. Several pages from the report "Memoria descriptiva. PERTE agroalimentario" (Spanish Ministry of Industry, Trade, and Tourism, 2022) as an introduction to the agri-food sector.
2. The article "La situación de la traducción agroalimentaria en la investigación y la formación en España" (Moreno Paz & Rodríguez Tapia, 2015). It offers a comprehensive list of the research and academic programs that include agri-food translation in Spanish Translation and Interpretating studies.
3. The article "Competencia documental para la traducción agroalimentaria EN-ES: fuentes de información y su evaluación" (Durán Muñoz & Del Moral Álvarez, 2014). It presents a selection of resources related to the English-Spanish agri-food translation, and analyses its main features according to specific evaluation criteria previously determined so as to measure their suitability regarding translators' terminological needs in the agri-food translation sector.
4. Two chapters from the volume *Agroalimentación: lenguajes de especialidad y traducción* volumen (Rivas Carmona & Veroz González, 2018): "Wine blogs: a genre that allows for new descriptions use" (Zarco-Tejada, 2018) and "La traducción de las páginas web de las bodegas de Córdoba y su provincia: con-

texto actual y propuesta de mejora" (Ramírez Almansa, 2018). These two articles have been chosen because, as students have to work with and translate winery texts for unit 2, they will help students learn techniques and strategies to translate technical texts dealing with wine.

2.2 Unit 1: Text typology in agri-food translation

Unit 1 is focused on text typology in agri-food translation. It is important that students understand that establishing the most relevant features of agri-food texts entails difficulty since, as Rivas Carmona & Ruiz Romero (2021, p. 25) point out, "the agri-food field is complex and multidimensional".

In order to approach text typology in agri-food translation, Unit 1 starts with the reading of three chapters focused on genre and text typology: 1) "Un concepto fundamental: el género" from *La traducción de textos técnicos* (Gamero Pérez, 2001); 2) several pages from "La traducción como operación textual" from *Traducción y Traductología* (Hurtado Albir, 2001); and 3) "Textual typologisation of the the agri-food field" from *Feeding the Future: Text Typology in Agri-Food Translation* (Rivas Carmona & Ruiz Romero, 2021). We find very relevant the classification by Rivas Carmona & Ruiz Romero (2021) for two main reasons: first, it is tailored to the particularities of agri-food field and, second, it covers a very broad range of texts.

The activity for Unit 1 is devoted to identifying 7 text types in agri-food translation following the textual typologization by Rivas Carmona & Ruiz Romero (2021). This activity is worth 20% of the mark. Owing to limitations of space, below are shown extracts from the 7 texts as well very brief descriptions of each text.

Text 1

High-speed identification system for fresh tea leaves based on phenotypic characteristics utilizing an improved genetic algorithm

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Abstract

High-quality tea requires leaves of similar size and tenderness. The grade of the fresh leaves determines the quality of the tea. The automated classification of fresh tea leaves improves resource utilization and reduces manual picking costs. The present study proposes a method based on an improved genetic algorithm for identifying fresh tea leaves in high-speed parabolic motion using the

phenotypic characteristics of the leaves. During parabolic flight, light is transmitted through the tea leaves, and six types of fresh tea leaves can be quickly identified by a camera.

The influence of combinations of morphology, color, and custom corner-point morphological features on the classification results were investigated, and the necessary dimensionality of the model was tested. After feature selection and combination, the classification performance of the Naive Bayes, k-nearest neighbor, and support vector machine algorithms were compared. The recognition time of Naive Bayes was the shortest, whereas the accuracy of support vector machine had the best classification accuracy at approximately 97%. The support vector machine algorithm with only three feature dimensions (equivalent diameter, circularity, and skeleton endpoints) can meet production requirements with an accuracy rate reaching 92.5%.

Text 1 is an extract of an agri-scientific text, specifically a specialized article on high-speed system to identify fresh tea leaves (Gan et al., 2022).

Text 2

OPERATING INSTRUCTIONS

JUICING FUNCTION

Press [ON] button on the back of the Omega® Nutrition System to start.

Gradually put the ingredients into the hopper chute and press down with the pusher.

DO NOT place any metal objects into the hopper. If the drum set is clogged or the machine stops operating, press the reverse button 2 to 3 times and press the ON button again to resume normal operation.

After the extraction or processing is complete, place the switch in the stop position to stop.

WARNING When using [ON] or [Rev] button, make sure that the auger stops completely.

Turn the adjustable end cap counter clockwise to tighten the squeeze, increasing the pressure. Turn the adjustable end cap clockwise to loosen the pressure.

To yield more juice from Celery, Herbs, and Leafy Greens, use the adjustable end cap with the green inner ring. Turn the end cap counter clockwise to tighten the squeeze, increasing the pressure. Turn the end cap clockwise to loosen the pressure.

OPERATING NOTES

This heavy-duty nutrition system features a patented, stone mill-like auger, made of hygienic U.S. FDA-approved melamine. The low speed of 80 RPMs ensures full taste and the highest nutritional value.

Text 2 is an extract from a technical text for practical use, specifically the user manual of the Omega MM900 Low Speed Celery Juicer Extractor (Omega Juicers, n.d.).

Text 3

The Science Underlying the Dietary Guidelines Demonstrates That Healthy Eating Across the Lifespan Can Promote Health and Reduce Risk of Chronic Disease

Birth Through 23 Months
- Lower risk of overweight and obesity
- Lower risk of type 1 diabetes
- Adequate iron status and lower risk of iron deficiency
- Lower risk of peanut allergy
- Lower risk of asthma

Children and Adolescents
- Lower adiposity
- Lower total and low-density lipoprotein (LDL) cholesterol

Women Who Are Pregnant or Lactating
- Favorable cognitive development in the child
- Favorable folate status in women during pregnancy and lactation

Adults, Including Older Adults
- Lower risk of all–cause mortality
- Lower risk of cardiovascular disease
- Lower risk of cardiovascular disease mortality
- Lower total and LDL cholesterol
- Lower blood pressure
- Lower risk of obesity
- Lower body mass index, waist circumference, and body fat

Text 3 is an extract from the *Dietary Guidelines for Americans, 2020–2025* (U.S. Department of Agriculture and U.S. Department of Health and Human Services, 2020) and it would be classified as a semi-specialized agri-health text.

Text 4

Regulation (EC) No 178/2002 of the European Parliament and of the Council of 28 January 2002 laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,
Having regard to the Treaty establishing the European Community, and in particular Articles 37, 95, 133 and Article 152(4)(b) thereof,
Having regard to the proposal from the Commission(1),
Having regard to the opinion of the Economic and Social Committee(2),
Having regard to the opinion of the Committee of the Regions(3),
Acting in accordance with the procedure laid down in Article 251 of the Treaty(4),
Whereas:

(1) The free movement of safe and wholesome food is an essential aspect of the internal market and contributes significantly to the health and well-being of citizens, and to their social and economic interests.
(2) A high level of protection of human life and health should be assured in the pursuit of Community policies.

Text 4 is an extract from the Regulation no. 178/2002 laying down procedures in matters of food safety (European Parliament and the Council of the European Union, 2002) Consequently, it is a specialized regulatory text that belongs to the agri-legal text type.

Text 5

Ruta de la Pasa. Tradiciones malagueñas recobradas

Es llamada así por los innumerables paseros que la componen, dispuestos en suaves pendientes siempre orientadas al sur. Su vino, elaborado artesanalmente, es bastante apreciado, especialmente el moscatel.

Comienza la ruta en Moclinejo, un pueblo que hace siglos fue protagonista del levantamiento contra las tropas cristianas, acontecimiento que ha pasado a la historia con el nombre de La Batalla de la Axarquía. Siguiendo por la senda que nos marcan los paseros se llega hasta Almáchar, donde el viajero podrá disfrutar de su exquisito ajoblanco. El Borge, situado a solo 2,5 kilómetros de Almáchar, asumió el liderazgo como foco de rebeldía durante el citado levantamiento morisco. Este carácter rebelde del pueblo seguía aún vivo algunos siglos después, en la figura de uno de los más famosos bandoleros de Málaga 'El Bizco del Borge'.

Ruta tras la uva de Málaga, el origen del vino dulce de la Axarquía, el vino moscatel

Muy próximo a los 1.020 metros del Pico Santopitar, bajo la atenta mirada del pico de La Maroma, está situada Cútar que, además de distinguirse por sus uvas y pasas, también es la cuna de un excelente aceite. Comares es conocida como el Balcón de la Axarquía, por la espléndida vista que se contempla desde el pueblo.

Text 5 describes part of the "Ruta de la pasa" ("Raisin route") in Málaga, extracted from the web page "Rutas de turismo gastronómico" (Rutas de turismo gastronómico, 2019). It is then an agro-tourist text.

Text 6

Text 6 is an example of an agri-advertising text. It is a campaign poster of the Breakfast in the Classroom program created by the New York City Department of Education (Platkin, 2017).

Figure 1: Breakfast in the Classroom. New York City Department of Education (Platkin, 2017).

Text 7

Sweet potato fishcakes
Chopped salad, feta & red pepper salsa

"White fish is a great choice here, as it's both low in fat and super-nutritious. Haddock, for example, is packed full of iodine, which we need to support healthy brain function."

Ingredients
500 g potatoes, 500 g sweet potatoes, 2 red peppers, extra virgin olive oil, 2 teaspoons chipotle Tabasco sauce, 500 g white fish fillets from sustainable sources, skin off, pin-boned olive oil, 1 cucumber, 1 iceberg lettuce, 1 heaped teaspoon English mustard, 4 heaped tablespoons natural yoghurt, 1 tablespoon white wine vinegar, 40 g feta cheese, ½ a bunch of fresh mint, (15g), 1 lemon.

Method
Wash 500g each of potatoes and sweet potatoes (leaving the skins on for extra nutritional benefit), chop into 3cm chunks and cook in a pan of boiling salted water for 15 minutes, or until cooked through. Drain, leave to steam dry and cool, then mash.

Meanwhile, blacken 2 red peppers over a direct flame on the hob or in a griddle pan on a high heat, turning until charred and blistered all over.

Pop into a bowl and cover with clingfilm for 10 minutes, then scrape off most of the black skin, discarding the stalks and seeds. Finely chop, dress with 1 tablespoon of extra virgin olive oil and 2 teaspoons of chipotle Tabasco, then put aside.

Text 7 is an extract from a recipe (Oliver, 2023). Recipes are classified as agriculinary texts.

2.3 Unit 2: Advertising agri-food translation

Unit 2 deals with the translation of agri-food texts containing advertising. As it has been mentioned in the introduction, this Unit will focus on winery advertising texts and, more specifically, on the genre "winery presentation" and the text type "web page". Therefore, the activity for Unit 2 will be translating a section from the Australian Montalto winery as well as carrying out other tasks that will be detailed below.

Before carrying out the activity, students are expected to read three articles: 1) "Publicidad, vitivinicultura y traducción" (Sánchez Nieto, 2006), where the genre "winery presentation" is analysed and compared in English and German; 2) "Las estrategias de internacionalización en la traducción publicitaria" (De Pedro Ricoy, 2007), an article arguing that there is a degree of coincidence between translation theory and the principles of international marketing; and 3) the section "Techniques, strategies, problems and errors" from *Traducción y Traductología* (Hurtado Albir, 2001), where key translation notions are explained.

Another important aspect of the activity for Unit 2 is the fact that it encompasses compiling a parallel bilingual (English-Spanish) virtual corpus. It is worth mentioning that two methodological courses offered at Semester One (or Fall Semester) are compulsory for students: "Information Resources and Localization" and "Resources for Literary, Legal, and Scientific Translation". These two courses provide an introduction to parallel and comparable virtual corpora and their use as translation resources. They also present different corpora management software such as AntConc, Sketch Engine or ParaConc and offer hands-on practice activities to compile virtual corpora. Therefore, students know the basic concepts of corpora use and compilation when they start the "Agri-food translation (English-Spanish)" course at Semester Two (or Spring Semester).

Using corpora in this course is justified because lack of appropriate terminological and lexicographical resources is one of the major obstacles that translators face when dealing with specialized translation. Virtual corpora can compensate for this shortage of resources as they allow translators to create and exploit their own terminological material. The combination of bilingual virtual corpora and any corpora management software helps translators find very quickly no-cost high-quality terminological, phraseological, and thematic resources. Its use is proven to be beneficial for translation lecturers and professional translators and/or interpreters (Toledo-Báez, 2020).

Montalto Winery in Australia is having more and more Spanish-speaking visitors. Thus, they decided to translate its web page into Spanish (from Spain). You are the translator commissioned to translate the web page.

1. Visit the Montalto web page and learn about the winery: https://montalto.com.au/
2. List 10 winery terms that are new for you. How are you facing their translation? What are your terminological sources for the translation?
3. To help you with the translation, visit other winery web pages written in both English and Spanish (for instance, Alvear Winery, Toro Albalá, etc.).
4. Compile a parallel (same content in English and Spanish) bilingual virtual corpus of at least 10 winery presentations.
5. Use ParaConc (a software to manage parallel corpora) to search terms, equivalents and collocates for your translation. If necessary, create a English-Spanish glossary for your translation.
6. Translate the web page using a Word document.
7. According to the chapter "Techniques, strategies, problems and errors" from Traducción y Traductología (Hurtado Albir, 2001), deliver a report specifying, on the one hand, the problems encountered with the solutions found, and, on the other hand, the techniques and strategies used.

A short version of activity for Unit 2, which is worth 20% of the mark, is detailed below.

2.4 Unit 3: Culinary translation

Unit 3 is devoted to culinary translation, specifically to restaurant menu translation. The three readings for this unit are the following: 1) the issue 13 from *La Linterna del Traductor* journal (Hoyos Seijo, 2016), which is focused on culinary translation; 2) the article "An Approach to Analyzing the Quality of Menu Translation in Southern Spain Restaurants." (Fuentes-Luque, 2017) and 3) the article "A corpus-based multimodal approach to the translation of restaurant menus" (Li, 2019).

Students need to know that translating restaurant menus has always been a priority at major tourist destinations such as Andalusia in southern Spain (Fuentes-Luque, 2017). However, having restaurant menus translated has become

a necessity in Europe due to the fact that, according to specific legislation on food safety (European Parliament and the Council of the European Union, 2011), the information on allergens must be provided in written form and, if possible, in several languages (Chartered Trading Standards Institute, 2021).

Given that providing multilingual menus is now a health concern, professional translation is made even more relevant as a top-quality guarantee (Li, 2019). Considering that the hospitality industry is still reluctant to commission translation of menus to professional translators, professional menu software offering translation emerges as a middle ground solution. Menutech software-as-a-service (European Commission, 2018) has been created to automize, among others, allergen labelling and menu translation. Menutech translations have two main sources: on the one hand, curated certified sources such as cooking books and recipe databases and, on the other hand, Google Translate.

Consequently, the activity for Unit 3 offers students the possibility of using Menutech, a professional menu software to translate restaurant menus from English into Spanish and from Spanish into English. Before carrying out the activity, the course lecturer will organize a virtual seminar to explain the software basics and help students with any question they may have about how to translate with it.

A short version of activity for Unit 3, which is worth 20% of the mark, is detailed below.

Menutech is a professional menu software that translate restaurant menus using, on the one hand, curated certified sources such as cooking books and recipe databases and, on the other hand, machine translation from Google Translate. You are commissioned to translate two restaurant menus (one from English into Spanish and another one from Spanish into English) using Menutech.

1. Create your Menutech trial account at https://menutech.com/es. If necessary, rewatch the recording of the virtual seminar on how to use Menutech for translating restaurant menus.
2. Translate the *La hora del tapeo* menu (https://www.thefork.es/restaurante/la-hora-del-tapeo-r747645/menu) into English using Menutech. If necessary, modify the translation suggested by Menutech.
3. Write a brief report on the *La hora del tapeo* menu translation. Which errors have you found? Have you found good or very good equivalents? Which elements have you modified? Have you felt comfortable using Menutech? Do you prefer translating from scratch or using Menutech?
4. Translate the *Bill's Restaurant* menu (https://bills-website.co.uk/menus/) into Spanish using Menutech. If necessary, modify the translation suggested by Menutech.
5. Write a brief report on the *La hora del tapeo* menu translation. Which errors have you found? Have you found good or very good equivalents? Which elements have you modified? Have you felt comfortable using Menutech? Do you prefer translating from scratch or using Menutech?

2.5 Unit 4: Scientific agri-food translation

Unit 4 is focused on scientific agri-food translation and the genre chosen for the activity of this Unit is a scientific article. Scientific articles are the final product of research activity and their impact in expert community depends not only on its scientific originality, but also on its communicative effectiveness. This is where translating scientific articles comes into play making their content widely available.

The readings for this Unit are the following: 1) "La traducción científico-técnica: aportaciones desde los Estudios de Traducción" (Franco Aixelà, 2013); 2) chapter "Cómo mejorar la redacción y la traducción científicas" from *Cómo traducir y redactar textos científicos en español. Reglas, ideas y consejos* (Claros Díaz, 2016); and 3) "Diez errores usuales en la traducción de artículos científicos" (Amador Domínguez, 2007).

It is worth mentioning that the activity for Unit 4 also entails the compilation of a comparable bilingual corpora. A short version of activity for Unit 4, which is worth 40% of the mark, is detailed below.

A Spanish food journal would like to publish an extract from the article "Applications of nanotechnology to combat the problems associated with modern food" (https://onlinelibrary.wiley.com/doi/epdf/10.1002/jsfa.12146), originally published in the *Journal of Science of Food and Agriculture*. You are commissioned to translate the extract.

1. Read the whole article.
2. Compile a comparable (different texts in English and Spanish) bilingual virtual corpus of at least 10 ten articles on the same topic as the source text.
3. Use AntConc or Sketch Engine to search terms, equivalents and collocates for your translation. If necessary, create a English-Spanish glossary for your translation.
4. Translate the extract from the article.
5. According to the chapter "Techniques, strategies, problems and errors" from *Traducción y Traductología* (Hurtado Albir, 2001), deliver a report specifying, on the one hand, the problems encountered with the solutions found, and, on the other hand, the techniques and strategies used.

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3 Conclusions

The agri-food sector is key for the Spanish economy having a GVA of 107,743 billion euros, which accounts for 9.6% of GDP. Despite the fact that translators could contribute to the export activity and the internationalization of agri-food companies, agri-food translation is a pending subject in Spanish academia and it is taught only in 9 out of 29 Universities.

In this chapter we have detailed the revised designing of the "Agri-food translation (English–Spanish)" virtual course taught at the Master's Degree in Translation of Specialized Texts at the University of Córdoba (Spain) during 2019–2020 and 2020–2021. Following a constructivist teaching method along with a task-based learning approach, the purpose of the course is familiarizing students with agri-food translation. Starting with an introduction to agri-food translation, the course is divided into four main units: 1) text typology in agri-food translation; 2) advertising agri-food translation; 3) culinary translation and 4) scientific agri-food translation. The main innovation of this course is the introduction of translation technology for agri-food translation, combining both parallel and comparable bilingual virtual corpora (Units 2 and 4) and the professional software menu Menutech (Unit 3).

Unit 1 is focused on text typology in agri-food translation. After the reading of three chapters focused on genre and text typology, the activity for Unit 1 is devoted to identifying 7 text types in agri-food translation following the textual typologization by Rivas Carmona & Ruiz Romero (2021).

Unit 2 deals with the translation of agri-food texts containing advertising and it will focus on "winery presentation". Therefore, the activity for Unit 2 will be translating a section from the Australian Montalto winery web page. Another important aspect of the activity for Unit 2 is the fact that it encompasses compiling a parallel bilingual (English-Spanish) virtual corpus.

Unit 3 is devoted to culinary translation, specifically to restaurant menu translation. An innovative aspect of the activity to be carried out is that offers students the possibility of using Menutech, a professional menu software to translate restaurant menus from English into Spanish and from Spanish into English.

Unit 4 is focused on scientific agri-food translation and the genre chosen for the activity of this Unit is a scientific article. Students will be asked to translate an extract from a scientific article as well as to compile a comparable virtual corpus of at least 10 ten articles on the same topic as the source text.

The future direction of our proposal is the real implementation of the course. If necessary, two elements would be used to evaluate the course: 1) Feedback from students and 2) a SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis (Romero Gutiérrez et al., 2015).

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Carmen Pena Díaz

How can Google business profile translations impact a business: A case study

Abstract: Google is used every day by billions of people all over the world to search for all kinds of information, from news to local shops. One of the tools provided by this search engine to help different businesses promote their products or services is the *Google Business Profile,* formerly *Google My Business*, which is a free internet-based service which enables users to create their business profiles directly from Google Search or Google Maps to manage how they appear online. One of the tools which is used by businesses are the reviews which offer information on how customers of a particular business rate their experience with a company or the products or services they offer. They can do so by rating with stars and/or by leaving a comment. These comments automatically appear in the language that the device is set to, so businesses can read reviews in their own language. The aim of this chapter is to analyze a corpus of restaurants' translated reviews automatically made by *Google* to study whether they are produced satisfactorily, and are reliable tools to improve customer satisfaction.

Keywords: Social media, automatic translation, marketing reviews, corpus, internet translation

1 Introduction

We are at a point in history in which technological advances have become highly sophisticated, and are being used in all personal, commercial, and professional areas. We use technology to perform every type of task, including those which were previously performed by humans. With regard to language, technology helps people communicate—from voice recognition and speech-to-text programs, to the use of translation applications when somebody wants to communicate in a language they do not understand or speak. It is obvious that this is a highly advantageous and positive human advance, and the process of translation has been witnessing one of the most revolutionary and decisive moments in its history. This is due to the development of machine translation (MT), which is employed by com-

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puter software to translate text or speech from one natural language into another (Berner, 2003, p. 6); and MT not only translates texts word for word, but also encompasses morphological, syntactic, semantic and even pragmatic dimensions.

MT is used daily for all types of uses, and one of them is commercial. Business owners are using machine translation services to communicate with their global audience, and one of the most popular MT tools in the market is *Google Translate*, which has reached adequate quality levels and offers free services, such as MT for reviews whereby customers write about their experience using products or services. The aim of these reviews for businesses is for customers to offer information on how they rate their experience with a company or the products or services they offer. These reviews are later used by other buyers as testimonials of products and services' ranking in terms of quality and company credibility, and thus the reviews impact purchase results and profits.

In *Google* reviews, customers rate products or services with stars or/and leave a comment, which automatically appears in the language set on the device, so businesses will be able to read reviews in their own language. This chapter will analyze a corpus of automatically translated restaurant reviews made by this MT system, to determine whether they are produced satisfactorily, and whether they are a reliable tool to improve customer satisfaction.

2 Machine translation

MT has gone through different technological developmental systems, which can be classified into five main groups: rule-based, statistics-based, example-based, hybrid, and neural network-based. Rule-based MT systems emerged in the 1970s, and mainly work by using dictionaries and grammatical rules selected by a human. Subsequently, Statistical Machine Translation Systems substituted the previous rule-based systems, and worked by analyzing the correspondence probability that a sentence has in the source language versus the target language. Unlike rule-based models, statistical systems learn to translate between two languages from a sufficiently large parallel corpus of sentences in Original Language (OL) accompanied by their translation into the Target Language (TL) (Forcada et al., 2016); Another system that emerged was the example-based machine translation which performs the translation process from one language to another based on aligned parallel corpora. This type of system does not involve statistical models; hybrid machine translation systems were used to try to conjugate statistical and rule-based systems to solve the disadvantages of both, by applying certain rules with the help of a corpus, and by analyzing the results statistically, providing the most adequate translation

according to the context (Viver Sorolla & Ortego Antón, 2020). Yet, the greatest achievement in translation technology is Machine Translation based on neural networks. The main difference from the rest of the systems are that they use artificial neural networks, which numerically represent words and phrases through vectors (Forcada, 2017), and employ techniques typical of artificial intelligence, imitating the functioning of human neurons and their interconnections. Machine Translation systems based on neural networks are the most common type of MT today, with examples such as *Google Translate* or *DeepL*.

In Translation and Interpreting Studies there is concern as to whether these types of MT translation systems will be capable of providing a final product with human-like quality. Neural MT offers many possibilities; however, it is still a complementary tool for professional translators to increase productivity. Nevertheless, it is being used quite indiscriminately in many business areas, due to it being a hassle-free, cheaper way to transfer content from one language to another. Although the final product is generally very accurate, it usually needs revision, editing, and linguistic correction by a human (i.e. post-editing), as it is not uncommon to find morphological, orthographic, semantic, syntactic, and other errors throughout the target text. O'Brien describes post-editing as 'the correction of raw machine translated output by a human translator according to specific guidelines and quality criteria' (O'Brien, 2011, p. 197), and establishes the importance of setting guidelines or style guides to determine the quality of the final text, which must be correctly adapted to the client needs and the purpose of the text. The purpose of post-editing, however, is to obtain a comprehensible result, and to increase productivity, as well as to improve the result obtained from an MT system, which does not necessarily have to be perfect (Sánchez Ramos & Rico Pérez, 2020).

There are different types of post-editing (Allen, 2003): full post-editing, which is mainly oriented to translated texts that are to be published, and thus the quality of the target text needs to be highly accurate, and light post-editing, in which the changes are minimal, as this type of post-editing is used to facilitate the reader's general understanding and the gist of the content. Post-editing metrics are used to evaluate the quality of a translation performed either by a human or by an MT system, and can be done manually or automatically. Manual or human evaluation is performed by monolingual or bilingual professionals (Sánchez Ramos & Rico Pérez, 2020); it is characterized by subjectivity, and is intended to allow the translation to be read as if it were an original text. In automatic evaluation, on the other hand, a reference translation is usually provided for the original text, and the translation that most closely resembles it will be considered the best.

2.1 Quality assessment in translation

The quality evaluation of productive translations, whether by human or machine translation, is important both for the clients and for the professionals who are providing the service. It is necessary to determine whether the text produced manages to meet the client's quality expectations. However, this is not always an easy task, as there is no established and direct way to determine quality by the client, as they are not fluent in the target language (Lommel et al., 2014).

Although quality assessments have traditionally been performed by bilingual reviewers, it must be acknowledged that these can be subjective, and that not all reviewers will reach a consensus on quality. Also, the absence of established guidelines makes the concept of quality difficult to determine. It is for these reasons that Lommel et al. (2014) argued at the time that it was necessary to adopt a new evaluation system.

It is because of this change in perspective that the search for a universal metric began. While it is true that to achieve this, translation should have universal characteristics and objectives, a notion that is far from reality (Lommel et al., 2014). Throughout the 1990s and early 2000s, there was an attempt to use a list of errors that could be considered objective, exemplified by the LISA QA Model and SAE J2450. Both standards for evaluation provided a list of error categories that could be related to specific errors in texts. In both cases, errors were categorized in order of severity. Once the errors were noted, they would be assigned a score with the goal of achieving a percentage, thus obtaining a more objective evaluation than one produced by a reviewer who did not follow such a system (Lommel et al., 2014). Thanks to the objectivity offered by these models, numerous localization providers began to use and customize them, so that they could fit their specific needs.

In addition to error categorization models, tools – the main function of which is to check the quality of translations by automatically detecting errors – are also starting to be developed (Lommel et al., 2014). However, one must consider the fact that this type of tool focusses more on detecting errors in order to rectify them, than on providing a score as far as quality is concerned.

In addition, the Multidimensional Quality Metrics (MQM) system has emerged. This model was developed as part of the QTLaunchPad project, to make up for the shortcomings of previous quality assessments and was chosen for the study carried out in this chapter because it is one of the few classifications specifically designed for categorizing errors produced by translation engines (Ortiz, 2016). MQM is not only exhaustive, but it also gives researchers the opportunity to introduce domain-specific categories or to omit those that are not considered necessary.

This system allows several translation quality assessment metrics to be established in a flexible manner. While it is true that it focusses on assessing the quality of target texts, authors such as Lommel et al. (2014) argue that it can be used equally well to assess the quality of source texts. In this way, problems in source texts can be identified, along with the consequences this could have for the target text. It can also be used to evaluate any type of target text, whether it is a human or a machine translation.

This classification is divided into two main groups: accuracy and fluency, which are further subdivided into different categories. In the case of accuracy, a distinction is made between errors related to terminology, mistranslation, omission, addition, and mistranslation (Ortiz, 2016).

On the other hand, fluency errors that are contemplated in this categorization are grammatical or concern intelligibility (Ortiz, 2016).

2.2 The concept of quality

As a result of quality evaluations in the field of translation, there is a need to define the concept of quality. Parra Galiano (2006) argues that it is a relative concept, as well as subjective, as it depends on numerous aspects, such as the client's expectations or the translator's ability to produce a translation, among other things.

Authors such as Durán Muñoz (2012, cited in Jiménez, 2015), indicate that quality can be related to appropriateness following what has been written by Nord (1997), and the need for the translation to be appropriate to achieve the communicative purpose. However, it has been argued by other authors, such as Parra Galiano (2006), that in the field of translation it can be determined that quality will always be conditioned by the function of the translation of the text.

When evaluating the quality of a translation, the semantic content, and the way it is expressed must be analyzed. Until now, most evaluations have been carried out bearing in mind the use of the target language (correct or not) and the meaning that the source text intended to convey.

Authors such as Paredes Enriquez (2020) believe that the difficulty in finding a definition and quality in translation may be due to the client's opinions or the lack of consensus between reviewers and translators.

The concept of quality varies depending on whether the client's perspective or the purpose of the text is considered. In addition, due to the subjectivity that is always attached to this concept, it is necessary to establish a series of measures that serve as a reference for those professionals who are going to carry out a subsequent evaluation.

Lommel et al. (2014) state that the emergence of Computer Assisted Tools (CAT), added to the constant pressure on translators to manage a large volume of work and meet deadlines, has completely changed the way in which we understood the concept of quality in the field of translation; a translation must no longer have absolute quality, but must be 'good enough' to fulfil a purpose. In other words, for a translation to be considered to be of a high quality, it must meet a series of specific requirements and conform to the expectations of the client who commissions it. Along these lines, Koby et al. (2014) define the concept of quality in the translation field as follows: a quality translation is one that has the accuracy and fluency demanded by its recipient and the purpose it serves, and meets all the requirements set by the commissioner and the translator, taking into account the needs of the recipient.

However, if we look at the more classical conception of translation, which focusses on the transmission of written texts, Koby et al. (2014) propose another definition of the concept of quality: a quality translation is one in which the entire message of the source text is captured in the target text, including all kinds of syntactic and stylistic nuances while displaying perfect grammar, with the aim of producing a culturally appropriate text that does not really look like a translation. When deciding which of these definitions is the most appropriate, Koby et al. (2014) have determined that each one fits different translation modalities, and are not able to settle on one that can be applied across the board.

3 How Google reviews are translated

Google reviews are translated through its neural translation system, as is the case with the automatic translation of many web pages. There does not seem to be any specific information from Google on the MT of reviews, but there is a platform, *Google Cloud*, with a specific section on translation.

Google Cloud is a platform that offers various digital services, such as web management, data storage and transmission, virtual machines, software development tools, big data management, and artificial intelligence. On its *Google* portal you can find the *Cloud Translation* section. The idea behind this service is to offer dynamic and programmatic translations of websites and applications via an API, in other words an application programming interface that allows two software packages to communicate with each other (in this case, the application software and the translation software). Google states on its website: 'Cloud Translation uses a pre-trained neural machine translation model from Google, which Google

updates according to the semi-normal cadence when more training data or better techniques become available'.

The basic version of the software translates texts for more than 100 language pairs, with automatic source language detection and an unlimited number of characters per day. The advanced version adds features such as batch requests, use of specific glossaries and customized AutoML templates.

These custom models of the AutoML Translation service refer to translation models that each customer can set up specifically for their unique domain. Creating them is relatively simple, as they do not require programming knowledge, but are based on the client importing their data into the software, in the form of sentence pairs. The service then feeds and trains specific models to suit specific needs.

We have not been able to find any information that ensures that this procedure is also used in the translation of reviews, but there is a high possibility, since there are APIs that handle translation in this area. One of the companies leading this is *Unicorn nlp*, which develops domain-specific APIs, which it calls 'Language Understanding APIs' and which are oriented towards the content that can be generated by the average user. *Unicorn nlp* use semantic analysis, a type of analysis that goes beyond keywords, categories, concepts, or sentiment analysis. They analyze reviews of different types of establishments (hotels, airlines, food establishments, and even hospitals), taking into account the informal register of many reviews and the characteristics of the spoken language that permeate them. They create database-trained APIs for each of these types of establishments and use them to process future reviews.

Popovic (2021) carried out a study on user reviews and MT quality in which she sought to identify the most relevant aspects of quality in MT (EN>HRV and EN>SRP) with reviews extracted from IMDb and Amazon. The MT tools used were *Google Translate, Amazon Translate,* and *Bing Translate,* on the one hand, and two private software applications trained in general domain translation and reviews translation, on the other. They produced 1,500 translations, of which 428 were annotated to identify the different types of errors that appeared and their importance. The annotated texts were assessed according to the parameters of comprehension (monolingual) and adequacy/fluency (bilingual). The most frequent errors in translation, both at monolingual and bilingual levels, were: ambiguity, case (grammatical), gender, false meaning, proper nouns, non-existent words, nominal syntagm, omission, verbal mismatch, paraphrasing, TO error, and untranslated fragment. The most common error in all parameters (monolingual, bilingual, minor error, and major error) was paraphrasing. Popovic (2021) noted that between *Google, Amazon*, and *Bing* MT, *Google* made the fewest errors, although the results were quite similar between *Google* and *Amazon*. It is very

interesting that the translation software trained in reviews translation achieved the lowest error rate. Interestingly, all systems worked better when translating into Croatian rather than Serbian.

Another study which used *Google* translated reviews from *Google Maps* (Mathayomchan & Sripanidkulchai, 2019), and tested the effectiveness of using the models obtained from analyzing English reviews to analyze reviews translated by MT. The result was positive, as the models created from English reviews could also be implemented in the analysis of reviews translated into English from other languages, and generally the same parameters were met. This can reduce the effort involved when dealing with reviews in multiple languages, as it is sufficient to create an analysis model in one language and transfer it to the translations.

4 Methodology

To carry out this study, a corpus of 50 restaurant reviews (5,201 words in total) were captured between the years 2020 and 2022. These were translated from Spanish into English by the MT engine *Google Translate*, then classified, and analyzed according to the typology of errors made by the neural MT system to verify whether it was capable of delivering a resulting product with a quality similar to that of human translation. This classification allowed us to analyze translations in a uniform way to determine which linguistic aspects can pose the greatest challenge to MT engines.

As a sample, here is a screen capture of a sample of translated review (Figure 1):

Figure 1: Sample of translated review.

A preliminary reading of the reviews was carried out of both the source and target texts. Throughout this analysis, it was obvious that very colloquial language was used, as well as many idiomatic expressions that could present a challenge to the MT engine.

The errors were divided into two main groups: accuracy and fluency, which, in turn, were subdivided into different categories. The model used was initially proposed by Uszkoreit et al. (2013) and it is a system which mainly focusses on assessing the quality of the original texts as a means to flag problems that might affect the target text (thus, lowering its quality). It was chosen because it is one of the few classifications specifically designed for categorizing errors produced by translation engines (Ortiz, 2016). Likewise, MQM is not only the most exhaustive tool, but also gives researchers the opportunity to introduce domain-specific categories or to omit those that are not considered necessary.

In the case of accuracy, a distinction was made between errors related to terminology, mistranslation, omission, addition, and mistranslation (Ortiz, 2016). On the other hand, fluency errors that are contemplated in this categorization are of grammatical or intelligibility type (Ortiz, 2016).

This system allows several translation quality assessment metrics to be established in a flexible manner. While it is true that it focusses on assessing the quality of target texts, authors such as Lommel et al. (2014) argue that it can be used equally well to assess the quality of source texts. In this way, problems in source texts can be detected, along with the consequences these could have for the target text. It can also be used to evaluate any type of target text, whether it is a human translation or a machine translation.

5 Results

After the analysis, we can conclude that the most frequent error found in the corpus was accuracy and mistranslation with it being overly literal (38.8%). That is, often the MT engine reproduces the language so literally that it is not natural in English or is directly contradictory. An example is the translation of 'get the tastes right', which refers to the difficulty of ensuring that all dishes are to the liking of all members of a group. Alternatively, there is the translation of the expression '*es una locura*' (meaning something is great) into 'are crazy'. As we can appreciate, the sentence used in the target text does not have the same meaning. Even though it is a literal translation and '*locura*' can sometimes be translated into

'crazy', it has not been translated appropriately in this context. Therefore, we have decided to classify this as being 'overly literal'.

The second most frequently encountered category of error is accuracy mistranslation—false friend (32.8%). In this case, the translation is incorrect because a term in the source text has been used to one that is similar in the target text, but which nevertheless has a different meaning. This can also happen because the translation is too literal. A clear example is the translation of '*te quedas perfectamente*' by 'you end up perfectly', which not only does not sound natural in English, but can be understood to have a totally different meaning. We also see this kind of mistake when '*sitio*' is translated into 'site' instead of 'place'. In this case, the target term is not accurate because it is used to refer to a position or location of a building, but it would not be used to refer to, in this case, a restaurant.

During the development of the analysis, we found that in some of the cases – the aforementioned translation of '*te quedas perfectamente*' being a clear example – it was difficult to determine whether a mistake should be labelled as overly literal or false friend, given the fact that it could be considered a false friend due to the translation being overly literal. Taking this into account, each case has been individually analyzed and placed in the corresponding category.

Continuing the analysis, we found that the third most common error is accuracy mistranslation – it should not have been translated (10%). We noticed that often terms are translated that should be left in the source language, such as the name of the restaurant '*Pablo*' into 'Paul'. We believe that this should not be translated, given the fact that this is the original name of the restaurant. If someone wanted to search for it online using the translation, it would be more difficult for them to find the establishment. In addition, there are some typical Spanish dishes such as 'filloa', which are translated as 'pancakes'. We believe that, given that the 'filloa' is a typical dessert from Galicia, Asturias, and León, it should not be prepared like a pancake and should not be translated using this word.

In addition to the previously stated types of mistakes, we found some that we decided to label as accuracy mistranslation, where the target content does not accurately represent the source content. In this category we placed the mistakes that could not be considered to be a 'false friend' because the target term is very distant from the source term. One clear example is the translation of '*los baos estaban poco rellenos*' into 'the bathrooms were not very full'. In this case, we understood that the MT engine was not able to fully grasp the meaning of the sentence, or that it assumed that '*baos*' was misspelled and should have been '*baños*'.

When it comes to fluency errors, we can determine that the MT engine did not make any mistakes regarding spelling, typography, or morphology. In addition, we did not find any sentences that were worded in such a way that made them unintelligible.

The final categories are grammar agreement and word order. Given the similarity between both types of errors and the specific cases that we found in these reviews, we decided to combine them. By positioning a term out of place, the meaning of the sentence changes completely. In one of the reviews, the customer is praising the restaurant's hamburgers by stating: '*muy ricas las hamburguesas y muy bien de precio el camarero que nos atendió algo picaro pero educado*'. However, when we look at the translation, we notice that the MT produces the following sentence: 'the hamburgers were very tasty and the waiter who treated us a little mischievous but polite was very well priced'. This means that in the target text, what is described as well priced is not the food, but the server, which is not accurate.

Following is the Figure 2 with the main types of errors encountered in the corpus:

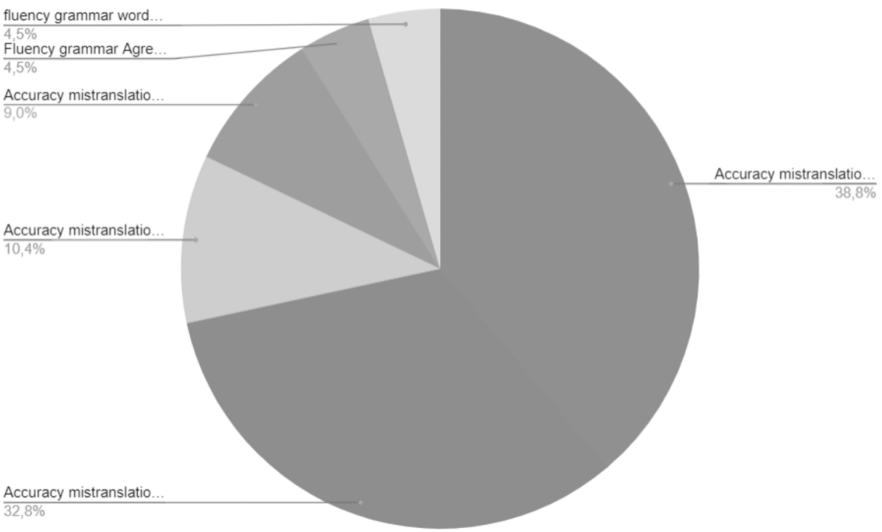

Figure 2: Types of errors.

6 Conclusions

We can conclude that the MT system used for reviews is a very useful tool for professional translators as far as its use could lead to an improvement in productivity and, therefore, performance. However, it is not as accurate as may be expected by businesses, as comments being left by their customers are not fully

understood. Whenever errors take place, they can lead to misunderstandings, important in some cases. Raw unedited translations are not accurate or reliable, and potentially defective outcomes can lead to negative consequences for businesses, either due to their not understanding the customers' feedback or to their answer not being translated with the desired quality.

The classification reveals that most of the errors made by these MT systems have to do with accuracy, namely mistranslations or incorrectly used terminology. However, it is important to note that, in general, these errors do not interfere with the communication process, as the proposed text can be read and understood in general, thus making it difficult for lay people to spot the errors, and therefore they will accept the translations as being accurate.

The language of reviews could be considered as halfway between formal and informal language, as Popovic (2021) stated in her study, and this makes for a more colloquial type of language which implies more difficulties for MT systems. While MT engines can be useful in repetitive texts that use formal language, it is possible that, in this case, due to the way users express themselves, and the use of colloquial and idiomatic expressions, too much post-editing is needed for the machine translation to be considered more efficient than human translation.

To sum up, human post-editing would be necessary, and users of translated *Google* reviews should be aware of this.

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Part IV: **Terminology**

Leonor Pérez-Ruiz, Isabel Pizarro-Sánchez

Online marketing of fresh fruit: A corpus based contrastive analysis (English & Spanish) of terminology related to texture

Abstract: We carry out a contrastive analysis (English-Spanish) of apple and pear descriptions. A comparable ad-hoc corpus for both fruits was compiled from websites of fruit retail businesses. We analyzed references to texture, i.e. the vocabulary used and the most frequent collocations in both languages. Explanations are characterized by a wide variety and density of terminology used quite straightforwardly to describe texture and mouthfeel sensations with great precision. Textural properties are presented mainly with descriptive adjectives and specific nouns, with a difference in usage depending on the language used and fruit variety being described.

Keywords: Apples, pears, textural characteristics, Spanish, English, corpus analysis

1 Introduction

We are currently witnessing a change of the traditional business paradigm. The widespread use of the Internet by companies to sell their products is a common practice worldwide. Online fresh fruit businesses are no strangers to this reality and most of them have a website through which they advertise the different varieties they produce and sell. In fact, these retailers are facing new challenges due to increasing digitalization and "have to manage their business in a context of competitive convergence, hybridization of store formats, and continuous expansion of online channels" (Bellini et al., 2021, p. 101).

These fruit retail businesses are characteristic in the sense that customers are not only interested in the price they have to pay, but also in the quality of the product they wish to buy. Behind each piece of fruit that these businesses offer, there are different procedures that contribute to making it more or less appetizing. The pleasure of eating it is the result of a combination of visual, tactile, olfactory and taste sensations. Therefore, in order to be able to judge whether a piece of fruit is of quality and to describe it with the intention of selling it, two basic

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aspects must be taken into account. First, the impressions that the piece of fruit evokes through the senses and also how to properly convey these impressions to the customers.

Detailed information on all these sensations can be found in the descriptive cards of apples and pears that appear on the websites of fruit businesses. In addition to their informative nature, these descriptions are also characterized by a distinctly persuasive tone, typical of commercial texts. The mastery of effective linguistic and rhetorical strategies for marketing these fruits is therefore a fundamental element for the success of these online sales platforms.

We are interested here in identifying and analyzing the terminology used in English and Spanish to refer to the sensory experience of texture in these descriptive cards of apples and pears. To this end, we have carried out a comparative analysis of the descriptions of these fruits, focusing on the way in which reference is made to their textural quality, the type and characteristics of the vocabulary used, and the most frequent collocations in both languages. For this purpose, we compiled a comparable ad-hoc corpus of fact sheets for both fruits from websites of fresh fruit businesses in both languages.

2 Sensory perceptions of fruit and their language

A potential buyer or consumer's first contact with a piece of fruit is through its smell, taste, texture, sound and visible shape and color. These make an impression in different sensorial ways and simultaneously. Subsequently, when the fruit is tasted and eaten, it is mainly the experience of texture and flavor that is involved. When biting into the fruit, hearing the crunch of the teeth through the skin or chewing its pulp, the first mouthfeel impressions are felt. Sensations such as its juiciness, sourness, crunchiness, hardness or sweetness are recognized.

While undergoing this sensory experience, it is common to react with spontaneous expressions of the perception it triggers in our system. The response can come in several ways, either non-verbally by stating one's appreciation with facial expressions or gestures, or we can demonstrate our preferences, likes or dislikes, with words, through assertions that may include objective statements and/or some type of evaluative or emotional analysis. These sensations provoked by an apple or a pear when eaten, and which are the product of all the senses of our organism, are clearly reflected in the way the language is used. The words used in that description create an image of that experience. The use of appropriate and adequate terms in these descriptions is vital to effectively define these sensory experiences.

As Dubois (2017) points out, it is interesting to observe how the expression of sensory experiences related to food shifts the focus of attention. In fact, it goes from the objective description of the food to the concrete action of its consumption, its evaluation and the expression that a consumer performs about the particular piece of fruit that has just been tasted.

To ensure effective marketing communication on fruit companies' websites, it is essential to use appropriate terminology that really engages consumers. A mix of informative and aesthetic terminology is undoubtedly of great benefit.

There are different approaches to the study of the language used to describe the main sensory attributes of fruit. Food and language have been studied in both anthropology and linguistics, with the purpose of analyzing the use of language as a medium to describe and communicate food experiences (Manning, 2012; Cavanaugh et al., 2014). The analysis of how different sensory experiences are encoded across lexical categories (Lievers & Winter, 2018) or the creation of a lexicon containing sensorial words (Tekiroğlu et al., 2014) are examples of other studies carried out from a linguistic perspective. In the field of advertising, and in order to promote the appropriate positioning of certain fruit varieties, research has been conducted on the emotions elicited by these foods (Romeo-Arroyo et al., 2021; Babicz-Zielińska et al., 2006). Other investigations have been carried out for product development purposes, commercialization, etc. (Suwonsichon, 2019). Furthermore, some research works have examined the translation problems of sensory attributes and texture terms, in various languages (Zannoni, 1997; Rohm et al., 1994; Lawless et al., 1997).

An important area that has been well analyzed has to do with meeting the needs of professional tasters and panelists. In fact, the reporting of all these sensations "is challenging for both trained panelists and consumers to describe due to the complexity of the multimodal stimulations that occur (...) during consumption that induce odor, taste, flavor and sound perception" (Ting et al., 2015: 195). To overcome this difficulty in verbalizing sensory perceptions, panelists are trained in describing food characteristics and provided with insights into vocabulary. Chauvin et al. (2010) have identified different apple and pear texture attributes while Duicer (2001) studied auditory sensations that are key to texture perception. Swahn et al. (2010) carried out a study to identify the terminology used by professional tasters and consumers to describe apples. They developed a semantic framework referred to this fruit and its sensory attributes. These authors proposed this frame as a basis for a broader sensory semantic framework.

Despite the wide range of perspectives and aspects that have been considered, describing the taste, aroma or texture of food can often be difficult. This is because these sensory attributes result from the interaction between the consumer and the piece of fruit, so they are not intrinsic characteristics of the food.

Thus, the vocabulary used to describe these multisensory phenomena is largely subjective.

3 Methodology

As we have pointed out, the analysis of this work has focused on how sensory language related to touch is used to describe pears and apples. To this end, we have carried out a quantitative and qualitative analysis of a comparable bilingual study corpus, compiled ad hoc from apple and pear description fact sheets in English and Spanish.

Following Corpas Pastor (2001), Seghiri (2017), Ortego-Antón (2019) and Pérez-Ruiz & Ortego-Antón (2020), our corpus has the following characteristics. It is a comparable corpus of texts collected and downloaded from websites of Spanish and English-speaking food companies, based on their availability, user profile, representativeness, size and balance. As for availability, the selected texts were downloaded from fresh produce companies of different sizes, from large companies to fruit retailers. These texts correspond to an expert communication (using specialized language) and non-expert or consumer communication (using more general and vague language). The corpus is representative, both quantitatively and qualitatively. On the one hand, quantitativeness has been achieved with the inclusion of texts belonging to the same textual genre, in English and Spanish. As for qualitativeness, we have verified representativeness through the program ReCor (Seghiri, 2006, 2015; Corpas Pastor & Seghiri, 2009, 2010), which indicates that the corpus is representative with a minimum of 200 texts and 30 000 tokens. In terms of size (see Table 1), this corpus consists of approximately 120 000 words, 60 000 in each language and 30 000 for each fruit and language.

Table 1: Size of CoFr corpus.

	Name of corpus	Number of tokens	
Apples	CoFrAp_ES	31883	58501
	CoFrAp_EN	26618	
Pears	CoFrPe_ES	37585	60674
	CoFrPe_EN	23089	
	Total	119175	

The English texts come from North American and British companies, while the Spanish texts are mainly from Spanish companies, but also from Spanish-American ones. Finally, balance is achieved through two factors. The first is the number of different businesses from which the texts were taken, in our case over 100. The second factor, which also defines balance, has to do with the date when the texts were downloaded, in our case between 2019 and 2021.

Once the texts had been selected and downloaded, any sections that might introduce noise were removed. The cleaned texts were then converted to txt format to make them usable for our linguistic analysis. The first step in analyzing our corpus was done with AntConc 3.5.7, a corpus analysis software (Anthony, 2018). We ran AntConc to obtain lists of words with the help of the Word List tool. Then, to filter the results, we used a previously created and loaded stop word list that included common function words, proper names and abbreviations. Finally, the results were narrowed down so that only terms with a frequency of four or more were examined in this research. The final word list was manually reviewed to identify the relevant terminology and frequent phraseology in both languages. We used the AntConc Cluster tool to generate lists of 3-gram clusters to the left and right of key terms such as *firm* or *crujir* (crunch). This allowed us to identify the most common expressions used to describe apples and pears, for example *firm but tender* or *cruje al mascarla* (crunches when chewed).

4 The description of texture in CoFr corpus

Texture discrimination, in relation to food, has been described by Szczesniak (2002, p. 215) as “the sensory and functional manifestation of the structural, mechanical and surface properties of food detected through the senses of vision, hearing, touch, and kinesthetics”. This implies that, since texture is a sensory property, only humans can perceive and describe it. Also, because texture is a multi-parameter attribute, a range of characteristics need to be considered. Furthermore, texture is perceived in different ways, with touch and pressure being the most significant (Szczesniak, 2002: 216).

Both texture and mouthfeel are main determinants of consumer acceptability for foods, as they play a substantial role in the evaluation of a piece of fruit. Both are unique and complex attributes perceived as sensations by the lips, tongue, teeth or palate. While texture is mainly used “in reference to solid and semi-solid foods”, mouthfeel has to do with the tactile properties perceived when foods or drinks “are placed in the mouth until they are swallowed” (Guinard & Mazzucchelli,1996, p. 213).

As stated, there are various common characteristics that are considered to be primary indicators of apples and pears texture and mouthfeel fresh quality. These are of great significance when it comes to appreciating these fruits, which is why adjectives related to texture are very common in the description of apples and pears. In this study of texture, we analyzed the language used to describe these attributes. In order to do this, we focused our textual analysis on the terms that describe these sensations that are associated with the *flesh* of the fruit.

In the fact sheets studied, the textural quality of the flesh of apples and pears is described using many overlapping terms (*firm, tender, juicy, dense, fine; consistente, compacta, tersa*…). But, of course, both fruits have specific and differentiating characteristics. Also, depending on the different varieties available on the market, and because fruits undergo diverse textural changes during ripening and post-harvest, these texture and mouthfeel sensations are defined in various ways. In fact, we find that descriptive adjectives are used differently in the texts analyzed.

In order to trace the terms used to evaluate flesh texture, we have followed Costa et al. (2011), who identified the following parameters to express optimal quality: crispiness, firmness and juiciness. In what follows, we present the results of the analysis of these textural expressions in what we believe to be logical and useful groupings of related properties.

4.1 Crispiness

Crispiness has been commonly acknowledged as the essential attribute affecting consumer preferences (Costa et al., 2011). The term *crisp* describes an acoustical perception, i.e. the tendency of certain fruits, e.g. apples, to yield suddenly with a characteristic sound when subjected to an applied force (Jowitt, 1974; Chauvin et al., 2010). Apples are crisp because both the resistance in the mouth to its breaking apart and the release of juices make us to experience this sensation when we bite them (Mouritsen & Styrbæk, 2017: 103).

In our analysis, we note a clear prevalence of adjectives relative to crispiness (*crisp, crispy*) in the apple subcorpus compared to the pear one (see Tables 2). According to a search with Google's Ngram Viewer, which tracks digitized books, *crisp* (0.0005296%) is a much more popular term than *crispy* (0.0001054%). This is also the case in our study, where the term *crisp* is much more preferred than the term *crispy. Crisp* directly refers to the flesh of the fruit in almost half of the occurrences in both subcorpora, CoFrAp_EN and CoFrPe_EN. It also often applies to *texture, apple* and *skin*.

Table 2: The adjectives *crisp/y* in English corpora.

		Crisp	Crisp/Flesh	Crispy	Crispy/Flesh
Apples English	CoFrAp_EN	0.40%	0.17%	0.02%	0.004%
Pears English	CoFrPe_EN	0.27%	0.15%	0.05%	0.013%

Contrary to what was observed in the English subcorpus, there are not as many occurrences of terms referring to crispiness in the Spanish texts (see Table 3), and the vast majority (93%) refer to apples. Of the two possible uses -*crocante* and *crujiente*-, the latter is the most common, and is almost always associated with the noun *flesh* (*carne, pulpa*).

Table 3: The adjectives *crocante/crujiente* in Spanish corpora.

		Crocante	Crocante/ carne	Crocante/ pulpa	Crujiente	Crujiente/ carne	Crujiente/ pulpa
Apples Spanish	CoFrAp_ES	0.02%	0	0	0.16%	0.13%	0.03%
Pears Spanish	CoFrPe_ES	0.01%	0	0.003%	0	0	0

References to the crispiness of apples in the English subcorpus are usually accompanied by strong intensifiers (e.g. *remarkably crisp; extremely crisp; wonderfully crisp; a terrific apple crisp*) or, with a similar sense, collocate with *bite* (*crisp bite, fine-flesh crisp bite*). But we have also found instances of attenuating hedges (*less crisp; a little tender but still crisp*). In the Spanish subcorpus, the identified intensifiers are less emphatic (*muy crocante, muy crujiente, más crujiente*). In the pear subcorpus, no examples of intensifiers collocating with references to crispiness were identified, with the sole exception of *no tan crujiente* (not so crisp) which rather marks attenuation.

4.2 Crunchiness

Authors do not seem to come up with a clear and precise differentiation between the crisp and crunchy sensation (Fillon & Kilcast, 2002). The distinction between these two terms may lie in the pitch of the sound (Vickers, 1984), with the term *crunchy* being applied to a type of texture that is hard and dense and "fractures without prior deformation producing a loud, low–pitch sound that is repeated

over several chews" (Fillion and Kilcast, 2002: 28–29). In languages such as Japanese or Chinese, there is a more subtle differentiation of these sensations, which implies the existence of a variety of terms to describe them (Szczesniak, 1988; Yoshikawa, Nishimura, Tashiro, & Yoshida, 1970). In French, the translation of crispy "is not used to describe the same products as in English" (Varela et al., 2008). And in both Italian and Spanish, no discrimination is made between crispiness and crunchiness.

In Spanish, therefore, the translation of both terms *-crisp/y, crunch/y-* is crocante or crujiente. The Spanish Royal Dictionary (DRAE) makes no distinction in the definition of these terms. The verb *crujir*, from which *crujiente* derives, is defined as *hacer cierto ruido [con los dientes] cuando rozan unos con otros* (to make a certain noise with the teeth when they rub together). *Crocante*, in turn, is defined as *cruje al mascarla* (crunches when chewed) (DRAE, 2014). As we see, *cruje* -the third person of the present simple *crujir*- is used in this second definition, clearly reflecting this lack of discrimination.

In the apple subcorpus, both *crunch* and *crunchy* are used in a similar way. The difference lies in that *crunchy* collocates with *flesh* 50% of the occurrences, whereas *crunch* never does. In the case of pears, *crunchy* is much preferred but never collocates with *flesh*, it does with *texture* or *pear*.

Table 4: The adjectives *crunch/y* in English corpora.

		Crunchy	Crunchy/Flesh	Crunch	Crunch/Flesh
Apples English	CoFrAp_EN	0.04%	0.02%	0.04%	0
Pears English	CoFrPe_EN	0.10%	0	0.03%	0

Fillon & Kilcast (2002, p. 28) point out, regarding fruit, that "*crunchy* seems to be more universally used than *crispy*". But this is not what we have observed in our corpora (see Table 5). It is striking that the use of the terms *crunch/y* is much lower than the use of *crisp/y*. This is specially so in the apple subcorpus, where the frequency is even lower than in the pear one.

Table 5: Comparison of occurrence of the adjectives *crisp/y and crunch/y* in English corpora.

		Crisp/y	Crunch/y
Apples English	CoFrAp_EN	0.41%	0.08%
Pears English	CoFrPe_EN	0.32%	0.13%

According to our search with Google's Ngram Viewer, *crunch* (0.0001836%) is more widely used than *crunchy* (0.0000724%), but our results show otherwise, as can be seen in Table 4. While *crunchy* triples the occurrences of *crunch* in our pear subcorpus, both terms are equally used in our apple subcorpus.

References to the crunchiness in apples also often collocate with intensifiers (*perfect crunch, pleasant crunch, great crunch*). In the case of pears, it is interesting to note that when the term *crunch* is used with a specification, it often reflects either a similarity to apples -*firm crunch (like an apple); with the crunch of an apple; sweet and juicy like a pear; crunchy like an apple*- or an attenuation -*has a bit of crunch; with a nice crunch.*

4.3 Firmness

The attribute of firmness is another parameter widely considered in the definition of the quality standards for some fruit varieties and one of the major features estimating consumer preferences (Bonany et al., 2013). Firmness is defined as a high resistance to deformation by an applied force (Jowitt, 1974), which in the case of food is exerted while chewing. The parameters used to express firmness are *hard* and *firm* (Szczesniak, 2002). These attributes, to a certain extent, include tactile, visual and auditive sensory perceptions.

Bonany (2013) observes that firmness is a typical parameter for apples. But our results show that *firm* is used with a similar frequency in the apple subcorpus as in the pear one (see Table 6). Whereas in the apple subcorpus the term *firm* always collocates with *flesh,* in the pear one only 62.5% of the occurrences do so. Other occurrences of *firm* apply mainly to *pear* and *texture*.

Jowitt (1974) indicates that *firm* is a preferred term to *hard*. In fact, in fruit discourse we find expressions such as *firm-to-hard, stone hard* or *dangerously hard,* which show how this characteristic is not always used to describe a desirable quality of fruit. On the contrary, *firm* reflects the optimal state.

In line with this, we see that *hard* is used less in the apple subcorpus (0.12%) and even less in the pear one (0.02%). Besides, when it is used in the pear subcor-

Table 6: The adjectives *firm/hard* in English corpora.

		Firm	Firm/ Flesh	Hard	Hard/ Flesh
Apples English	CoFrAp_EN	0.20%	0.20%	0.12%	0.02%
Pears English	CoFrPe_EN	0.24%	0.15%	0.02%	0.01%

pus, *hard* is not always considered a positive attribute of that variety (*A ripe pear is firm but not rock hard*). Thus, these results support the idea that *firm* is widely considered a more positive feature than *hard*.

The adjectives used to define firmness in our Spanish subcorpora are *firme* and *dura* (see Table 7). In the apple subcorpus *firme* is the most preferred term, being associated almost equally with *carne* and *pulpa*. On the contrary, the occurrence of d*ura* is only 0.02% and none of them is associated with *carne* or *pulpa*. As for the pear subcorpus, interestingly, *dura* has as many appearances as *firme,* and they are all associated with *carne*. *Firme*, on the other hand, is mostly associated with *pulpa*.

Table 7: The adjectives *firme/dura* in Spanish corpora.

		Firme	Firme/ carne	Firme/ pulpa	Dura	Dura/ carne	Dura/ pulpa
Apples Spanish	CoFrAp_ES	0.06%	0.03%	0.03%	0.02%	0	0
Pears Spanish	CoFrPe_ES	0.04%	0.003%	0.03%	0.04%	0.04%	0

In the apple subcorpus, phraseology referring to firmness are of various types. On the one hand, intensifiers related to *firm* are not very emphatic (*more firm, very firm)*, yet in the case of *hard* they tend to be *(rather hard, truly hard, specially hard, very hard, rock-hard*). And there is also a tendency to elaborate more complex phraseology, since one single adjective with a hedge does not seem enough to describe this textural sensation (*firm but tender, firm though yielding, firm yet tender*). In the pear subcorpus there are not many instances where hedges are used in any way, but, as in the case of crunchiness, they resort to similes with apples in order to describe this characteristic (*the taste of a pear with a firm apple texture*). In the Spanish subcorpus, there are not expressions referring to firmness.

4.4 Juiciness

In a clear segmentation, consumers group their predilections for fruit into either *sweet/crisp* or *acid/juicy* (Daillant-Spinnler et al., 1996). But, whatever their preferences, they always expect that the fruit they eat provides a sensation of juiciness. In fact, a reduction in this attribute tends to be associated with a texture dysfunction.

Juiciness is an intense and substantial texture attribute of pears and apples (Harker et al., 2003), and, as stated, is associated with fruit no matter which its characteristics are, *crisp*, *soft* or *melting*. The adjectives used to express *juiciness* are *juicy* and *jugoso/a*. We found a higher index of *juicy* use in the pear subcorpus than

in the apple one. In our apple subcorpus most of the occurrences of *juicy* collocate with *flesh*, whereas in the pear subcorpus only 42.2% of them do so (see Table 8), and the rest of them collocate with *fruit*.

Table 8: The adjective *juicy* in English corpora.

		Juicy	Juicy / Flesh
Apples English	CoFrAp_EN	0.18%	0.15%
Pears English	CoFrPe_EN	0.34%	0.15%

In the apple subcorpus, the term *jugosa* is associated with *carne* in 52.2% of the occurrences and only 17.4% of them with *pulpa* (see Table 9). Only 69.6% of the occurrences of *jugosa* are collocated with one of the flesh-related terms (*carne, pulpa*). In the pear subcorpus, 16.9% of the occurrences of *jugosa* collocate with *carne* and 62.7% with *pulpa*.

Table 9: The adjective *jugosa* in Spanish corpora.

		Jugosa	Jugosa/ carne	Jugosa/ pulpa
Apples Spanish	CoFrAp_ES	0.07%	0.04%	0.01%
Pears Spanish	CoFrPe_ES	0.16%	0.03%	0.10%

It is interesting to note that, in both subcorpora the texts referring to pears tend to use the term *jugosa* more often than in the apple subcorpus (see Table 10).

Table 10: Comparison of occurrence of the adjectives *juicy and jugosa* in English & Spanish corpora.

		Juicy	Jugosa
Apples English	CoFrAp_EN	0.18%	
Pears English	CoFrPe_EN	0.36%	
Apples Spanish	CoFrAp_ES		0.07%
Pears Spanish	CoFrPe_ES		0.16%

As far as phraseology is concerned, pears tend to be described with more emphatic terminology than apples. We have identified expressions such as *exceptionally juicy, extremely juicy, very juicy* and *very juicy-like*, in the pear subcorpus, whereas in the apple subcorpus, as already mentioned, the references are softer

(*very juicy, moderately juicy*). In the Spanish subcorpus, these references are practically nonexistent.

Also, in the pear subcorpus, we find other references to this attribute which are more elaborated and persuasive, and which are not present in the apple subcorpus:

> Are as *juicy* and delicious as they are gorgeous
> Eat these pears out of hand to best enjoy their *juicy* and delicious flavor
> *Juicy* eating experience
> The tender bite comes with a flood of sweet and *juicy* goodness

4.5 Other differentiating factors between apples and pears

There are other textural characteristics described in our corpus that tend to be specific to either apples or pears, marking a difference between both fruits. These are mostly present in the English subcorpus.

Descriptions of apples often refer to their characteristic snap when breaking. This characteristic bite is emphasized in these descriptions. So, expressions like *snappy bite, snaps clearly, breaking off in chunks when eaten, bite into a Crispin for a great crunch* are typical in the descriptions analyzed.

Pears, on the contrary, are appreciated for other characteristics. There are multiple references to the dense texture of this fruit (*denser than the flesh of a water melon; greater flesh density*). The texture is also described as buttery (*buttery-textured*), smooth (*smooth flesh*) or creamy (*creamy texture*). This distinctive texture produces a feeling of *melting into your mouth.*

5 Conclusion

References to texture were analyzed using a corpus of apple and pear descriptive cards in English and Spanish. In order to determine the terminology used to describe texture and mouthfeel sensations, we have identified the main parameters used to express optimal textural quality, namely crispiness, firmness and juiciness as related to flesh (*carne* and *pulpa,* in the case of the Spanish subcorpus).

In general terms, an apple that meets market quality standards would be described as *firm, crisp* and *juicy*. For pears, texture attributes differ among varieties, but *a firm but buttery*, *smooth* and *juicy* texture would be considered as an indication of a good quality pear.

Regarding crispiness, the main terms used to describe this characteristic are *crisp* and *crujiente*. Only half of the occurrences of *crisp* collocate with flesh,

whereas *crujiente* mainly does so with *carne*. The terms *crunch* and *crunchy* also correspond to *crujiente* and *crocante* in Spanish, although in English there seems to be a difference in meaning based on the pitch of the sound produced when chewed. Still, the use of *crunch* and *crunchy* as compared to *crisp* is much lower (16,3%). As for the intensifiers associated with these terms, strong hedges are used with apples in the English subcorpus, but not with pears or in the Spanish one.

With respect to firmness, *firm* and *firme* are the preferred terms for both apples and pears, although *dura* is used as much as *firme* in the Spanish subcorpus. In the case of apples, these terms are always associated with *flesh* or *carne* and *pulpa* in similar numbers. Phraseology related to firmness, mainly in the apple subcorpus, tend to be more elaborate than with other attributes in order to be more precise in describing firmness.

Juiciness is a common attribute of pears and apples and its absence would imply a lack of quality. The most common adjectives used to describe juiciness are *juicy* and *jugoso.* These terms are more frequent in the pear subcorpus than in the apple ones. Also, in the English subcorpus, pears are described more thoroughly and emphatically than apples, whereas in the Spanish subcorpus these descriptions are completely absent.

In general, we find that the terminology used to describe mouthfeel and texture sensations is relatively straightforward. In addition, these texts use precise and specific terminology to reflect concrete and objective sensations. Many of these descriptions are also often accompanied by hedging devices that help to quantify their intensity.

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Lorena Arce Romeral

Exploiting virtual corpora for the contrastive terminological analysis: a study applied to the agri-food sector (Spanish-English)

Abstract: The development of the agri-food industry in Spain is mainly due to the opening of international trade. As a result, there is an increase in the demand for multilingual writing and translation services in Spanish and English. Study has been limited to the meat sector and, specifically, to the textual genre of descriptive sheets for torreznos (a typical Spanish product) and marinated products. Thus, several studies have evidenced the use of corpora applied to translation (Arce and Seghiri, 2018; Seghiri, 2017a, 2017b) and, specifically, in the agri-food sector (Ortego-Antón, 2019, 2020), as corpora allow us to study terminology in-vivo, i. e. in context. The aim of this study is to exploit the P-MARMEAT parallel corpus for the extraction of terminology specific to the field of study in Spanish and to analyze how these terms have been translated into English in order to verify whether these translations into English are used in the comparable corpus. In this way, contrastive studies can be carried out between the two corpora, which also allows for the detection of translation errors. For this purpose, the corpus management program Sketch Engine has been used, as well as the corpus alignment software LF Aligner. In short, the corpus exploitation methodology presented demonstrates the virtues of virtual corpora in terminology studies and is very useful, as it can be replicated in any thematic genre to be addressed.

Keywords: Agro-alimentary sector, translation, corpus, terminology

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1 Introduction

Thanks to the development of the new technologies, and since Mona Baker (1993) laid the foundations of corpus-based translation studies, many studies have evidenced the advantages of *ad hoc* corpus in translation and interpreting disciplines (Zanettin, 1998, 2002b; Corpas, 2008; Luque Giráldez & Seghiri, 2019 and 2021 or Sánchez Ramos, 2019a, 2019b, 2019c, 2020). A corpus is defined as "[. . .] collection of naturally-occurring language text, chosen to characterize a state or a variety of a language" (Sinclair, 1991, p. 171); it is a valuable a grammatical, discursive, lexicographic, and terminological source of documentation (Seghiri 2015, 2017a, 2017b). Therefore, the use of corpora is especially useful for specialized texts since they have their own conventions and terminology. According to Zanettin et al. (2003) and Bowker and Pearson (2002) the ideal type of corpus is the virtual corpus,[1] which allows access to and management of a large amount of information if it is managed with a suitable tool. Compiling a corpus in electronic format and analyzing it can provide an understanding of the concepts specific to a field of specialization and the use made by the specialists of the terminology and phraseology in the concerned area. In this way, the translator has access to a greater amount of data that he or she can easily consult. This makes it possible to obtain more accurate results in translation [. . .] (Vargas Sierra, 2002, p. 468).

The development of the agro-alimentary industry in Spain is mainly due to the international trade opening that companies are carrying out. According to the annual report on foreign trade by the Spanish Ministry of Agriculture, Fishing and Food (*Comercio Exterior Agroalimentario y Pesquero, 2021*[2] del Ministerio de Agricultura, Pesca y Alimentación), Spain ranks high in international agro-alimentary trade, as it is the fourth largest exporter in Europe. Specifically, exports in the agro-alimentary sector accounted for 19% of total foreign sales by Spanish companies in 2021. Moreover, in 2021, the number of exporting companies increased by 11.8% compared to 2020. Furthermore, according to the report on the agro-alimentary trade balance of the Spanish Ministry of Industry, Trade and Tourism (*Balanza Comercial Agroalimentaria del Ministerio de Industria, Comercio y Turismo*[3]), the meat sector has been consolidated in 2021 as one of the most important

1 A virtual corpus is a corpus of documents downloaded from the Internet. The virtual corpus is also known as: *web* (Fletcher, 2004) and *electronic* (Corpas Pastor, 2001; Varantola, 2003).

2 https://www.mapa.gob.es/es/ministerio/servicios/analisis-y–prospectiva/informecomextanual2021_tcm 30-624087.pdf (2 March 2023).

3 https://comercio.gob.es/ImportacionExportacion/Informes_Estadisticas/Sectores/Balanza%20Comercial%20Agroalimentaria%20%20%C3%BAltimo%20Periodo/Acceso%20al%20%C3%BAltimo%20periodo%20a%20la%20Balanza%20Comercial%20Agroalimentaria.pdf (2 March 2023).

sectors in foreign trade. Spanish meat exports accounted for approximately 17.8% of agri-food exports.

In this sense, the role of the translator is vital to enabling this growth in an increasingly internationalized context in which companies are struggling to attract new and loyal customers, according to Durán Muñoz and Del Moral Álvarez (2014, p. 55). Porlán Moreno (2013, p. 146) affirms that translation should have a market-oriented approach. It is a necessary element for improving competitiveness, as language is one of the shortcomings of traditional agri-food companies.

Thus, many curricula already incorporate translation subjects applied to foreign trade. One example is Translation for International Trade BA/A-B (English and French) in the Degree in Translation and Interpreting at the University of Murcia.[4]

There are many studies on agri-food translation that approach the field of study from different points of view. From a general point of view, Rivas Carmona (2020) addresses the textual typology as well as the definition of the professional profile and practice of translators in the agri-food field. Likewise, Durán Muñoz and Del Moral Álvarez (2014) address the importance of documentary competence in the field of agri-food translation.

More specifically, some studies show the benefits of translation technologies and corpus linguistics due to their multiple virtues for the study of specialized discourse, specifically in the agri-food sector. Ortego Antón (2019) and Sánchez Carnicer and Peñuelas Gil (AESLA, 2022) demonstrate the usefulness of corpus linguistics for contrastive terminology studies in the agri-food industry. Thus, the aim of this research is to apply corpus linguistics to the agri-food sector. Specifically, it exploits the previously compiled MARMEAT macrocorpus, which is composed of two corpora: a parallel corpus, P-MARMEAT, and a comparable corpus, C-MARMEAT. P-MARMEAT also consists of a subcorpus of documents originally written in Spanish and a subcorpus in English (the translations of the documents of the mentioned Spanish subcorpus). The comparable C-MARMEAT corpus consists of a Spanish subcorpus and an English subcorpus, both of which are documents originally written in these languages. Specifically, the aim is to extract keywords from the Spanish subcorpus of P-MARMEAT and to analyze the English translations of these terms (exploiting the English subcorpus of P-MARMEAT). Then, a contrastive study has been carried out comparing these translations with the terminology used in the comparable English subcorpus of C-MARMEAT. As mentioned, we have used two technological tools for this study: LF Aligner and Sketch Engine. C-MARMEAT and P-MARMEAT corpora (MARMEAT macrocorpus).

4 https://aulavirtual.um.es/umugdocente-tool/htmlprint/guia/RiD5B6WoLGG6OOmjlUt7bcXQK2TdIk 30XgRhpf5lqnhyMllurnp (2 March 2023).

In this section, we will briefly discuss the process of compiling the MARMEAT macrocorpus of descriptive sheets on torreznos and marinated products. Specifically, we will describe the design criteria as well as the compilation methodology, which will ensure its qualitative representativeness. Secondly, we have ensured the quantitative representativeness of the macrocorpus with ReCor, specifically designed for this purpose (Seghiri, 2006, 2014 and 2015). These steps are very important since, according to Seghiri (2006), in order for a collection of texts to be considered a corpus, it must be compiled according to specific parameters so that it can represent a state or section of a language—in short, so that it can be an example of a language (EAGLES, Expert Advisory Group on Language Engineering Standards, 1996a).

2 Compilation of the C-MARMEAT and P-MARMEAT Corpora

For the compilation of the C-MEARMAT and P-MARMEAT corpora, it is necessary to follow a compilation protocol according to specific design criteria, in order to ensure the qualitative representativeness of both corpora. Subsequently, it will be necessary to determine the quantitative representativeness.

2.1 Design criteria and compilation protocol

We have established the design criteria for the MARMEAT macrocorpus with a view to compiling a qualitatively representative corpus. This is a virtual macrocorpus (made up entirely of the Internet), bilingual (English-Spanish), complete, specialized and documented on descriptive sheets of torreznos marinated products.

This MARMEAT macrocorpus consists of two corpora, a comparable one, which has been named C-MARMEAT, and a parallel one, which has been named P-MARMEAT. The comparable corpus, C-MARMEAT, consists of two subcorpora, one in Spanish and one in English. However, both consist of documents written in the languages indicated in their original form. Although the C-MARMEAT corpus is bilingual, only the English subcorpus has been exploited in this study. The parallel corpus, P-MARMEAT, also consists of two subcorpora, the first in Spanish and the second in English, the English documents being the corresponding translations of the texts originally written in Spanish.

Therefore, to ensure the qualitative representativeness of the corpus, we have established clear design criteria and adapted the Seghiri compilation proto-

col (2017b) consisting of four phases—searching, downloading, text formatting and data saving. Furthermore, to exploit the parallel P-MARMEAT corpus, it is necessary to include a further step, the alignment process (Castillo Rodríguez, 2009). This phase will be described in the following section as a preliminary step for the exploitation of the parallel P-MARMEAT corpus (3. Exploiting the C-MARMEAT and P-MARMEAT corpora for a contrastive terminology study). The figures below refer to the compilation of the C–MARMEAT corpus and, specifically, to the English subcorpus, as an example to briefly illustrate the process of compiling the corpus (Figures 1–4). The first and second step has been to access information (Figure 1). For this purpose, a search has been carried out on the In-

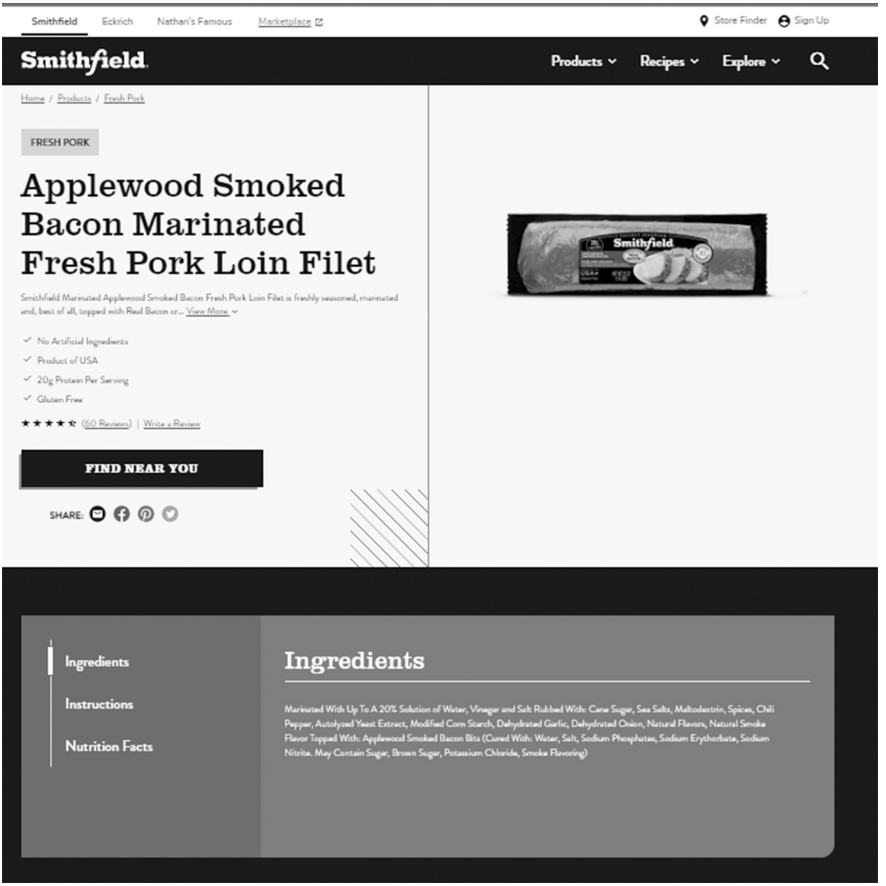


Figure 1: Access to information (Phase 1) and manual download of documents (Phase 2) for C-MARMEAT (English subcorpus).

ternet of the main companies dedicated to the export of meat products and, specifically, of torreznos and marinated products. The information has been downloaded (step 2) and converted into .txt format so that it can be processed by corpus management programs (Figure 2).

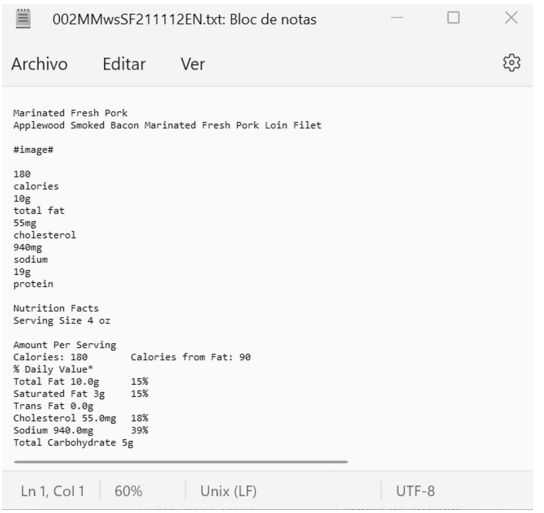


Figure 2: C-MARMEAT (English subcorpus) conversion to .txt format (Phase 3).

Next, a codification scheme for the texts has been designed, as shown in Figure 3. We take the first text (from English subcorpus of C-MARMEAT corpus)—002MMwsSF211112ES as an example: 02 indicates the text number; MM indicates MARMEAT; WS, web as corpus; SF, company initials; 211112, the date of download (day/month/year); and EN/ES, the language (English and Spanish, respectively). In the case of the parallel P-MARMEAT corpus, the same coding has been followed, with the only exception being that in the case of texts translated into English, the language has been indicated as TEN (Figure 3). Furthermore, as can be seen in the

	ID	URL	Re	Company	Download d	Product	Country	Company denomir	nº wor	Word
2	001MMwsPC211112EN	https://www.presidentschoice.c	IPG	President's Choice	12/11/2021	PC Honey Barbecue Pork Back Ribs	Canadá		120	
3	002MMwsSF211112EN	http://www.smithfield.com/pro	IPG	Smithfield	12/11/2021	Applewood Smoked Bacon Marinated Fresh Pork Loin Filet	Estados Unidos	Smithfield Foods	108	
4	003MMwsSF211112EN	http://www.smithfield.com/pro	IPG	Smithfield	12/11/2021	Roasted Garlic & Herb Marinated Fresh Pork Tenderloin	Estados Unidos	Smithfield Foods	108	
5	004MMwsSF211112EN	http://www.smithfield.com/pro	IPG	Smithfield	12/11/2021	Roasted Garlic and Herb Marinated Fresh Pork Sirloin	Estados Unidos	Smithfield Foods	108	
6	005MMwsPC211112EN	https://www.presidentschoice.c	IPG	President's Choice	12/11/2021	PC Maple Flavoured Naturally Smoked Bacon	Canadá		147	
7	006MMwsPC211112EN	https://www.presidentschoice.c	IPG	President's Choice	12/11/2021	PC Vermont-Style Maple Flavour Extra Lean Boneless Ham	Canadá		143	
8	007MMwsPC211112EN	https://www.presidentschoice.c	IPG	President's Choice	12/11/2021	PC Free From Peameal-Style Sliced Cured Pork Loin	Canadá		161	
9	008MMwsPC211112EN	https://www.presidentschoice.c	IPG	President's Choice	12/11/2021	PC Montreal-Style Steak Spice Naturally Smoked Bacon	Canadá		143	
10	009MMwsPC211112EN	https://www.presidentschoice.c	IPG	President's Choice	12/11/2021	PC Ham Steak, Maple Flavoured	Canadá		154	
11	010MMwsPC211112EN	https://www.presidentschoice.c	IPG	President's Choice	12/11/2021	PC Dry Cured Bacon	Canadá		147	
12	011MMwsPC211112EN	https://www.presidentschoice.c	IPG	President's Choice	12/11/2021	PC Bacon, Sweet Ghost Pepper	Canadá		166	
13	012MMwsSF211112EN	http://www.smithfield.com/pro	IPG	Smithfield	12/11/2021	Honey Cured Ham	Estados Unidos	Smithfield Foods	94	
14	013MMwsSF211112EN	http://www.smithfield.com/pro	IPG	Smithfield	12/11/2021	Canadian Brand Maple Ham	Estados Unidos	Smithfield Foods	95	
15	014MMwsSF211112EN	http://www.smithfield.com/pro	IPG	Smithfield	12/11/2021	Honey Cured Pre-Sliced Carver	Estados Unidos	Smithfield Foods	96	
16	015MMwsFJ211112EN	https://www.farmerjohn.com/p	IPG	Farmer John	12/11/2021	Farmer John® Roasted Garlic & Cracked Black Pepper Tenderloin	Estados Unidos	Smithfield Foods	170	
17	016MMwsFJ211112EN	https://www.farmerjohn.com/p	IPG	Farmer John	12/11/2021	Farmer John® Applewood Smoked Bacon Loin Filet	Estados Unidos	Smithfield Foods	235	

Figure 3: C-MARMEAT (English subcorpus) encoding and storage (Phase 4).

picture, for the comparable C-MARMEAT corpus, the country of the company from which the information has been downloaded has been included. Therefore, this information refers to the language variety (Figure 3).

As for the documents in the comparable C-MARMEAT corpus, we ensure that documents have been originally written in the specified language by accessing product information from national companies. That is to say, for the Spanish subcorpus, we have mainly used Spanish companies, while for the English subcorpus, we have mainly used national companies from the United Kingdom, the United States and Canada.

The resulting size of the MARMEAT macrocorpus is as indicated. The P-MARMEAT parallel corpus consists of 100 documents in Spanish (and 17,789 words or *tokens*) and their corresponding 100 translations in English (and 12,186 words or *tokens*). The C-MARMEAT corpus consists of 100 documents originally written in Spanish (and 14,062 words or *tokens*) and 100 documents originally written in English (26,391 words or *tokens*).

2.2 Quantitative representativeness

Although the obtained set of texts is representative from a qualitative point of view, it is necessary to verify whether the corpus is representative from a quantitative point of view—that is, whether the compiled documents cover the basic terminology of the field of specialty: torreznos and marinated products. For this purpose, we have used ReCor (Seghiri, 2014). ReCor is an efficient solution to determine a posteriori, for the first time, the minimum size of a corpus or textual collection, regardless of the language or textual genre of that collection, establishing, therefore, the minimum representativeness threshold by means of an algorithm (NCor) for the analysis of lexical density based on the incremental increase of the corpus (Seghiri, 2014). The comparable C-MARMEAT corpus, specifically the Spanish subcorpus, is representative in 96 documents and 12,510 words or *tokens* (Figure 4):

The comparable C-MARMEAT corpus, specifically the English subcorpus (documents originally written in English) is representative in 86 documents and 24,900 words or *tokens* (Figure 5).

P-MARMEAT, the Spanish subcorpus, is representative in 97 documents and 17,500 words or *tokens* (Figure 6):

The English subcorpus (its translations) of P-MARMEAT is representative in 97 documents and 12,500 words or *tokens*. The qualitatively and quantitatively representative MARMEAT is now ready to be exploited (Figure 7):

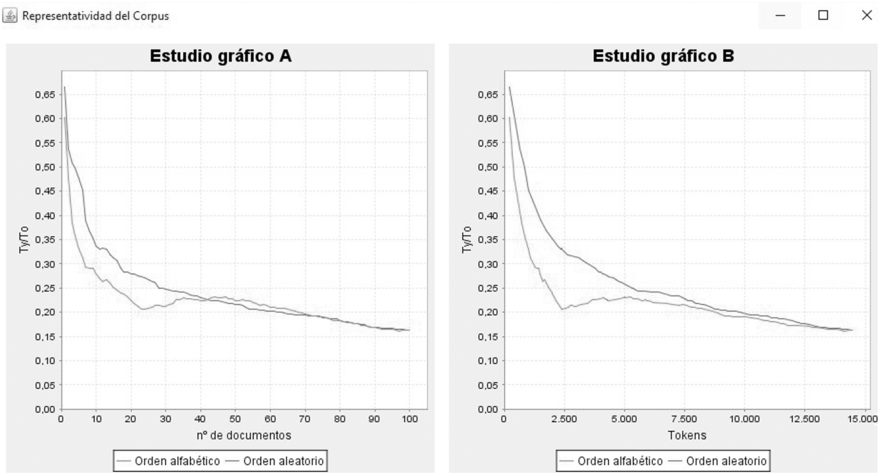


Figure 4: Determination of the quantitative representativeness of the English subcorpus (C-MARMEAT).

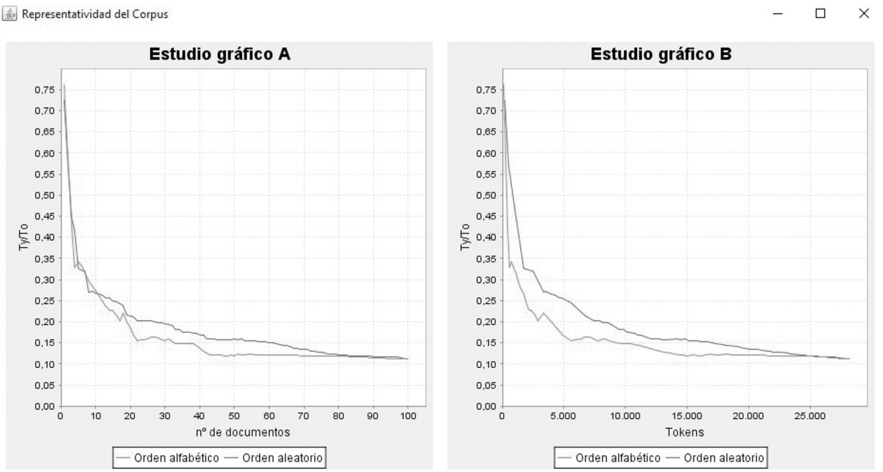


Figure 5: Determination of the quantitative representativeness of the Spanish subcorpus (C-MARMEAT).

In this study, we have exploited the parallel P-MARMEAT corpus as well as the English subcorpus of the comparable C-MARMEAT. Thus, working with a representative corpus is essential to carrying out reliable terminological studies, as the fact that the corpus covers all the terminology in the specialized field under study makes it possible to extract relevant conclusions.

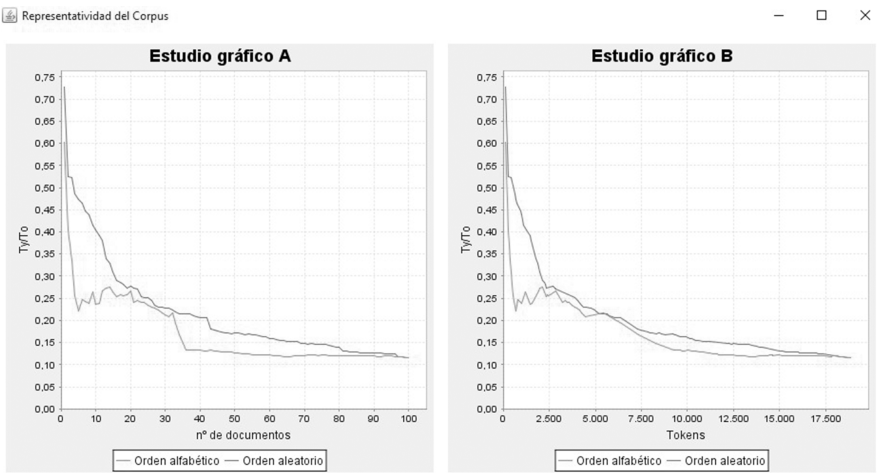


Figure 6: Determination of the quantitative representativeness of the Spanish subcorpus (P-MARMEAT).

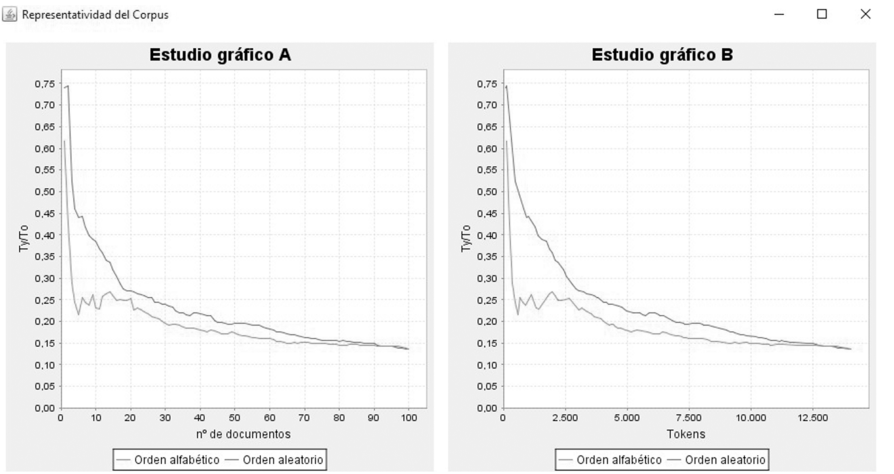


Figure 7: Determination of the quantitative representativeness of the English subcorpus (P-MARMEAT).

3 Exploiting the C-MARMEAT and P-MARMEAT corpora for a contrastive terminology study

In this section, we have exploited the parallel corpus P-MARMEAT, previously aligned with LF Aligner, as well as the English subcorpus of C-MARMEAT with the Sketch Engine tool. This will allow contrastive studies to be carried out on the use of terminology. We have selected Sketch Engine[5] as an exploitation tool due to its wide range of functions for the exploitation of previously compiled corpora, as well as for the compilation of new corpora. LF Aligner is a program for the alignment of parallel corpora. Before exploiting the P-MARMEAT corpus, we needed to align it—that is, to match the different segments in the original language (in this case, Spanish, with their corresponding English translation). Therefore, it is only possible to align a parallel corpus. As mentioned, we used the LF Aligner[6] program to align the P-MARMEAT corpus, (Figure 8).

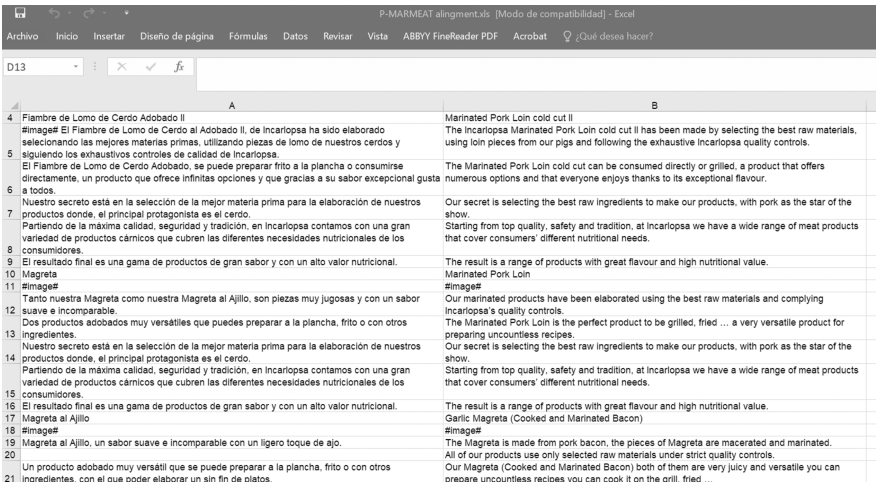
Figure 8: Alignment of the P-MARMEAT corpus with LF Aligner.

Once the alignment is complete, LF Aligner displays how many lines have been created for each language. The alignment result can be reviewed manually. It is possible to separate or combine the paragraphs (Split and Merge options) and move them down (Shift down option) or up (Shift up option). In the present case, we have made minor modifications to the aligned segments resulting from the LF Aligner, following the above-mentioned procedure. The result of the alignment is shown in Figure 9. To

5 https://www.sketchengine.eu/#blue (2 March 2023).

6 LF Aligner is a free, multiplatform document alignment software: https://sourceforge.net/projects/aligner/ (2 March 2023).

align the P-MARMEAT corpus, as shown in the figure above, the working languages (Spanish and English) have been selected, as well as the texts that form part of the corpus (Figure 9).



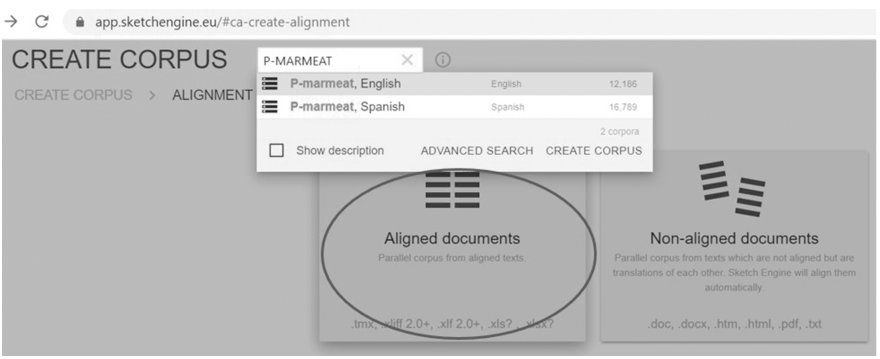
P-MARMEAT alingment.xls [Modo de compatibilidad] - Excel

Archivo Inicio Insertar Diseño de página Fórmulas Datos Revisar Vista ABBYY FineReader PDF Acrobat ¿Qué desea hacer?

D13

	A	B
4	Fiambre de Lomo de Cerdo Adobado II	Marinated Pork Loin cold cut II
5	#image# El Fiambre de Lomo de Cerdo al Adobado II, de Incarlopsa ha sido elaborado selecionando las mejores materias primas, utilizando piezas de lomo de nuestros cerdos y siguiendo los exhaustivos controles de calidad de Incarlopsa.	The Incarlopsa Marinated Pork Loin cold cut II has been made by selecting the best raw materials, using loin pieces from our pigs and following the exhaustive Incarlopsa quality controls.
6	El Fiambre de Lomo de Cerdo Adobado, se puede preparar frito a la plancha o consumirse directamente, un producto que ofrece infinitas opciones y que gracias a su sabor excepcional gusta a todos.	The Marinated Pork Loin cold cut can be consumed directly or grilled, a product that offers numerous options and that everyone enjoys thanks to its exceptional flavour.
7	Nuestro secreto está en la selección de la mejor materia prima para la elaboración de nuestros productos donde, el principal protagonista es el cerdo.	Our secret is selecting the best raw ingredients to make our products, with pork as the star of the show.
8	Partiendo de la máxima calidad, seguridad y tradición, en Incarlopsa contamos con una gran variedad de productos cárnicos que cubren las diferentes necesidades nutricionales de los consumidores.	Starting from top quality, safety and tradition, at Incarlopsa we have a wide range of meat products that cover consumers' different nutritional needs.
9	El resultado final es una gama de productos de gran sabor y con un alto valor nutricional.	The result is a range of products with great flavour and high nutritional value.
10	Magreta	Marinated Pork Loin
11	#image#	#image#
12	Tanto nuestra Magreta como nuestra Magreta al Ajillo, son piezas muy jugosas y con un sabor suave e incomparable.	Our marinated products have been elaborated using the best raw materials and complying Incarlopsa's quality controls.
13	Dos productos adobados muy versátiles que puedes preparar a la plancha, frito o con otros ingredientes.	The Marinated Pork Loin is the perfect product to be grilled, fried … a very versatile product for preparing uncountless recipes.
14	Nuestro secreto está en la selección de la mejor materia prima para la elaboración de nuestros productos donde, el principal protagonista es el cerdo.	Our secret is selecting the best raw ingredients to make our products, with pork as the star of the show.
15	Partiendo de la máxima calidad, seguridad y tradición, en Incarlopsa contamos con una gran variedad de productos cárnicos que cubren las diferentes necesidades nutricionales de los consumidores.	Starting from top quality, safety and tradition, at Incarlopsa we have a wide range of meat products that cover consumers' different nutritional needs.
16	El resultado final es una gama de productos de gran sabor y con un alto valor nutricional.	The result is a range of products with great flavour and high nutritional value.
17	Magreta al Ajillo	Garlic Magreta (Cooked and Marinated Bacon)
18	#image#	#image#
19	Magreta al Ajillo, un sabor suave e incomparable con un ligero toque de ajo.	The Magreta is made from pork bacon, the pieces of Magreta are macerated and marinated.
20		All of our products use only selected raw materials under strict quality controls.
21	Un producto adobado muy versátil que se puede preparar a la plancha, frito o con otros ingredientes, con el que poder elaborar un sin fin de platos.	Our Magreta (Cooked and Marinated Bacon) both of them are very juicy and versatile you can prepare uncountless recipes you can cook it on the grill, fried …

Figure 9: P-MARMEAT corpus alignment (.xls format).



app.sketchengine.eu/#ca-create-alignment

CREATE CORPUS

CREATE CORPUS > ALIGNMENT

P-MARMEAT

P-marmeat, English English 12,186

P-marmeat, Spanish Spanish 16,789

2 corpora

Show description ADVANCED SEARCH CREATE CORPUS

Aligned documents

Parallel corpus from aligned texts.

.tmx, .xliff 2.0+, .xlf 2.0+, .xls?, .xlsx?

Non-aligned documents

Parallel corpus from texts which are not aligned but are translations of each other. Sketch Engine will align them automatically.

.doc, .docx, .htm, .html, .pdf, .txt

Figure 10: Uploading of the parallel aligned P-MARMEAT corpus to Sketch Engine.

The LF Aligner allows downloading of the alignment in different formats. In this study, we have used the Excel format, as it is one of the compatible formats for working with parallel corpora in Sketch Engine. It can also be downloaded in the .tmx format, which is very useful for the creation of translation memories that can be used in computer-aided translation (CAT) programs.

The “non-alignment document” option has been used for the uploading the C-MARMEAT corpus because, despite being a multilingual corpus, the English texts are not their corresponding translations in Spanish, nor vice versa (Figure 10).

3.1 Extraction of results

First, we exploited the parallel P-MARMEAT corpus. Since the terminology specific to the pork meat sector and, specifically, to torreznos and marinated products, is very wide, a selection has been made of the most representative terms that may be confusing due to their conceptual similarity. Thus, first, to carry out our comparative study, we extracted some key and representative words have from the Spanish subcorpus of P-MARMEAT. Since these are original documents—not translations—it is possible for specialists to study how they are used in the Spanish language, in the source language and culture. For this purpose, we extracted a list of keywords with the Keywords option of Sketch Engine (Figure 11). In this way, the Keyword List option allows the extraction of those keywords that are most representative of the field of specialty under study by comparing a reference corpus.[7]

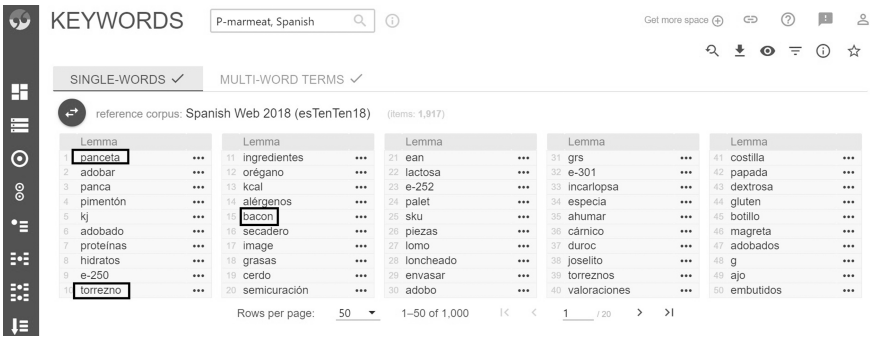


Figure 11: Keyword extraction from the Spanish subcorpus of P-MARMEAT with the Keywords option of Sketch Engine.

Although the program allows bilingual (and multilingual) work, in the case of parallel corpora, it is also possible to work in a monolingual way with one of the subcorpora. In this case, as can be seen, we are working with the Spanish subcorpus of P-MARMEAT, as the aim is to check the terminology used in an original production context—that is, its wording and use in vivo (in this case, in Spanish) by spe-

7 In other words, a corpus that is not specialised.

cialists in the agri-food field. In other words, if we extract it from the translated texts, we could obtain unreliable analysis results, as translators often make mistakes. The terminology highlighted above has been included in the first column of the following table (Table 1, column 1). Next, since P-MARMEAT is a parallel, aligned corpus, it is possible to work with the Parallel Concordance of Sketch Engine tool. Thus, this option allows one to search for a given term in the Spanish subcorpus of P-MARMEAT (the one we are working with) and to check how it has been translated into English (Table 1, column 2).

The search for the term "Torrezno" is shown below (Figure 12). Column 2 shows the translations for the selected terms. Thus, we have translated the Spanish term "Torrezno" (with 4 occurrences) and "Torrezno de Soria" (with 15 occurrences) into English as "Torrezno" (4 occurrences), "Torrezno de Soria" (14 occurrences) and "Spanish torrezno" (1 occurrence) [Figure 12].

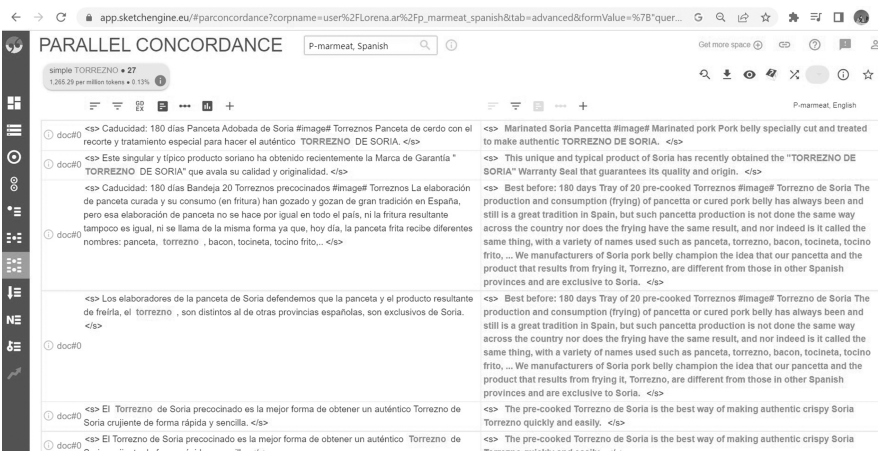


Figure 12: Searching for the term "Torrezno" in the P-MARMEAT corpus with the Parallel Concordance option in Sketch Engine.

However, there is no consistency in the translation of the Spanish terms "panceta" (117 occurrences) and "bacon" (51 occurrences), as they have been translated into English indistinctly as "Pancetta" (23 occurrences), "panceta" and "bacon" (146 occurrences) [see Table 1, column 2].

Next, we exploited the English subcorpus C-MARMEAT, consisting of documents originally written in English. The aim is to check whether the translations in the English subcorpus P-MARMEAT are used in documents originally written in English. For this purpose, we have worked monolingually since C-MARMEAT is a comparable corpus. We used the "Concordance" option to search the P-MARMEAT

corpus for the translated English terms previously extracted from P-MARMEAT (column 2). The result of this search has been included in column 3 of Table 1.

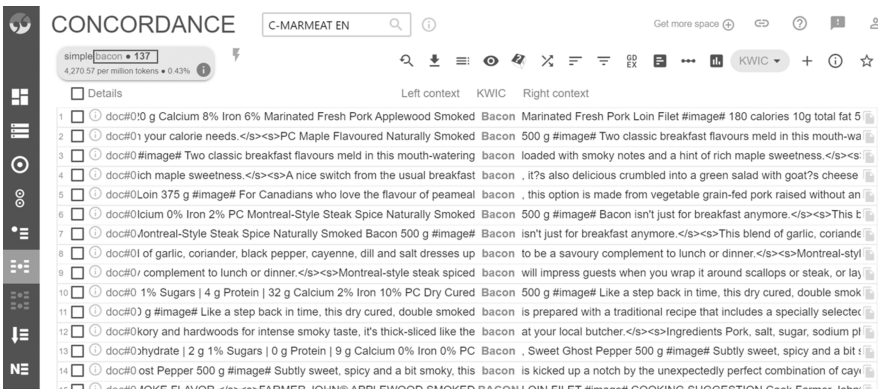


Figure 13: Searching for the term “bacon” in the English subcorpus of C-MARMEAT with the Concordance option in Sketch Engine.

Table 1: Selection of terminology to be studied and occurrences in the P-MARMEAT and C-MARMEAT corpora.

MARMEAT macrocorpus		
P-MARMEAT corpus		**C-MARMEAT corpus**
Spanish subcorpus	**English subcorpus**	**English subcorpus**
Documents originally written in Spanish [not translations] (ES)	**Translation into English (TEN)**	**Documents originally written in English [not translations] (EN)**
torrezno 4 occurrences	Torrezno 4 occurrences	torrezno 0 occurrences
Torrezno de Soria 15 occurrences	Torrezno de Soria 14 occurrences	Torrezno de Soria 0 occurrences
	Spanish Torrezno 1 occurrence	Spanish Torrezno 0 occurrences
panceta 117 occurrences	Pancetta 23 occurrences	Pancetta (but referring to a product of Italian origin) 52 occurrences
	Panceta 22 occurrences	
bacon 51 occurrences	Bacon 146 occurrences	bacon 137 occurrences

Thus, the terms “Torrezno”, “Torrezno de Soria”, “Spanish Torrezno” and “panceta” (used in the translations of the Spanish texts into English), are not used in the comparable C-MARMEAT corpus (0 occurrences), while “bacon” has 137 occurrences (Figure 13). The search for the term “bacon” in the English subcorpus of C-MARMEAT is shown below, as follows (Figure 13).

The same method has been used for each of the selected terms; the result is shown in Table 1.

3.2 Discussion of results

As for the source of the texts in the P-MARMEAT parallel corpus, it should be noted that they are downloaded from the websites of Spanish companies that intend to market their products. (2.1. Design criteria and compilation protocol).

Therefore, the Spanish subcorpus is originally written by specialists in the field, while the English subcorpus consists of translations (into English) of the descriptive sheets of torreznos and marinated products of Spanish products to make them known to customers of Anglo-Saxon origin. Thus, the term “torrezno” and “Torrezno de Soria” have been translated as “torrezno” (4 occurrences), “Torrezno de Soria” (14 occurrences), as well as “Spanish torrezno” (1 occurrence). In this sense, it is clear that the translator is aware that this is a term specific to the gastronomic area and, specifically, to a very specific area of Spain. Therefore, this term is loaded with a strong cultural component and, given that there is no equivalent in the target language, it has been necessary to keep it in its original form. There is no doubt that the Spanish companies are aware that the terms “torrezno” and “torrezno de Soria” form part of Spain’s gastronomic cultural heritage and have therefore decided to keep the specific name for their Anglo-Saxon customers. Torreznos de Soria are fried strips of bacon, usually crispy and golden brown. Since 2013, torreznos de Soria have been declared a Guaranteed Brand of the Spanish region of Castilla y León. In fact, torreznos de Soria are well known and in demand throughout Spain. The above terms are not used in the comparable English subcorpus C-MARMEAT (texts downloaded from companies in English-speaking countries—the United Kingdom, United States or Canada) because they are typical products of Spanish companies, not marketed by companies of Anglo-Saxon origin. However, the term “Pancetta” from Italian culture is more popular (52 occurrences). In this sense, both terms are culturally specific to the gastronomic sphere of particular countries.

As for the Spanish term “panceta”, one can analyze its context to understand the concept and verify whether it has been correctly translated into English. The context extracted through the Sketch Engine’s Concordance option

shows that it is a rectangular piece of the abdominal part of the pig with skin and without ribs (raw) which undergoes a specific curing process (Figure 14) resulting in “torrezno”.

característico **Panceta** : Pieza rectangular procedente de los músculos de la parte torácica y abdominal del cerdo, con piel y sin costilla. </s><s> Posteriormente adobada con especias como sal, pimentón, orégano, ajo, etc. y sometida a un proceso de semicuración que le confieren el aspecto y sabor

Figure 14: Context for the term “Panceta” in the Spanish subcorpus of C-MARMEAT with the Concordance option in Sketch Engine (I).

Then, with the analysis of the other more precise context of “panceta”, the meaning of “torrezno” can be extracted more concretely (Figure 15).

<s> Está adobada con sal, pimentón y un mínimo porcentaje de conservantes, imprescindibles para su curación. </s><s> Este singular y típico producto soriano ha obtenido recientemente la Marca de Garantía "TORREZNO DE SORIA" que avala su calidad y originalidad. </s><s> Ingredientes y otros datos Materias Primas: **Panceta** fresca de cerdo Condimentos y especias: Sal y pimentón de la Vera Tipo de curación: En secaderos naturales con carbón vegetal y aire. </s><s> Otros datos: Envasado al vacio

Figure 15: Context for the term “Panceta” in the Spanish subcorpus of C-MARMEAT with the Concordance option in Sketch Engine (II).

On the other hand, bacon is not a synonym of “bacon”, as this, studied in the context of the corpus, refers to a product that has been previously smoked and with a thinner cut. Therefore, corpora are also a very useful source for the conceptual study of terminology. Thus, in the Anglo-Saxon gastronomic field, there are no such distinctions. Thus, in the C-MARMEAT corpus, the only terms used are “bacon” (139 occurrences) and “Pancetta” (52 occurrences). However, the study of the context shows that “Pancetta” is used in reference to an Italian product. Thus, it is important to be aware when translation is not only a linguistic transfer but also, in this case, a cultural transfer (Figure 16).

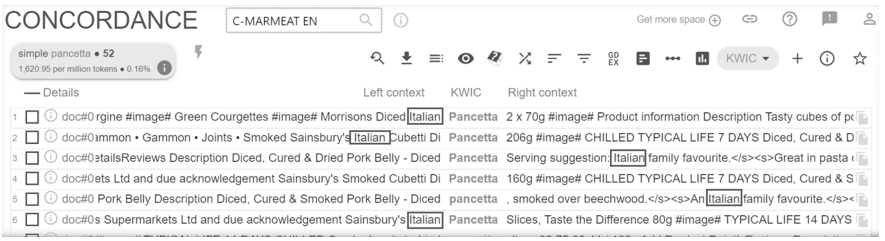


Figure 16: Searching for the term “Pancetta” in the English subcorpus of C-MARMEAT with the Concordance option in Sketch Engine.

It is therefore an error to translate the Spanish term “panceta” into English as “pancetta”, since it has not been considered that “Pancetta” is a specific name for a typical Italian product which cannot be assimilated to the generic term in Spanish. Thus, the analysis of the original English texts shows that the translation into English is erroneous, since “pancetta” and “pancetta” are not synonyms, the latter referring to a typical Italian product.

Furthermore, the Spanish terms “pancetta” and “bacon” have not been translated into English without taking into account the conceptual differences, since “pancetta”, “panceta” and “bacon” have been used interchangeably. In this sense, it can be seen that the translator has made an error in which the conceptual differences in the source language and culture (i.e. Spanish) have not been taken into account since, as has been indicated, these terms are not synonyms in Spanish. Therefore, translating without distinguishing between the terms means that the nuances between them are lost. Although the above terms have been analyzed as a sample, this contrastive study methodology could be applied to other terms, as well as to other thematic genres. Specifically, the study of terminology in the field of gastronomy allows us to analyze, through the study of real and original contexts of use, whether the translation into the target language and culture is correct—in other words, whether the translator has not only carried out a linguistic transfer, but also a cultural adaptation. Thus, it is possible to determine the realia—that is, words that denote typical concepts specific to a certain culture, and therefore do not have a precise correspondence in other cultures.

4 Conclusions

There is no doubt that corpora are very useful resources for the documentary needs of translators since they allow the study of terminology in context—that is, in use by specialists in the field. Comparable corpora (as they are made up of documents written in their original form and not translations) are very valuable resources for the analysis of specialized terminological and phraseological extraction in their purely original production contexts. Parallel corpora (consisting of original documents and their corresponding translations) allow us to analyze how the terminology of a specialized field has been translated and to carry out analyses of the results. Moreover, it is possible to carry out contrastive studies with the use of corpora to detect translation errors. However, this study is not without limitations since, even if translation errors are detected, it is not possible to determine whether the translations of the Spanish texts into English have been carried out by professionals or by an automatic translator. Therefore, the methodology used here

can be used for any area of specialization and thematic genre. Specifically, for the specific case of study, it has been shown that the terminology of the agri-food field is very culturally loaded, so there are always equivalents in the target language that can reflect the concept in the source culture. Therefore, they are used in the source language, as is the case, for example, with the term "torrezno" in Spanish culture or "pancetta" in Italian gastronomic culture. As for future lines of research, it is possible to exploit both the comparable P-MARMEAT corpus (once the translation equivalents have been checked) for the creation of a glossary, both in terms of translation and interpretation. Furthermore, this study can be extended to other terminologies and expressions specific to the specialized area studied.

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Jaime Sánchez Carnicer

Phraseology within the agri-food industry, *torreznos* and *adobados*: A corpus-based study

Abstract: The development and importance of the agri-food industry in recent decades has led to an increase in the number of exports of many products (MAPA, 2021), which has led many companies to consider the need to internationalize. Therefore, the offered resources should be of high quality so that the final recipients will identify them as their own. To obtain linguistic patterns between languages, such as Spanish and English, we have tools such as corpora that provide real examples of use (Seghiri, 2017, 2020; Sánchez Ramos, 2020, Ortego Antón, 2022). Consequently, in this work, through the analysis and exploitation of a comparable virtual corpus, C-MARMEAT, and a parallel virtual corpus P-MARMEAT (Ortego Antón, 2022), consisting of descriptive sheets in English and Spanish of products obtained from different companies, we aim to obtain an approximation of the phraseology related to *torreznos* and *adobados* in both languages. The results obtained from this analysis will allow us to obtain patterns of behaviour and to observe whether those existing in the translated texts are used in the originals written in English. With the results obtained, we will draw conclusions that will help translators and interpreters working in the agri-food industry identify and understand the patterns of behavior in English and apply them in their translation practice.

Keywords: Agri-food industry, corpus, phraseology, English, Spanish

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1 Introduction: Agri-food industry and translation

The agri-food industry, also known as the agri-food industry, is one of the largest business industries, both at European level, where it accounts for 14.2% of manufacturing industry (FoodDrink Europe, 2021) and in Spain, since, according to data from the Spanish Ministerio de Agricultura, Pesca y Alimentación, MAPA (2022), this industry is the leading manufacturing branch of the industrial sector, representing 2.5% of the Gross Domestic Product (GDP) in Spain. All these data only endorse the idea of the importance of everything related to this industry in our society, as it is of a great weight of our economy, as well as to a high number of small and medium-sized enterprises, most of which have their main activity in this industry, which accounts for more than half a million workers according to MAPA (2022) data.

Similarly, the fact that this industry represents such a large economic and social volume is synonymous with its internationalization, i.e. the companies that produce goods in this industry do not limit themselves to attracting potential customers within the borders of the countries in which they operate, but also seek to be present in other markets. In the case of exports within this industry in Spain, more than 37 billion euros in exports were accounted for (MAPA, 2021).

Among them, as it can be perceived in the title, the subsector on which we will focus in this chapter is related to pork. According to MAPA data (2022), both in 2020 and 2021, its exports had a value of over 5 billion euros, occupying the first position both years. This shows the relevance of internationalization for companies in this subsector and the importance of projects such as TorreznoTRAD, which is the framework for the research described in this chapter and which, through the correct use of the language, boosts the number of recipients and clients.

However, the importance of the agri-food industry is not only reflected in our society by the economic aspect, but it has also generated interest in other fields, such as advertising (Rodríguez-Zúñiga and Soria, 1990; Díaz-Méndez and González-Álvarez, 2013; Carmona and Anguita, 2021) or linguistics, where we can find research focused on meat producers (Ortego Antón, 2019–2021), wine (Ramírez Almansa, 2019) or cheese products (Labrador and Ramón, 2015).

Despite all the research that has been carried out in recent years within this industry, there is a need for more, due to the evolution of the industry and an increasing demand for internationalization. Therefore, it is within this context that we would like to make the contribution presented in this chapter, limiting our study to the phraseology of *torreznos* and *adobados*.

Consequently, we will rely on the exploitation of the C-MARMEAT corpus, a comparable bilingual Spanish-English virtual corpus composed of product description sheets from different companies, and of P-MARMEAT, a parallel bilingual English-Spanish virtual corpus, consisting of texts belonging to the same textual genre.

We will briefly describe the project in which these corpora have been compiled, as well as the characteristics of each of them (Section 2), and then we will point out the methodology that will be used to extract and analyze the phraseology according to the parameters we will establish for this purpose (Section 3). In Section 4, we will show and describe the results obtained by applying this methodology and, finally, we will draw the conclusions (Section 5), as well as the references used (Section 6).

2 TorreznoTRAD and the C-MARMEAT y P-MARMEAT corpora

In recent decades, corpora have proved to be a very useful tool for translators and interpreters, as Corpas Pastor (2012, p.11) points out, as they allow the user to have access to a large number of units of meaning and specific functions in the register and textual form of the texts that contribute the corpus, both in the source language and in the target language. Due to the relevance that corpus linguistics has acquired within Translation Studies, with multiple researches highlighting its advantages (Ortego Antón, 2019–2021; Sánchez Carnicer, 2022; among others), in this paper we are going to extract data from C-MARMEAT, a comparable Spanish-English bilingual virtual corpus, and P-MARMEAT, a parallel English-Spanish bilingual virtual corpus, composed of product description sheets from different companies in the meat sector. These corpora, whose characteristics will be explained below, have been compiled within the TorreznoTRAD project, whose main objective is the development of a semi-automatic corpus-based application that assists in the writing and translation from Spanish into English of a specific textual genre: the description sheets of *torreznos* and *adobados*.

2.1 C-MARMEAT y P-MARMEAT: compilation and characteristics

The C-MARMEAT and P-MARMEAT corpora are composed, as shown in Table 1, of 100 texts in each language. In the case of the former, C-MARMEAT has a total of 37 860 cases or tokens[1] (if we break it down by language, English would have 24 462

1 We understand case or token as "any instance of a particular wordform in a text" (McEnery y Hardie, 2012: 50).

and Spanish 13 218, respectively). In the case of the other corpus, P-MARMEAT, it has a total of 29 528 cases or tokens (12 501 in English and 17 027 in Spanish).

Table 1: C-MARMEAT and P-MARMEAT corpus size.

CORPUS	Nº TEXTS EN	Nº CASES EN	Nº TEXTS ES	Nº CASES ES	TOTAL CASES
C-MARMEAT	100	24 642	100	13 218	37 860
P-MARMEAT	100	12 501	100	17 027	29 528

These two corpora from which we will extract the data have been compiled following the methodology proposed by Seghiri (2017) in which four phases are established: 1) Search and access to information; 2) Download; 3) Standardization and 4) Storage. In the following paragraphs, we will briefly explain the process followed in each of the phases to compile the two corpora:

– Search and access to information: Both corpora are made up of texts belonging to a specific textual genre, understood as "the internal structure and organization of texts from a specific variety" (Biber et al, 2007: 9), which is that of product fact sheets. We understand this genre as one that showcases a clear informative intention, with the possibility in some cases of also presenting a persuasive function. This genre showcases information about the product that can make the consumer opt for it (Ortego Antón, 2020). In the case of these two corpora, the texts come from the websites of meat companies, which were accessed through a keyword search on Internet search engines.
– Download: HTML files were downloaded from the different web pages and then TXT documents were created, with UTF 8 encoding, in order to use them in the analysis tools that we will use to extract the results.
– Standardization: Once all the texts were in, it was checked that they were all in the same format and with the same coding, and those that did not meet the established criteria were standardized.
– Storage: Folders and subfolders were created to store the texts, according to the corpus and the language in which the texts were written. Similarly, at the same time, they were coded with an alphanumeric code so that all the documents had the same name extension and were easily identifiable by their origin and the language in which they were written..

Furthermore, these two corpora have several characteristics, which are listed in Table 2. Some of these characteristics are shared, while others are particular to each one, since, although they are compiled following the same process, they are

not identical and the same process has not been followed with them once they have been assembled.

Table 2: Characteristics of C-MARMEAT y P-MARMEAT corpora.

C-MARMEAT	P–MARMEAT
Virtual	
Comparable	Pararell
Bilingual	
Specialized	
Tagged	Not Tagged
Balanced and representative	

In the case of the characteristics they share, we find the following: virtual, due to the fact that the texts of both corpora have been extracted from the websites of different companies, as well as their storage, which takes place in a digital environment; bilingual, both corpora are composed of texts in two languages, in this case, Spanish and English; and balanced and representative, as both meet the first of the characteristics, balance being understood as "proportions of data in our corpus reflect, in some way, the numbers of each type of interaction of interest that actually occur" (McEnery and Hardie, 2012: 8–9). In the case of representativeness, understood as "the minimum number of documents or words that a given corpus must contain in order to be considered valid and representative of the population to be represented" (Corpas Pastor and Seghiri, 2007: 166), both corpora are representative, having been analyzed using the ReCor[2] program (Arce Romeral and Peñuelas Gil, 2022).

If we look at the differences between the corpora, we can observe two: the first one would be in the texts that make up the corpora, since in the case of C-MARMEAT they are originally written in the language they are collected in for our corpus and they deal with the same subject, being a comparable corpus. In contrast, the P-MARMEAT corpus is a parallel corpus, i.e. the Spanish texts are originally written in Spanish, whereas the English texts are translations of them. The other difference lies in a step after the compilation of the corpus, in this case, the decision to tag the texts, as it has been done in C-MARMEAT, using the OpenTagger program (Sanjurjo-González and Andaluz-Pinedo, 2021).

2 Designed by Seghiri (2006).

Having described the size and detailed the characteristics of C-MARMEAT and P-MARMEAT, as well as the project for which they have been compiled, we proceed to detail the methodology that we will use in the analysis.

3 Methodology of analysis

Despite the usefulness of corpora as an essential tool in translation work, it is still necessary to have tools that allow access to the information and extract it as quickly and efficiently as possible in order to, in this case, proceed to analyze the sample of analysis, constituted by phraseology, defined by García Rodríguez (2019: 44) as the discipline that "studies the expressions formed by two or more words separated in writing, whose fundamental characteristics are pluriverbality, lexicalization, institutionalization, fixation and idiomaticity, the latter two to a certain degree", of *torreznos* and *adobados*.

Therefore, in order to extract phraseological units, defined by Corpas Pastor (2003: 134) as the "stable combination of at least two words, which, by virtue, of different currents will have as an upper limit the syntagm or the compound sentence and will present inherent features fixation and idiomaticity on their own, or a combination of both criteria", which contain the two previously mentioned terms we will use as a starting point the methodology used by Sánchez Carnicer (2022), later replicated in other works (Ortego Antón and Sánchez Carnicer, 2023; Sánchez Carnicer and Peñuelas Gil, 2022, among others).

For this purpose, we will use the Sketch Engine tool, defined as:

> [. . .] a corpus tool which takes as input a corpus of any language (with appropriate linguistic markup), and which then generates, amongst other things, words sketches for the words of that language. Those other things include a corpus- based thesaurus and 'sketch differences', which specify, for two semantically related words, what behaviour they share and how they differ (Kilgarriff et al. (2004: 105)

Within this tool, in which we have previously introduced both corpora, with the function N-GRAMS (Figure 1), understood as "sequences of elements as they appear in texts. These elements can be words, characters, POS tags, or any other elements as they encounter one after another in text" (Sidorov et al., 2014: 853), we will manually extract the phraseological units formed by between two and five most common words within the P-MARMEAT corpus containing one of these two terms or derivatives thereof, *torreznos* and *adobados* in Spanish, as well as their equivalent in English.

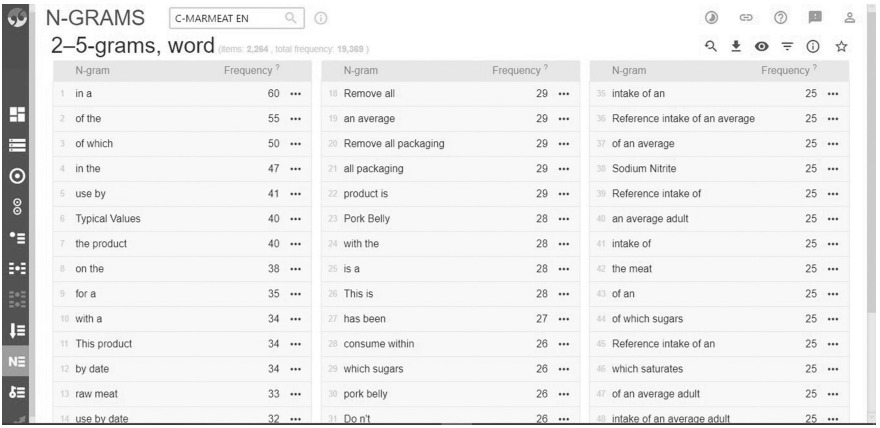

Figure 1: N-GRAMS in Sketch Engine.

Consequently, as shown in Tables 3 and 4, the analysis sample is made up of the following phraseological units:

Table 3: Analysis sample of *torrezno.*

ES	EN
torrezno de Soria	torrezno de Soria
auténtico torrezno de Soria	authentic soria torrezno
virutas de torrezno	torrezno de Soria chips

Table 4: Analysis sample of *adobado.*

ES	EN
adobado extra	marinated (pieza) extra
adobado con especias	marinated with spices
proceso de adobado	marinating process
proceso de adobo	seasoned with
adobar de madera tradicional	marinated in a traditional way
adobado ibérico	Iberian adobo
adobado tradicional de pueblo	homemade marinate

Once we have extracted our analysis sample, from which we will collect its occurrences, as well as calculate its normalized frequency, we will proceed to search for the English equivalents in the English language section of the other compiled

corpus, C-MARMEAT, also within the Sketche Engine tool to detect whether the phraseological units used in the translation of the product description sheets are also used in the texts of this textual genre when they are originally written in English.

4 The case of *torrezno* y *adobados*

As we have explained in the methodology section, we will first present the results obtained in the analysis of the parallel corpus, P-MARMEAT, in which we will search for N-GRAMS in Spanish and their equivalents in English, and then we will search for these equivalents in C-MARMEAT. Finally, we will compare the results gathered in both searches in a global way.

4.1 Phraseological units in P-MARMEAT

As far as the P-MARMEAT corpus is concerned, we have detected eight phraseological units (PUs), three in which the term *torrezno* appears and the other five composed of the term *adobado*, together with their equivalents in English. Table 5 shows their occurrences, as well as the normalized frequency of each of them.

Table 5: Phraseological units in P-MARMEAT.

P-MARMEAT (ES)			P-MARMEAT (TEN)		
UF	**OCCURRENCES**	**FREQUENCY**	**UF**	**OCCURRENCES**	**FREQUENCY**
torrezno de Soria	15	0.07	torrezno de Soria	14	0.086
auténtico torrezno de Soria	3	0.014	authentic soria torrezno	2	0.012
virutas de torrezno	2	0.009	torrezno de Soria chips	2	0.012
adobado extra	15	0.07	marinated (pieza) extra	2	0.012
adobado con especias	12	0.056	marinated with spices	2	0.012

Table 5 (continued)

P-MARMEAT (ES)			P-MARMEAT (TEN)		
UF	**OCCURRENCES**	**FREQUENCY**	**UF**	**OCCURRENCES**	**FREQUENCY**
proceso de adobado	9	0.042	marinating process	1	0.006
proceso de adobo	3	0.014	seasoned with	3	0.018
adobar de manera tradicional	3	0.014	marinated in a traditional way	3	0.018
adobado ibérico	3	0.014	Iberian adobo	2	0.012
adobado tradicional de pueblo	2	0.009	homemade marinate	4	0.024

As it can be seen in the table, in the case of the phraseological units containing the term torrezno, this has not been translated, leaving the term in Spanish, and the rest of the components of the unit have been translated. In the case of those which contain *adobado* or derivatives, we observe that there are some equivalents which maintain part of the unit in Spanish (*adobo ibérico* and its equivalent "Iberian adobo") and, among those which present a complete translation, we observe two verbs in English: to marinate, the most common in the phraseological units in this language, and to season, present in only one unit.

Likewise, we also find differences in the equivalents of some of the terms that make up the unit, as is the case of *tradicional* in Spanish, in the units of *adobado de manera tradicional* and *adobado tradicional de pueblo*, which has two equivalents in English, "traditional way" and "homemade". We also find differences in the units of torrezno, since in most of the equivalents, the preposition de is included between torrezno and Soria, while in the case of "authentic soria torrezno", the term has not been kept the same as in Spanish, and the capital letter is not used in the proper noun.

If we look at the differences in the number of occurrences of the units in the two languages, we see that in the case of those formed by *torrezno*, they are practically identical in both languages. However, a greater difference is detected in those formed by *adobados*, since, although there are units with the same number of occurrences, there are others with very different numbers between languages, as in the case of *adobado extra*, *adobado con especias* and *proceso de adobado*,

which have a much higher number of occurrences in Spanish. Similarly, the opposite is the case, as the unit "homemade marinate" has a greater number of occurrences than its Spanish equivalent, *adobado tradicional de pueblo*, although, in this case, the difference between them is less than that between the other units.

4.2 Phraseological units in C-MARMEAT

Once we have extracted and analyzed the phraseological units present in both languages within the parallel P-MARMEAT corpus, we will search within the comparable corpus, C-MARMEAT, for the equivalents found in English, in order to observe whether they are used in texts originally written in that language. Table 6 shows the number of occurrences and the standardized frequency of each of them.

Table 6: Phraseological units C-MARMEAT.

C-MARMEAT		
UF	**OCCURRENCES**	**FREQUENCY**
torrezno de Soria	0	0
authentic soria torrezno	0	0
torrezno de Soria chips	0	0
marinated (pieza) extra	0	0
marinated with spices	1	0.003
marinating process	0	0
seasoned with	5	0.015
marinated in a traditional way	0	0
Iberian adobo	0	0
homemade marinate	0	0

In the case of the units formed by *torrezno*, in the C-MARMEAT corpus we did not find any occurrences, since there seem to be no texts on this product in the corpus; however, we did find examples of the use of *authentic* as an adjective used to define meat products, i.e. with the same function it fulfils in the phraseological unit found in P-MARMEAT. We also find occurrences of chips, although in this case it does not to refer to an edible element, but with the meaning of "piece of wood", so that its use would be different in both languages and corpus.

If we look at the units in which the term *adobado* appears, we observe that only two of them appear in the C-MARMEAT corpus, marinated with spices (1 occurrence, standardized frequency of 0.003), with a residual presence, and sea-

soned with (5 occurrences, standardized frequency of 0.015). As in the case of those formed by the other term in our study, we find examples in which part of the elements of the phraseological unit are included in the corpus, as in the case of *marinated together with spices*, with the difference that instead of the preposition with which we find in P-MARMEAT, the construction would be *marinated in a blend of spices*. Another example of this would be that of traditional way, which would appear with the verb to prepare instead of *marinate*, as is the case of the unit that we have detected as equivalent in P-MARMEAT. Finally, we also find a change of function in the use of one of the equivalents, namely extra, since in the units detected in P-MARMEAT in both languages it referred to a category of the product; however, in C-MARMEAT the word *extra* functions as an adjective to highlight some of the qualities of the product to which it refers.

4.3 Comparison of results

Once the phraseological units in English detected as equivalent in P-MARMEAT have been analyzed in C-MARMEAT, the results show that they are not used in the same way when the text is originally written in one language as when it is a translation from another language, in this case from English into Spanish. If we look at the composition of the units, the presence of adjectives stands out, which denotes the interest present in this textual genre in attracting the attention of the receiver to a certain extent and making the product more eye-catching.

On the other hand, when analyzing the phraseological units in the comparable corpus, we have detected that, although the unit does not appear as such in the corpus, many of its components do appear and, in many cases, with the same function as in the unit analyzed; nevertheless, it is also the case that they have a different grammatical function and even refer to a totally different reality.

It is also worth noting the fact that there are phraseological units in the P-MARMEAT which maintain some of their elements in the Spanish language without translation; however, this situation does not occur in the comparable corpus, since the terms are not maintained in another language.

To conclude this section, we would like to point out the richness of both languages to describe the product, that resides in the number of possible different phraseological units that we have collected in the small sample analyzed in this work, which implies a greater difficulty when transferring the information from one language to the other, making it necessary for translators and interpreters to be aware of them when carrying out their work.

5 Conclusions

The fact that corpora have become an essential tool in the world of translation, as well as having used a methodology based on the compilation and subsequent exploitation of a parallel bilingual Spanish-English virtual corpus, P-MARMEAT, and a comparable bilingual Spanish-English virtual corpus, C-MARMEAT, both composed of descriptive cards of meat products, has brought us the possibility of observing the behavior of the most common phraseological units of the terms *torrezno* and *adobado* in both languages through this work.

Likewise, the results obtained show us the differences between the two corpora, as we can appreciate that in the comparable corpus hardly any of the phraseological units detected in the parallel corpus appear, which clearly shows us the differences between the real use of the language, depending on the text, original or translated. Consequently, this makes us ponder on the veracity and usefulness of the parallel corpora, as in this case it shows the presence of phraseological units which are hardly used in the texts originally written in English. Similarly, we have also detected cases in which the grammatical function of some components of the units changes completely, as well as terms that acquire a totally different meaning depending on the corpus in which they are searched.

Therefore, we would like to make clear the greater usefulness of comparable corpora as opposed to parallel corpora, due to the possible errors or inadequacies of the latter, reflected both in the low presence of occurrences in C-MARMEAT and the use made of certain components of the phraseological units.

Finally, the results we have obtained lead us to the informed conviction that the tool proposed in the TorreznoTRAD project, where this research is framed. Companies need to be able to provide quality translations of their product description sheets that ensure that the phraseological units used as equivalents are commonly used and recognizable in the English language so that their products can be sold to a bigger number of consumers.

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Rosa Agost, Joan-Rafael Ramos

Normalization of terminology in the agri-food and gastronomy sector: The case of Porterval

Abstract: Academic institutions are at the service of the society that welcomes and promotes them. In Spain, the Valencian Community has a statutory institution with linguistic expertise in the language of the region (Valencian/Catalan): la Acadèmia Valenciana de la Llengua (AVL). This body, established in 2001, after an initial phase focused on the consolidation of grammatical and lexical norms, considered it necessary to create a terminology portal. Thus, 2016 saw the launch of the Porterval (Portal Terminològic Valencià), consulting software with the aim of creating a terminological database to account not only for general fields of knowledge, but also for terms for basic sectors of the Valencian economy, such as agri-food and gastronomy; the latter being especially connected to tourism, one of the most powerful economic areas in the region. In this regard, it should be noted that 11% of the specialized fields in Porterval are directly related to both sectors, without forgetting that, in addition, the lexicographic reference work for the AVL, the *Diccionari Normatiu Valencià* (DNV), also includes a large number of terms associated with agri-food and gastronomy. Our study analyses the operation and methodological aspects of Porterval, and considering the linguistic policy of the AVL, addresses issues related to the selection of certain lexical preferences over others (geosynonymy and formal variants).

Keywords: Terminology, terminology management, linguistic variation, geosynonyms, formal variants

1 Introduction

Food is one of the key aspects that shape us as human beings. Currently, in the fields of anthropology, sociology, economics and even architecture (Steel, 2022), there is a growing concern to highlight the value of food and recognize its importance. The sharing of food constituted the earliest economy and continues to be

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one of the most important social rituals for each community and each civilization. How we eat and how we live are clearly related concepts. In the words of Steel (2022, p. 1):

> The importance of food in shaping civilization is hard to overstate. Food's relative invisibility in the modern world has obscured its profound influence over our bodies, habits, homes, cities, landscapes, economy, and climate, yet nothing else has shaped our lives so powerfully. We live in a world shaped by food: a place I call *sitopia* (from the Greek *sitos*, 'food' + *topos*, 'place'). (Our translation)

In recent years, one of the most important characteristics of our society is what is known as globalization, understood as the process through which a political, economic, social or cultural phenomenon acquires a global dimension. Thus, new technologies and the economic policies of major states have made it possible to spread the rites, traditions and foods of the smallest societies beyond their local and national borders. This also implies the need, from both a communicative and commercial perspective, to establish terms to name these concepts and to find equivalence in other languages. However, determining those equivalences is not always an easy task. We should bear in mind that even though equivalences may have their origin in a different language, it is also possible for there to be different linguistic solutions within one language depending on the geographical zone (geosynonyms). Undoubtedly, both aspects condition the task of the translator and language advisor. Bowker (2015, p. 311) points this out when referring to the percentage of time that translators invest in solving terminological issues, which can vary between 20% and 60%, in the case of translators with little experience. In this regard, having access to a database greatly facilitates the work of translation professionals.

Moreover, not all languages depart from the same sociolinguistic context. Firstly, state languages should have more resources to meet the challenge of terminological equivalents, creating bodies with the capacity to help translators solve the issues raised above. However, the reality is not so, and it is usually the most vulnerable linguistic communities that work more eagerly to promote terminological institutions. One case in point is that of the French language in Québec, Canada (Chan, 2015; Quirion & Freixa, 2021; Depecker, 2021) and another is the case of the *Centre de Terminologia Catalana* (Termcat) for Catalan in Spain (Bover, 2021). Both cases have their origin not only in the desire to provide the translator with multilingual terminology, but also, as Cabré, Domènech and Estopà (2018: 106) indicate, with the objective of developing, managing and normalizing minority languages to the point where terminology takes on a symbolic nature (Drame, 2015, p. 509). This was what occurred in South Africa after the apartheid; nine languages (Sepedi, Sesotho, Setswana, siSwati, Tshivenda, Xitsonda, isindebele, isixhosa and isiZulu) re-

gained official status alongside Afrikaans and English. The legal development and the implementation of Linguistic Offices and Units throughout the country allowed the development of terminology (Antia, 2015, p. 471):

> With regards to issues around vision, the Implementation Plan identifies six focus areas for attention. The first priority area is described as the "development of the indigenous languages, including the establishment of infrastructures and the development of products such as dictionaries and grammars" (DAC 2003b, p. 7). This is quite consistent with the view in the plan that the "legacy of the underdevelopment of the previously marginalized languages in respect of standardization and orthography, technical terminology and dictionaries is a major challenge for the effective implementation of the Policy" (DAC 2003b, p. 10). One of several fundamental principles of implementation is that "[p]riority will be given to further skills training in translation and editing, interpreting, lexicography and terminology" (DAC 2003b, p. 8).

This entire movement, in defense of languages, independent of their status, and in defense of multilingualism, can be summarized in the following words of Cabré (2009, p. 12):

> Any language needs to have terminology to consider itself a language of culture. Any language needs to possess its "own" terminology to defend its sociocultural idiosyncrasy. Any language needs to demonstrate that it has terminology to convince its users that it is possible to communicate in that language in all situations. (Our translation)

The case with which we are concerned in this study is that of Catalan in Spain. Catalan is a co-official language along with Spanish in the Autonomous Communities of Catalonia, the Balearic Islands and Valencia, and has received important contributions to terminology among which we should highlight the role of reference centers such as Termcat, created in 1985 by the Autonomous Government of Catalonia, the Xarxa Vives d'Universitats (1994), bringing together the language services of 22 universities in Catalan speaking areas, many of which have studies in translation and subjects related to terminology, and the Societat Catalana de Terminologia, known as Scaterm (2009), which also has the journal *Terminàlia* (Cabré, Domènech and Estopà, 2018, p. 86–95). This latter entity is currently an affiliate of the Institut d'Estudis Catalans, an entity which has legal powers over language norms in Catalonia.

However, it should be noted that the sociolinguistic context of the Catalan language in Spain is complex and varied according to which geographical area we are speaking. This led to the emergence of a new terminological entity, the Portal Terminològic Valencià, known as Porterval, created in 2016, joining other earlier institutions to contribute to the terminological normalization of the language (Lacreu, 2014). Nonetheless, before focusing our attention on this new platform, it is particularly relevant to highlight the sociolinguistic context from which

it emerged, which is key to understanding some of the methodological aspects that guide their terminological proposals.

The creation of Porterval was sponsored by the Acadèmia Valenciana de la Llengua (AVL), which in turn was established some years earlier, in 2001. The AVL is a statutory institution dependent on the Autonomous Government of the Valencian Community, created with the aim of assuming responsibility for the linguistic competencies for the regional language of the Valencian territory. The fact that the Statute of Autonomy of the Valencian Community calls its language Valencian and not Catalan, as it is usually called academically, reveals a desire to express identity. This desire is seen reflected in a social demand for linguistic solutions closer to the Valencian dialectal variety, over and above solutions from the rest of Catalan. Moreover, it is worth noting that, on occasion, this sense of identity can lead to the defense of the assertion of Valencian and Catalan as two different languages, especially in certain conservative political sectors. However, these segregationist initiatives respond more to an instrumentalization of language for political purposes than to a linguistic project in its own right, and are normally leveraged by these groups to destabilize normalization policies for Valencian/Catalan in the Valencian Community (Ramos, forthcoming).

In this sociopolitical context and with a sociolinguistic situation in which the social use of Valencian is decreasing in favor of Spanish, the Valencian government created the AVL as an institution to determine the official norms of Valencian and the correct linguistic forms of toponomy and anthroponymy in the Valencian Community. In addition, the AVL is entrusted with initiatives to promote the social use of the language, in exercise of the competence to 'safeguard the normal use of Valencian'. All the work developed at the AVL, through different departments (lexicography and grammar, terminology, onomastics, language promotion, documentation and literature, publications), is marked by the responsibility that, as an official public institution, in the exercise of its regulatory function, the decisions of the AVL must be observed by all institutions, including the education system; communication media; publicly owned or publicly financed entities, organizations and enterprises.

In the context of the Catalan language, the creation of the AVL assumes the formation of a new center for codifying the language, in addition to the already existent Institut d'Estudis Catalans in Catalonia, which at first was considered by the Valencian university institutions as referent. We are, thus, facing another case of linguistic pluricentrism; in other words, when one language has more than one center with powers over language norms (Ramos, forthcoming). It is worth mentioning that the AVL, which still claims its institutional independence and uses the term *Valencian* instead of *Catalan* to name the language in the context of the Valencian Community, also explicitly recognizes the unity of the

shared language. In fact, it currently abides by a policy of cordial relations and collaboration with the Institut d'Estudis Catalans and Termcat.

As a result of its academic activity, in the first fifteen years of its existence, the AVL has published various grammar guides of its own (2006 and 2016), in which a unitary orthographic and grammatical norm with the rest of Catalan is revealed, although with certain formal preferences in favor of the Valencian variety (Ramos, forthcoming). Furthermore, the efforts of the institution in the area of lexicography is truly noteworthy. Its reference work is the *Diccionari normatiu valencià* (DNV), which went online in 2014 and was published in print in 2016 with more than 93,000 entries. One of the most important characteristics of this work is the integration of words from the entire Catalan language area, together with the remarkable project of research and recovery of authentic Valencian words and expressions that have served to complete lexical absences in Catalan lexicography in general and to increase the sense of identity of Valencians with their language.

Once the DNV was set up, having been updated monthly with new entries, the AVL considered it necessary to create a terminological portal that would give an account of the language used in different specialized fields. In this regard it is important to note that, until 2016, the terms were included in the DNV with no distinction between common language and specialized language. With the emergence of Porterval (2016), the AVL launched consulting software with the objective of creating a terminological database that could give account not only for areas of general knowledge, but also for terms of basic sectors for the Valencian economy, such as agri-food and gastronomy; the latter being especially connected to tourism, one of the most powerful sectors of this region.

The work of Porterval is performed within the Terminology Department of the AVL, and, in the framework of linguistic planning with the aim to normalize the language in all social areas, they want to provide users with tools to help them carry out the tasks of writing, dissemination, linguistic advice and translation in specialized fields. Thus, sectors such as the media, public administration, private companies, vocational training centers and universities have access to a terminological database that helps them resolve issues that emerge in their professional practice. Proposals for the incorporation of terms and the planning of projects are often the result of the needs expressed by external users who can complete a form on the webpage of the portal. At the time of writing this work, the Department has two technicians working full-time and a coordinator who studies and prepares the materials, with ten academics who analyze and evaluate them on a monthly basis.

Regarding the agri-food and gastronomy sector, it is important to mention that almost 11% of the specialized fields in Porterval are directly related to both these sectors, without forgetting, in addition, the lexicographic reference work of

the AVL, the *Diccionari Normatiu Valencià* (DNV), which also collects a large number of terms associated with these sectors. The interest of the AVL in these sectors is demonstrated through the publication of numerous bilingual informative posters and leaflets (Valencian and Spanish) intended for traders and their customers, as well as the development of two visual dictionaries: *Amb molt de gust* (2017) and *Fons de mar* (2021) (AVL, https://www.avl.gva.es/web/publicacions).

Our study will emphasize the operation and methodological aspects of Porterval. We will reflect on the assignment of lexical units to different interfaces according to their general or specialized use, and due to the linguistic policy of the AVL, we will address issues related to the selection of some lexical preferences over others (geosynonymy and formal variants).

2 The methodology of Porterval

2.1 Formal characteristics

The database management program that the AVL uses is called Lexval. This program serves both the DVN and Porterval. This means that the AVL groups all the lexical units collected into a single database with the aim of facilitating a multiplicity of functions at a lower cost and thus better efficiency of public resources. In the latest version accessed (2nd December, 2022), Lexval had 201,604 entries. This figure represents the sum of the entries already assigned to the DNV and Porterval, as well as lexical units that have not yet been classified or studied by the academics from the corresponding departments (Lexicography and Terminology).

2.2 Lexval datasheet

Lexval originates from a Microsoft Access database used at the end of the final decade of the twentieth century in the General Directorate of Language Policy of the Department of Education of the Valencian Government. It was later moved to the AVL and was the starting point for the DNV. It was very useful to define the fields that were needed and, in the online version, it allowed a modification to increase compatibility through the adaptation of the MySQL relational database management program. It is still functioning today, since, due to its features it allows an increase in efficiency and productivity, reducing errors and facilitating the training and acceptance of its users. This is especially important as this program is used not only by AVL technicians, but also by specialists in terminology

and new technologies who are not AVL staff and receive proposals for the development of specialist vocabularies and dictionaries.

The Lexval datasheet provides all the necessary items or tabs for the preparation of articles in the DNV, in Porterval and/or in specialized dictionaries. It contains the following fields: lemma, number of meanings, derivational forms, morphological aspects, phonetic transcription, etymology, additional information, source language, grammatical category, register, pragmatic intention, diatopic variant, field, assignment to the DNV, assignment to the PTV, definition, examples, sources (with the possibility of expanding the tabs), translation languages (Spanish, English, French, German, Italian and Portuguese with the possibility of adding more), editors, reviewers, future publications, status of the article or entry (i.e. first, second and third revision; approval of the corresponding Department; approval of the Plenary; article or entry later modified). We are currently in a phase of reviewing the thematic markings and the register.

2.3 Specialized fields

The specialized fields of the DNV and the PTV are the same, although it is possible that at some point they do not coincide in terms of the lexical units being worked with. The database is very malleable in that sense. In fact, the differentiation between the area of Translation and Linguistics has just been approved and the Terminology Department is working to reorganize and extend the terms corresponding to these areas.

The specialized fields in the DNV and the PTV related to the agri-food and gastronomy sector are the following: agriculture, food, beekeeping, aquaculture, poultry, drinks, hunting, botany, game, citrus fruits, cooking, oenology, ichthyology, mycology, fishing, livestock. In Termcat, for example, the tendency is to amalgamate the thematic areas related to these areas in three more extensive groups: (a) agriculture, livestock, fishing; (b) food, gastronomy; (c) botany. The difference in the structure responds to the need both now and in the future to provide an answer to the additional concerns of Valencian society. Such is the case of the citrus fruits sector, which has a differentiated position due to its importance in the Valencian Community. Despite the fact that this area currently has only 49 terms, at first all assigned to the DNV, there is a project under way to carry out an in-depth analysis of the terminological and terminographic work related to this field. This initiative, which will allow the transfer of all specialized terms to the PTV and continue with the development of a vocabulary for citrus fruits within a reasonable period of time, responds to the demand of professionals and language

advisors from municipalities of citrus exporting populations, who require a guide to write and translate texts related to this industry.

Another sector where there is a demand for terminology for Valencian language advisors and translators being served by the AVL is the date and palm sector. The development of the *Vocabulari del dàtil i la palmera* is currently under way as a response to a tradition with a future-oriented approach in certain cities, such as Elche. The AVL works to establish, recover and preserve Valencian terms related to this field so that they remain in use and can be employed in the commercial field in a standardized manner. This desire responds to the need to strengthen the language to avoid what Depecker (2008; 2009) calls "la perte de domaine", the gradual disappearance of a language in a specific area and in some trades, and its replacement by another.

By the same token, we wish to highlight the fact that the work of the AVL is sometimes developed in collaboration with entities and organizations because of social and economic demands. Such was the case of *Amb molt de gust* (2017), working in collaboration with the Museu Valencià d'Etnologia and the València City Hall due to València being the world food capital, or the case of *Fons de mar* (2021), working in close collaboration with various fishing guilds from different areas of the Valencian Community coastline, taking geosynonyms into consideration as they are of such important in the fields we are dealing with.

2.4 Relationship between the DNV and Porterval

One of the most commonly discussed and debated methodological aspects in Terminology is the delimitation between words and terms. Words represent the general lexicon that users of a language employ in everyday communicative situations, whereas, in contrast, terms are associated with languages for specific purposes and communicative situations where specific topics of a discipline are discussed. This perspective is based on the classic Wüsterian conception of terminology which considers this discipline as autonomous, having no relation to other areas and disciplines with which it could interact; this approach persists in the uniqueness of the term. However, the latest research insists that the boundary between words and terms are fuzzy and that it seems more appropriate to understand terms as dynamic units subjected to a triple dimension (linguistic, cognitive and socio-communicative) (Cabré et al., 2018, p. 51–86). Such is the case of the Communicative Theory of Terminology, formulated by Cabré and developed by the IULATERM group, according to which it is better to eliminate the division between general lexical units and terminological units. Thus, the latter can also be considered as general lexical units with the capacity to acquire a terminological value depending on the communicative sit-

uation. From this perspective, a lexical unit may be used as a specialized term and also as a non-specialized word and may even be related to different subject areas. It is then no surprise that a single lexical unit can appear in a general dictionary and at the same time it may be considered as a term. Therefore, it is the specific, specialized use given to that lexical unit that determines whether or not it can be classified as a term.

This approach is particularly appropriate in fields such as agri-food and gastronomy. The same lexical units can be classified as general or as specific. It all depends on the communicative purpose: in a conversation between non-specialists, lexical units do not function as terms; however, if its use has a commercial, investigative or specialist purpose, the situation changes. Even the labelling of products in agri-food establishments or the writing of a menu for a restaurant converts a lexical unit into a term.

In this respect, this issue must be considered in the evolution of tools offered by the AVL. Until 2016, the database assigned all lexical units (whether for a general or specialized use) to the only existing 'container' at that time: the DNV. Since its publication in print (2016) and after the first 15 years of existence of the AVL, a new interface has been created with the aim of bringing to light the importance of languages for specific purposes within any normalized language. Thus, the Portal Terminològic Valencià emerged, a tool that took the already existent Centre de Terminologia Catalana (Termcat) as its principal model. Upon the signing of a collaboration agreement between Termcat and the AVL, Porterval aims to strengthen language for specific purposes in the Valencian area, while at the same time contributing to complete terminology in the entire area of the Catalan language.

This new initiative of the AVL assumes that the user now has two clearly differentiated interfaces: the DNV and Porteval. Since this differentiation, the lexical units associated or documented in a specialized field are assigned to Porterval and those of general use to the DNV. Despite the advantages that the creation of this terminological portal brings, it is important to note that the result of this new approach could lead the user, who may not have knowledge of this methodological shift, to the idea that there are certain inconsistencies. For example, the majority of the names of fish, molluscs and crustaceans had already been entered into the database prior to 2016. Therefore, they were assigned to the DNV and the shift to Porterval had not yet been carried out. However, in the case of the lexical unit *blat* ('wheat') for example, while the DNV collects a few more or less generic uses (*blat* 'wheat', *blat bord* 'barbed goat grass', *blat de moro* 'maize', *blat picat* 'stew made of wheat, vegetables and meat'), Porterval integrates up to 26 results linked to varieties, processes and agri-food products (*blat algerià* 'durum wheat', *blat candial* 'bread wheat', *blat compacte* 'club wheat', *blat egipci* 'oriental wheat', etc.). Cur-

rently, the AVL is working to correct these mismatches. In fact, words from the field of food, such as *lactovegetarià* ('lactovegetarian'), *ovolactovegetarià* ('ovolacto vegetarian'), and *ovovegetarià* ('ovovegetarian'), which first appeared in the DNV, have now been assigned to Porterval along with others such as *apivegetarià* ('apivegetarian'), *piscivegetarià* ('pesco-vegetarian'), *avivegetarià* ('pollotarian'), and *avipiscivegetarià* ('pollo-pescetarian'), etc. Furthermore, the information from Porterval is more complete for translators as they have access to a more technical definition and equivalents in Spanish, English and French.

However, considering that the DNV and Porterval interfaces are interconnected, as long as the lexical unit searched for is in the database, the user can retrieve it through one of the two interfaces. This is possible thanks to the capacity of the program to automatically move from one interface to the other by searching for the desired result.

2.5 User interface

In Porterval, besides a simple search, which allows the user to locate the searched terms with their corresponding phonetic transcription, grammatical marking, thematic marking, definition and equivalents in three languages (Spanish, English and French), there is also the possibility of activating an advanced search. This type of search expands the information available to the user and is of great assistance to the translator, since it allows access to the terminological database, grouping the lexical units into thematic fields. In this way, it is relatively easy to get specific vocabularies. Furthermore, an equivalent term can also be obtained by the introduction of the word in one of the four relevant languages (Valencian/Catalan, Spanish, English and French). This multilingualism helps not only translators but also specialists who may know the term in English or French but not in their own language. This situation is particularly relevant in some technical and scientific specializations, but also occurs in the case of food and gastronomy products that often enter into a linguistic community as non–adapted linguistic borrowings.

Another useful option of the Porterval interface is that it allows translators to search based on the meaning (onomasiological), in addition to the usual search based on the name (semasiological). Moreover, there is a further option to retrieve and group terms according to grammatical categories.

Lastly, it is important to highlight the option to classify and retrieve terms based on the source language. In this case, we have observed that, to date (02–12–2022), there are 32 terms originating from Spanish. From these 32, 10 belong to the field of gastronomy. French provides us with 22 gastronomic terms (out of a total of 101) and English provides only 11 terms, despite the fact that it is the language

that overall contributes most linguistic borrowings to Porterval (241). This demonstrates the importance of linguistic borrowings in this area where cultural references are particularly significant, especially if we think about the marketing of products, catering and tourism in general. On another note, this point tends to be a complete headache for translators who have to decide between keeping the original term, using an adaptation, or creating an equivalent solution (Dubroca, Flores, Collin & Delbarge, 2010; Serra, 2017).

2.6 Relevant data

With reference to the lexical units of Lexval, of the 201,604 previously mentioned terms that it contains, the DNV already shows 93,851 studied and approved entries, while in Porterval, 18,089 terms that have gone through the analysis of the institution may now be consulted. In this regard, it is important to note that the volume of entries and sub-entries in both the DNV and the PTV is continually increasing. In fact, the two relevant departments of the AVL (Lexicography and Terminology respectively) usually work with an average of between 30 and 50 new cases every month.

User searches are a very important aspect in order to measure the impact and usefulness of the AVL's contribution to society. The data collected on 7th December 2022 reveals that, since access has been available to the analyzed interfaces (the DNV, since 2014, and Porterval, since 2016), the total number of searches by users to date is 114,445,490. Among these searches, users have accessed Porterval on 631,140 occasions. In the six years of the interface, the evolution of searches is worth noticing, as they have increased year on year: in 2016, 25,594 queries were made; in 2017, 45,850; in 2018, 87,261; and in 2019, 104,310. In 2020, due to the pandemic, which advanced the use of the internet, searches grew in number spectacularly, reaching 152,338 in total. In 2021, a slight decrease can be observed (140,602), due to the progressive return to normal conditions of work and the return to in-person classes for students. The number of queries more or less stabilized in 2022, with a more normalized social situation; at the beginning of December 2022, 136,947 searches were recorded. From the analysis of the evolution of searches in Porterval, it can be seen that, in just six years, we have gone from an average of 70 to 400 daily queries, demonstrating that confidence in this interface has increased.

3 Porterval and geolectal variation

Above (§ 2.4), we alluded to the issue of the uniqueness of terms and to the boundaries between words and terms. However, this reflection opens the door to another debate, that of polysemy and synonymy, in other words, the fact that terms can be used in more than one thematic area and can coincide with other words with the same meaning (Alipour & L'Homme, 2021, p. 157). Both cases are acceptable from a communicative perspective such as the one we have already mentioned, yet we could now add another interesting and connected aspect to this debate: variation in terminology. Cabré (1998, p. 188) insists that variation also exists in terminology:

> Thus, applying the scheme of variation typical of specialized discourse to terminology, it can be said that terminological units also present variation: interlinguistic variation and variation within the same language. This variation responds to parameters that describe discursive and grammatical variation, fundamentally those linked to the characteristics of individuals (space, time and socioprofessional group) and those linked to situations (topic, level of specialization and degree of formality). Terminology, therefore, allows topolectal, chronolectal, sociolectal, technolectal, functional and even argotic variants. (Our translation)

This variation is related to the communicative situation, especially to the addressee and to the type of text to be created. This broader conception of terminology is currently the most popular (Agost, 2021, p. 80–81). In this regard, dialectal variation acquires a special role within a single language. In traditional sectors such as agri-food and gastronomy, it is even easier to find terminological variation than in other more recently established areas such as science and technology (Realiter, 2004; Colomer and Bover, 2004; Cuenca, 2010). In fact, this variation is directly connected to the fact that these terms also have a patrimonial and popular use, which often presents diverse solutions. Lexical solutions in one geographical zone can be different than those of another zone, and this causes difficulties in the process of establishing a more or less homogeneous terminology that can account for commercial activities while at the same time being identifiable and comprehensive for its addressees. Here we are clearly dealing with geosynonyms, which, furthermore, raises the question of whether or not it is convenient to prioritize one of the geosynonyms over the important aspect for minority languages that is standardization.

In the case of the Catalan language, the existence of different normative centers of reference and the fact that they work to prioritize certain distinct geographic addressees undoubtedly marks the terminological solutions and, therefore, the choice to which the translator may be conditioned. In the specific case of the AVL, considering the sociopolitical and sociolinguistic context described above, the solutions can be expected to serve a Valencian addressee. Thus, it normally occurs

in the following way: a) the Valencian geosynonym is the preferred one and other geographical solutions become secondary; b) the Valencian orthographic form is prioritized over other orthographic possibilities; therefore, it is a formal variant.

3.1 Preference for Valencian geosynonyms

The linguistic policy implemented by the AVL aims to give preference to the most widespread linguistic solutions in the Valencian community without disregarding geolinguistic variation. In this respect, in the elaboration of both the DNV and Porterval, emphasis has been placed on showing the most habitual lexical forms among Valencians as the main entries. This means that in the development of catalogues, posters, leaflets, labels, vocabularies and dictionaries related to agri-food and gastronomy, the terms proposed to shops, businesses and restaurants are those which the DNV have as their main forms. Examples include cases such as the following, where the lexical form presents obvious differences in relation to the corresponding most widely-used term that is standard in Catalonia: *bajoca* (compared to *mongeta tendra* 'green bean'), *carlota* (compared to *pastanaga* 'carrot'), *creïlla* (compared to *patata* 'potato'), *fesol* (compared to *mongeta* 'bean'), *pimentó* (compared to *pebrot* 'pepper'), *dacsa* (compared to *blat de moro*/*panís* 'maize'), *pistatxo* (compared to *festuc* 'pistachio'), *bresquilla* (compared to *préssec* 'peach'), *llima* (compared to *llimona* 'lemon'), *meló d'Alger* (compared to *síndria* 'watermelon'), *níspro* (compared to *nespla* 'loquat'), *romer* (compared to *romaní* 'rosemary'), *timó* (compared to *farigola* 'thyme'), *rent* (compared to *llevat* 'leaven'), *abadejo* (compared to *bacallà* 'cod'), *aladroc* (compared to *seitó* 'European anchovy'), *clòtxina* (compared to *musclo* 'mussel'), etc.

In other cases, these geosynonyms are not so different and present a mere formal variation which continues being symbolically identifiable for the Valencian addressees. These are cases such as *albergina* (compared to *albergínia* 'aubergine'), *anou* (compared to *nou* 'walnut'), *tomaca* (compared to *tomàquet* 'tomato'), *encisam* (compared to *enciam* 'lettuce'), *canella* (compared to *canyella* 'cinnamon'), *fenoll* (compared to *fonoll* 'fennel'), *camamil·la* (compared to *camamilla* 'camomile tea'), *llentilla* (compared to *llentia* 'lentil'), *xufa* (compared to *xufla* 'chufa'), *xocolate* (compared to *xocolata* 'chocolate'), *llomello* (compared to *llom* 'loin'), *bacallar* (compared to *bacallà* 'cod'), *sépia* (compared to *sípia* 'cuttlefish'), *polp* (compared to *pop* 'octopus'), etc.

Both in the first and second group of cases, the lexicographical preference shown by the DNV also demonstrates preferences in the formation of new terms formed syntagmatically, whether in the DNV or in Porterval. In this regard, although it is possible to find some cases in which the secondary solution is kept in

the creation of new terms, especially when the secondary form has some use in the Valencian Community, it is more common for the secondary form not to be used to produce new terminology. Thus, in Porterval for example, we have the cases of syntagmatic units with *rent*, with the corresponding definition: *rent actiu* ('active yeast'), *rent artificial* ('baking powder'), *rent comercial* ('commercial yeast'), *rent de forner* ('baker's yeast'), *rent fresc* ('fresh yeast'), *rent inactiu* ('inactive yeast'), *rent liofilitzat* ('freeze-dried yeast'), *rent líquid* ('liquid yeast'), *rent natural* ('natural yeast'), *rent nutricional* ('nutritional yeast'), *rent sec* ('dry yeast'), etc., next to syntagmatic units with *llevat,* with no definition and referring to the corresponding units with *rent*: *llevat actiu*, *llevat artificial*, *llevat comercial*, *llevat de forner*, *llevat fresc*, *llevat inactiu*, *llevat liofilitzat*, *llevat líquid*, *llevat natural*, *llevat nutricional*, *llevat sec*, etc. On other occasions, such a double entry of geosynonyms does not appear in the terminological field and the main geosynonyms are the only ones that generate new terms: *bresquilla d'aigua* ('water peach'), *bresquilla de vinya* ('vineyard peach'), *bresquilla del rotllet* ('flat peach'), *bresquilla plana* ('flat peach'); *pimentó de Padrón* ('Padron pepper'), *pimentó de romesco* ('choricero pepper'), *pimentó del piquillo* ('piquillo pepper'), *pimentó xoricer* ('choricero pepper'); *fesol azuki* ('azuki bean'), *fesol del ganxet* ('common bean'), *fesol roig* ('kidney bean'); *farina de dacsa* ('cornmeal'), *dacsa esclafidora* ('popcorn maize'); *camamil·la romana* ('roman camomile'); *mel de romer* ('rosemary honey'); *torró de xocolate* ('chocolate turron'); *abadejo allargat* ('lingecod'), *abadejo àrtic* ('Arctic cod'), *abadejo polar* ('polar cod'), *abadejo salat* ('salted cod'), etc.

This preference for geosynonyms characteristic of the Valencian area is also applicable in compound terms formed from lexical units proceeding from other languages. For example, *mantecado*, an unadapted term from Spanish has the Valencian solution *xocolate* as a second part of the syntagmatic compound *mantecado de xocolate*; in the case of *pimentó xoricer*, it is the first part of the syntagmatic compound that maintains the geosynonym while the second is a graphic adaptation of the Spanish *choricero*. Both in the first and second example, regardless of the use of geosynonyms, it is important to highlight the decision to prioritize the terminological solution maintained by the lexical reference (*mantecado* and *xoricer*) that identifies the food product more easily in the commercial sphere and has a broader geographical use (Dubroca, Flores, Collin & Delbarge, 2010). However, Porterval also has the adapted form *mantecat de xocolate* and the solution *pimentó de romesco* (Lacreu, 2014: 57) as secondary synonymous solutions, partially convergent with *pebrot de romesco* from Termcat (Serra, 2017).

3.2 Preference for Valencian orthographic solutions

Another aspect to emphasize regarding the formation of new terms in the work of the AVL is orthography. At the beginning of this chapter, we indicated that this Valencian institution has a unitarist conception of convergent language with the rest of the Catalan speaking areas. Nonetheless, when it comes to orthography, as happens in other languages, some orthographic details that are different to those of other zones of the same language can be observed. These singularities are fundamentally produced in two orthographic phenomena: the use of the double letter *tl*, compared to *tll*, more widespread in the rest of Catalan (*ametla* vs. *ametlla* 'almond'), and the accent on the vowel *e* in stressed syllables (*café* vs. *cafè* 'coffee').

While the DNV collects the two solutions for general use, giving preference to the first solution, *ametla* (or *ametlla*) and *café* (or *cafè*), and developing the remaining sub-entries only with the first form; in contrast, in Porterval only the preferred solution is used, so that the terms are no longer duplicated: *ametla amarga* ('bitter almond'), *ametla californiana* ('California almond'), *ametla comuna* ('common almond'), *ametlla marcona* ('marcona almond'), *ametla valenciana* ('Valencian almond'), etc.; *café amb llet* ('white coffee'), *café curt* ('short black coffee'), *café instantani* ('instant coffee'), *café llarg* ('long black coffee'), *café moca* ('caffè mocha'), *café rus* ('Russian coffee'), etc.

4 Conclusions and prospective remarks

Throughout our study we have observed that terminology concerning the agri-food and gastronomy sector occupy an important role in the lexical database of the AVL. Both the DNV and Porterval have worked to meet the needs of translators and languages advisors in general, and have contributed to complete the work that other institutions in the Catalan language area, such as Termcat and the Institut d'Estudis Catalans, are carrying out. We have also pointed out that the creation of terminology in minority languages is often connected to a strong claim to their identity vis-à-vis other languages that threaten them, to the point of excluding them from certain specialized fields. However, this identity does not only have an external significance, in relation to other languages, but it can also have an internal impact. From this perspective, in our study we have observed that terminology created by the AVL, although sharing a common project with the rest of Catalan, gives preference to the most common lexical solutions among Valencians; this allowed us to address the issue of variation in terminology. In

some cases, this prioritization of Valencian geosynonyms has been accompanied by an orthographic representation more closely aligned with the Valencian institution. Both aspects contribute to the importance of identifying the linguistic referent, in other words, the term used in a given geographical area. The fact that the addressee recognizes the term as their own, especially in traditional sectors such as agri-food and gastronomy, not only contributes to a more rapid normalization of the term, but also to a greater commercial projection of the term. From a translation perspective, if a geosynonym is chosen that is not rooted in the commercial area, it runs the risk of limited comprehension and some level of rejection by certain sectors that are hostile to the language.

Although the AVL still has limited resources to develop Porterval, since 2016 it has promoted the terminological normalization of Valencian/Catalan in general, and the agri-food and gastronomy sector in particular. Looking to the immediate future, it is imperative to keep working for a clearer delimitation of the criteria for assigning a lexical unit to the Porterval or DNV interface, despite the fact that, as noted, for search purposes, the software always allows the user to locate the desired word. This revision would make it possible to more easily obtain a more homogeneous and extensive list of terms for a specific field in the specialized interface, Porterval. This would also help translators have access to more tools to carry out their work more effectively, since this interface adds equivalents of the term in Spanish, English and French to the terminological definition.

In addition to the aim of responding to individual queries of translators and language advisors, the AVL has undertaken future projects related to the agri-food and gastronomy sector, requested by the language services of city councils, organizations and groups interested in the normalization of Valencian in society. This is the case of the *Vocabulari del dàtil i la palmera* already under development, and the *Vocabulari del torró* and the *Vocabulari dels cítrics*, in the process of allocation. This type of terminological work fits within the policy of the institution to preserve the terminology of Valencian over that of Spanish and within the objective to promote commercial relations, industry and tourism without renouncing the use of the native language.

The provision of multilingual terminology is essential given that it is an indispensable tool for translators. We would like to illustrate this need by emphasizing that, for example, in the citrus fruits sector, the IVIA (Institut Valencià d'Investigacions Agràries) collects the different varieties of citrus fruits in the Valencian Community. However, when we enter the webpage in Valencian, in the section for the varieties of citrus fruits, we can observe that all the information are in Spanish. This demonstrates the urgency of obtaining terminology in Valencian with equivalents in other languages in order to be able to offer adequate tools and facilitate the writing of any type of documentation without any problem. As

we can see, these kinds of projects are deeply rooted in the Valencian region and undoubtedly represent a complement to the work of other terminology centres of the Spanish State for which these sectors may not be such a priority.

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Index

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