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TRABAJO DE FIN DE GRADO

"Please Consult Your Pharmacist"
A Linguistic Analysis of Patient Information Leaflets

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ABSTRACT

This dissertation is a linguistic analysis of various patient information leaflets concerning both the rhetorical organisation from a move-based approach and the lexical choices, regarding verb processes, verb tenses and personal pronouns. A quantitative analysis was carried out using corpus software *AntConc* in order to analyse said lexical choices, alongside a manual analysis in order to extract said rhetoric organisation. Although there have been studies on patient information leaflets, few analyse the aspects included within this dissertation. The results of this analysis confirm the effectiveness of these patient information leaflets in providing clear and concise information to patients.

Keywords: rhetorical organisation, moves, modality, verb processes, pronouns.

RESUMEN

Este Trabajo de Fin de Grado es un análisis lingüístico de la organización retórica de varios prospectos médicos partiendo de un enfoque basado en movimientos, y las opciones léxicas con respecto a los procesos verbales, los tiempos verbales y los pronombres personales. Se ha llevado a cabo un análisis cuantitativo utilizando el software de corpus *AntConc* para analizar dichas opciones léxicas, junto con un análisis manual, para extraer la organización retórica. Aunque se han realizado estudios sobre prospectos médicos, pocos han analizado los aspectos incluidos en este trabajo de fin de grado. Los resultados de este análisis confirman la efectividad de estos prospectos médicos a la hora de proporcionar información clara y concisa a los pacientes.

Palabras clave: organización retórica, movimientos, modalidad, procesos verbales, pronombres.

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List of Acronyms

ESP - English for Specific Purpose

GL - General Language

LOB - Lancaster-Oslo/Bergen

LSP - Language for Specific Purpose

PIL - Patient Information Leaflet

UDC – Universal Decimal Classification

1. Introduction

Patient information leaflets (PILs), also known as drug information sheets, are one of the most important medical texts when it comes to the patient. The information and instructions contained within this neatly organised sheet of paper can affect the patient in a variety of ways, be it negatively or positively, depending on whether the information contained within is expressed adequately or not, or whether the patient has understood fully the information conveyed by said paper.

Given the importance of these texts, this dissertation analyses how this medical text is effective in achieving its main function. Although at first I considered a contrastive analysis between English and Spanish - which will be explained in more detail in the section regarding methodology - this proved to be far too complex and extensive as to be carried out within this specific dissertation, rather, a future contrastive analysis may be carried out alongside the findings contained within this dissertation in the section titled Results.

The first thing that must be made clear is that these patient information leaflets are above everything else, medical texts. It is true that for the most part it is a list of instructions or advice; the same could be said for a recipe, but the field within which it is written changes the way it is written dramatically. If we consider a list of instructions for example, there is a great difference whether it is a recipe in a book, the instructional manual for a technological device, or the instructions given to us by a friend or someone with whom the relationship is closer or more distant.

These differences can be analysed regarding many different linguistic and syntactic aspects, such as grammar, lexical choices, phraseology etc. In this dissertation, two main characteristics have been analysed regarding PILs: the rhetorical organisation, through a move-based approach, and the lexical choices, regarding verb type, verb tense, modality and personal pronouns. These two characteristics were chosen given that, in my opinion, they are the most important and noticeable. When writing a text, the most important aspect is how this text is segmented or organised, and when writing a specific sentence within this text, the most important aspects to take into account are the verb process and the agent of the sentence. Further research and analysis can be carried out in the future regarding other aspects, either lexical choices, such as the use of

compound terms for example, or the analysis of the structure with a focus in deixis, the latter has been mentioned in the methodology section.

This dissertation is divided into five main sections, as can be seen in the index. The first section serves as a general introduction to the topic and the reason why I have chosen it. The second section is the theoretical background, which provides some general information regarding the main concepts discussed throughout this dissertation. The third section, methodology, contains a detailed report on how the analysis and other aspects of this paper were carried out. The forth section, results, contains the results of the analysis. The last section, conclusions, serves as a summary of the results and their implications, followed by a discussion and suggestions for future research.

2. Theoretical Background

2.1.Medical Texts

In order to carry out the analysis of PILs, the first question that must be answered is the following: What makes up the text? Therefore, the first points that must be made clear are: the distinction between *general language* and *language for specific purposes*, medical texts as a genre and lastly, a summary of the discursive properties of patient information leaflets.

2.1.1. English for Specific Purposes

The first aspect that must be made clear is the distinction between *general language* and *language for specific purposes*. In order to do so, my own knowledge has been used as a basis of information, taken from from my personal experience in *Traducción de Lenguajes Especializados II: Ciencia Y Técnica*, 2016. Therefore I will reference Beatriz Mendez Cendón (2016) as the source of information, although it has been adapted from my own personal notes on the subject as I understand it.

In general terms, general language (GL), is the name given to everyday language. It is the group of words, phrases, etc., which are commonly used in our day to day lives. Language for specific purposes (LSP) or in this dissertation, English for specific purposes (ESP) is the language used by a group of individuals belonging to a specific field which poses its own terminology and linguistic characteristics. In the case of this dissertation, the key LSP is that of medicine.

Although these definitions seem clear, it can also be argued that the definition of GL is extremely vague. Consider, for example, that we compare the everyday language of a scholar working in university with that of a mechanic. These *general languages* will vary greatly. It is more precise to say that general language is the name given to the language that these do, distinct languages share. This is just one possibility however. There are many different models regarding the difference between GL and LSP. As it has been described above, it can be said that LSP overlap with GL, as a sort of Venn diagram. LSP can also be considered completely separate from GL, or that GL does not exist at all, rather everything can be grouped within separate and distinct LSPs. Nevertheless, the most important characteristics of the LSPs are more precise and can be summarised as follows:

- There is a degree of interaction or overlap between the LSP and GL, given that in some cases, if the LSP did not include words from GL, it would just be a list of terms.
- Each LSP contains a very specific and specialised list of terms, unique to the field. Although, at is has been said before, these terms co-exist with GL words.
- LSP are learnt voluntarily, it is not a natural process, as is the learning of GL. Therefore, the group of users of a given LSP is limited to the people who have learnt said LSP.

Considering to the last point, language for specific purposes is learned voluntarily, therefore there must be a way to learn it. Biber (2007: 157) discusses how "in the field of ESP - English for Specific Purpose - researchers seek to understand the linguistic characteristics of specialised registers in English" and that they do so in order to "help students produce these registers".

That is also one of the main purposes of this dissertation, not only to analyse the selected texts, but to provide a detailed description of them in order to facilitate the creation of more of this specific text genre. Mainly, because as Biber states "few [researchers] have used a corpus-based approach using large, principled collection of texts and combining quantitative and computational techniques with qualitative interpretations" (2007: 157). These characteristics, from the abundance of terms to the

reduced number of speakers, can be applied to the language of medicine as an LSP. It can also be said that any text produced within this field is a specialised text.

One of the most noteworthy features, when considering medicine as a LSP is that the number of people who communicate using this language or have to use it is quite large. The speakers in this field are not only experts, but also non-experts. Such is the case with patient information leaflets, the receiver of this specific text or message is as the name says a patient. This relationship will be expanded upon in subsection 2.1.3.

2.1.2. Language of Medicine and the Genres of Medical Texts

Before describing medical texts as a genre within itself, the definition of a genre itself must be made clear beforehand. Strauss (2014) gives a brief definition of genre before going into depth and segmenting the word into the aspects which make up this term. The definition provided on the term genre is the following:

> "genre as a metaphorical frame of discourse that is both shaped and constrained by socio-cultural conventions of practice, and reshaped and recreated through discourse and social practice. They exhibit culturally recognisable discursive patterns for the conveyance of essential propositional content to some form of audience or hearer within a particular context, with a view to accomplish a particular communicative purpose" (Strauss, 2014: 52).

Therefore we may look at the different aspects that are closely related to this term: *modality* and *register*.

Modality or mode, in this case, "refers to the medium in which discourse is produced" (Strauss, 2014: 50), rather than to verbal modality which will be discussed later. This medium can be, and is normally characterised by, "3 basic modes of communicating": written, oral or spoken, and e-discourse (electronic discourse). Modality affects the way in which the text is constructed; it is different if talking face to face rather than by email or text. The genre of a text and the modality of a text are closely related, given that the modality of a given text greatly determines the characteristic of said text. Another factor that affects genres is that of register, which "refers to the range of multiple possibilities concerning lexical and grammatical choice within genre" (Strauss, 2014: 50-52). This is to say the multiple ways in which a given statement may be presented.

Register can be defined as the different variations that exist of a language, general or specialised, which are appropriate to specific situations of use. In other words, a fact about the economy for example can be expressed in different ways, depending if it is said in a conference at university, a meeting room in a bank, or in a bar. These variations can be either grammatical or lexical, ranging from the use of the passive voice to the use of compound nouns, both of which are common in medical texts. Mode and register can be analysed separately, or together, considering mode as an aspect of register. Regardless, the analysis is the same, whether taken as two independent or dependant concepts.

The problem we face when defining the genres of medical texts is the following: as Isabel Garcia Izquierdo states regarding the idea of genre:

> "el género es una categoría aplicable a cualquier ámbito de comunicación, puesto que es un producto colectivo, resultado de cada circunstancia concreta de comunicación y, por tanto, cualquier forma de texto convencionalizada y determinada culturalmente, independientemente del ámbito[1] " (Izquierdo, 2009: 22)

This means that although textual genres can be applied to any communicative field, they can also be applied to different languages, but as Sebastián Mercado López (2004) states, "aunque se trate del mismo género, estas características suelen variar de una lengua a otra y de una cultura a otra[2]" (López, 2004: 5). Therefore we cannot extract the characteristics of patient information leaflets from Izquierdo's book or from Spanish texts for that matter, given that these characteristics are specific to the genre in Spanish and these may not be applicable in English. Taking all of this into account, medical texts can be defined according to two different general aspects: the specialised language used and the register (field, mode and tenor). The last varies greatly and cannot therefore be generalized, it has however been considered in the next section regarding PILs specifically.

Firstly, if we consider the LSP used in medical texts, we can classify it according to different characteristics. If we consider the subject field they cover, they would all be

[1] I have provided a translation into English: "Gender is a category applicable to any field of communication, since it is a collective product, it is the result of each concrete circumstance of communication and, therefore, any conventionalised and/or culturally determined form of text, regardless of the scope"

[2] I have provided a translation into English: "Although it is the same genre, these characteristics tend to vary from one language to another and from one culture to another."

placed within that of medicine, which according to the UDC (Universal Decimal Classification) would fall under number 61. Within this classification there are many other more specific ones, which have been consulted in order to classify PILs, as seen in the next section. Another aspect to bear in mind is the external criteria: participants, function and setting. These characteristics vary greatly, and cannot be generalised among all medical texts, for the exception of the function, which for the most part is informative and, in some cases, such as with PILs, instructive.

Regarding register, three aspects can be taken into account: field, medicine; mode, varies greatly; and tenor, which depends on the setting. Each one of these aspects varies within each genre of medical texts. In this dissertation the focus is PILs, the classification of which has been described in the following section.

2.1.3. Characteristics of Patient Information Leaflets (PILs)

As seen in the previous section, genres are characterised by a series of aspects they have in common and share between texts. The clearest example of this is the distinction made in literature between the different genres: theatre, poetry and epics. These at the same time can be divided into sub-genres. Therefore, in order to establish the genres of medical texts, such as patient status forms and patient information leaflets, the basic characteristics which mark these texts must be described.

Patient information leaflets maintain the same characteristics as the genre of medical texts, that is to say: the language is specialised and is within UDC number 64. Their main function is informative, although in PILs their main function is also instructive. Given that it is a specific text type, the register is specific to said type. Regarding the mode, it is written, and is written for a specific audience. Its main audience if non-expert patients who do not necessarily know the specific terminology used within the field of medicine, nor are they necessarily familiar with the jargon or grammatical characteristics. Therefore, it needs to be more simple and clearer than other medical texts, such as reports or research papers.

Given that it is more specific regarding the subject matter, the genre of PILs can be classified according to the UDC under number 615.1 General and Professional Pharmacy.

2.2.Modality

The main function of modal verbs is to communicate our levels of certainty, ranging from completely uncertain or improbable to completely certainty or probability. Modality has been categorised in many different ways with varying levels of specificity. In Halliday's book modality is described as the "intermediate degrees between the positive and negative poles" (2004: 147). In other words modality are all of the possible options between two completely opposite statements, such as 'it is' and 'it is not'. He then goes on to describe the difference in modality when applied to propositions and proposals. Although this classification is correct, the distinction I will use in order to analyse and categorise the modality present in the patient information leaflets can be found, among other texts, in Machin (2012). He describes these three basic forms of modality (Machin, 2004: 187), these have been explained below:

1. Epistemic modality: this is to do with the author's judgement of the truth of any proposition, the probability of something occurring.
2. Deontic modality: this is to do with influencing people and events. Whether or not someone or something is able or allowed to perform an action.
3. Dynamic modality: this is related to possibility and ability, but it is not subjective in the manner of the first two modalities.

There is also another concept which can be associated with modality, hedging, which consists of fronting a statement with a verb indicating that the following clause is an opinion or is uncertain in the eyes of the speaker, such as "I think" or "It seems". This is unlikely to appear in the analysis however, given that with these clauses, the author is introduced into the text, something that is not of interest in patient information leaflets.

2.3.Verb Tenses and Verb Processes

Continuing with verbs, there are a few concepts that must be made clear in order to understand the results obtained. Although these concepts are mentioned briefly again in said section, it is necessary to provide information previous to this. The first is the difference between verb tenses, mainly passive voice and imperative. These will not be explained in-depth however, given that the use and purpose of these two tenses is well known.

The first, passive voice is used in general when the agent of the action is not of interest or is not known. The beneficiary or patient of the action is fronted and the verb changes, thus the following sentence will change from “the police caught the criminals” to “the criminals were caught”. As can be seen in the example, the main verb adopts the past participle form, which can be searched for using corpus software; this is explained further in detail in the section regarding methodology. The second, imperative, is simply used when giving advice or instructions, the subject is omitted and the sentence begins with the verb in its base form, i.e. “write this down”.

There are many ways in which to classify verbs, according to their transitivity, the number of objects they require, the regularity of the past tense, etc. In this analysis the type of process has been taken into account, that is the lexical information the verb contains, the meaning of the verb or the sentence as a whole. Holliday (2004:171-180) provides an in-depth description of each type is provided, rather than explaining each type in such detail a general overview of the process types has been included. Most of these can be deduced by their names, but some may prove to be more difficult to comprehend. The types of verb processes are the following:

1. Material, outer experience, referring to actions and events.
2. Behavioural, “outer manifestations of inner workings, the acting out of processes of consciousness and physiological states”
3. Mental, inner experience, a sort of response to the outer experience.
4. Verbal, used to represent speech, such as ‘tell’ or ‘say’.
5. Relational, those of identifying and classifying.
6. Existential, “phenomena of all kinds are simply recognised to be”

2.4.Support Verb Constructions

Lastly regarding verbs, a brief explanation of support verbs constructions or delexical collocations is required. Support verbs are the result of the combination of common verbs such as, ‘take’, ‘have’, ‘give’ or ‘make’ and specific nouns. An example of this is “to take a shower”, instead of “to shower”. The verbs that make up the combinations lose their meaning, sometimes completely and sometimes partially. In “take a shower”, the verb has lost its meaning, whereas in “have a drink”, the verb still maintains its meaning, partially. As a consequence “los sustantivos son los portadores

de la mayor parte de la información semántica y los que determinan la elección del verbo[3]" (Méndez, 2002: 149). Although the meaning of the verbs may be lost, the verb "establishes a link between this noun and the subject of the sentence, conveying information on tense, person and aspect" (Fontenelle, 1994: 4). Most of these support verb constructions have a synonym in the form of a specific verb. These have been provided in the results section when possible.

2.5.Corpus Analysis

The term *corpus* has now become widely known in the field of linguistics. Therefore, to begin with, a retrospective view must be taken on how corpora have been used within the field of linguistics. "According to Biber (2007: 1) linguistic analyses have emphasised structure - identifying the structural units and classes of a language (e.g., morphemes, words, phrases, grammatical clauses) and describing how smaller units can combined to form larger grammatical units (e.g., how words can be combined to form phrases, phrases can be combined to form clauses, etc.)".

Another common use of corpus linguistics was that of *quantitative analysis*, which limited itself by "simply counting the occurrence of linguistics items" (Biber, 2007: 5). This was merely statistical based and would analyse for example, how many times the verb 'consider' was used in research papers.

Apart from these two trends, which focus in smaller items within texts, contrastive analyses were carried out between different fields, genres, etc. As Biber explained, "in addition to analysing the language use patterns for a linguistic structure, studies of use can focus on the language of a text or a group of speakers/writers" (Biber, 2007: 2)

In general, it can be said that there are two main trends or modes of analysis regarding corpora: quantitative analysis, that is to say, the analysis of specific lexical items, and secondly a structure based approach, regarding the different levels of cohesion. In this dissertation, as it has been stated before, both of these perspectives have been taken into account. A quantitative analysis has been carried out with the lexical choices and a structure based analysis has been carried out through a move-

[3] I have provided a translation into English: "Nouns carry most of the semantic information and determine the accompanying verb".

based approach to the rhetorical organisation of the text, which will be discussed in the following section.

2.6.Rhetorical Organisation

When considering textual structure there are different approaches that may be taken: a microstructure approach, which concerns itself more with cohesion, and macrostructure, which can be compared to coherence. Strauss (2014) dedicates an entire chapter to cohesion and information structure, in other words, the way in which the text is presented and ordered.

The first concept we must focus on is information structure. This refers to way in which new information is given and how that information is referred to later on, when it is no longer new information; rather it is given information, something that is known. An example of this is the following:

"I bought a new car." New information

"What colour is it?" Given information

As may be seen in the example, information structure is closely related to deixis and referential expressions, but in this case the analysis goes "beyond the scope of reference and deixis where things[...] enter into discourse as nouns plus the range of potentially co-occurring determiners and pronouns" (Strauss, 2014: 138)

Looking at both new and given information, the differences between the two can be summarised in the following table, which has been adapted from Strauss's book.

New information	**Given information**
Often marked by indefinite markers: a, an, some, any, whichever and zero article. The noun is non-identifiable and non-specific.	Marked by definite determiners (i.e. this, that, the, etc.), proper nouns or pronoun (my, yours, it, etc.). The noun is specific and it is identifiable.

Table 1. Differences between new and given information.

The second key concept is *cohesion* which refers to the "way in which the primary topics [...] develop and progress into a culturally-shaped logical coalescence of discourse."(Strauss, 2014: 139). Considering this development, there are four categories of resources which allow us to create cohesive texts: reference, ellipsis and substitution, conjunction and lexical cohesion. These categories allow us to create cohesion on many different levels, from phrase to clause, from clause to sentence, and from sentence to paragraph, and ultimately to larger text. However these concepts have not been taken into account in this dissertation, given that the time and resources needed to carry out the investigation of this task is greater than that at my disposal.

In this dissertation however, the approach taken is not at the level of clauses, nor at the level of sentences. Rather, the analysis carried out in this dissertation is a move-based approach. In broad terms, this refers to how a text is divided into different segments, parts or moves, which are made up of one or more sentences with an overarching topic. As Beatriz Méndez explained:

> "A move is a text segment that performs a particular communicative function and contributes to the development of the overall message, since it conveys a particular type of information." (Méndez, 2016)

Therefore, through the analysis of the progression of information in the text, both the relationship between new and given knowledge and 'moves', a general view of the organisation of the information and the text itself can be obtained. By considering the relationship between new and given information an analysis within each move can be carried out in order to obtain whether there are sub-segments within each 'move'.

3. Methodology

3.1.Corpus Design

The first thing that was decided was the type of medical texts to analyse. PILs were chosen because they are one of the most common and also closest to ordinary consumer. At first, both Spanish and English PILs were considered in order to carry out a contrastive analysis regarding both structure and grammars in both languages. This proved too cumbersome, but it could be done in the future. This dissertation and the corpus used could be analysed later on in Spanish given that most if not all of the drugs

that comprise the corpus are available in Spain and therefore must have an equivalent PIL in Spanish.

I have used the section on methodology by Biber (2007) in order to describe and specify the corpus I have created for the analyses carried out in this dissertation. The first key aspect mentioned in the book regarding corpus design is "the range of linguistic variation that exists in a language, not the proportions of variation" (247:2007). Although this proves necessary in some studies, it is not necessary, in so far as concerning this dissertation, given that the corpus has been created to analyse a specific text type. The specificity of the text helps with the categorisation of the corpus, which has been made clear by using the categorisation system mentioned by Biber (2007).

Two of the most well-known first generation corpora are the American English Brown Corpus and its counterpart the British English Lancaster-Oslo/Bergen (LOB) Corpus. The categorisation system used in the latter has been employed in this dissertation due to its degree of specificity. The categorisation system is found within *Manual of Information to Accompany the Lancaster-Oslo/Bergen Corpus of British English, For Use With Digital Computers* by Stig Johansson in collaboration with Geoffrey N. Leech and Helen Goodluck. The table below has been extracted and reduced from said text.

Category	Text type/genre
A	Press: Reportage
B	Press: Editorial
C	Press: Reviews
D	Religion
E	Skills, trades and hobbies
F	Popular lore
G	Belles lettres, biography, essays

H	Miscellaneous (documents, reports, etc.)
J	Learned and scientific writings
K	General fiction
L	Mystery and detective fiction
M	Science fiction
N	Adventure ad western fiction
P	Romance and love story
R	Humour

Table 2. LOB Corpus categories AL FINAL DE LA TABLA

Each category in the table above is also divided into subcategories, but these have not been included given there are many of them and they are not of interest in this dissertation, although it may prove useful for future researchers or corpus compilers. Having checked the table and the manual provided, the corpus I have created would be of the category J, subsection J13-17 Medicine. This categorisation has been used in the filename of the excel sheet created in order to track the different texts. Thus, the name of the Corpus is "PILCorpus J13-17".

Having specified the topic, variety and category of the corpus, the next key factor in design is the size and the number of texts. These two factors, as it is stated by Biber (2007), are subject to some discussions and both are closely related:

> "Issues of size also relate to the number of texts from different categories, the number of samples from each text, and the number of words in each sample" (2007: 249)

In other words, this means that the number of words, the number of texts and the relationship between these two can vary greatly from study to study. In the case of this dissertation, the total number of texts, 25, was considered sufficient given that if neither the rhetorical organisation nor conclusions regarding lexical items could be ascertained, the corpus could be expanded upon. On the other hand, the number of words was not as relevant and is merely a result of the number of texts. This is due to the fact that,

although there is a quantitative analysis in the section regarding verbs and modality, an extremely large sample is not needed given the similarity between the texts. In order to carry out said quantitative analysis, the corpus was tagged using software described in section 3.4. This is because the main purpose or use of an untagged corpus is "searching for a particular word or sequence of words." (Biber, 2007: 257). A coded or tagged corpus on the other hand allows us to look for specific grammatical categories or part of speech, such as passive voice, modals verbs, etc. Having taken all of this into account, the corpus created for the purpose of analysis in this dissertation can be described as follows:

Category	**Text Type**	**Language**	**Nº Texts**	**Nº Words**
J13-17 Medicine	Patient Information Leaflets	English	25	29,582

Table 3. Corpus Classification

3.2.Corpus Compilation

Having described the characteristics of the corpus, it is necessary to describe how thee texts included were created and catalogued. At first, as it has been stated in the introduction, the analysis was going to be contrastive between Spanish and English, but this proved too large a task. Therefore, the corpus compiled is monolingual, English. The texts were extracted from an online provider of PILs; the text was copied into a notepad and saved as a text file with UTF-8 encoding. The encoding has been specified given that it is necessary for it to work adequately with most corpus software, both tagging and concordance programs. Great care was taken when copying the texts across as to not accidentally include images, advertisements or other elements that are of no interest in the analysis.

All files were named according to two main factors, the name of the specific medicine and the generic medicine. This can be seen in the table below, which is a reduced copy of the corpus 0 excel file used in order to keep track of the texts, both name, number and word count.

Nº	File Name	Medicine	Generic	Nº of Words
1	01NaprosynNaproxenPILEn	Naprosyn	Naproxen	1,431
2	02AugCoamoxilPILEn	Augmentin	Co-amoxiclav	1,309
3	03LosecOmeprPILEn	Losec	Omeprazole	1,418
4	04SolarDicloPILEn	Solaraze	Diclofenac	1,405
5	05CardiBosprPILEn	Cardicor	Bosprolol	1,310
6	06MonotTrimePILEn	Monotrim	Trimethoprim	1,157
7	07MacroNitroPILEn	Macrobid	Nitrofurantoin	1,227
8	08ZidovMetroPILEn	Zidoval	Metronidazole	1,048
9	09OptilAzelaPILEn	Optilast	Azelastine	1,079
10	10TiladNedocPILEn	Tilade	Nedocromil	1,104
11	11LlaxtBilasPILEn	Llaxten	Bilastine	974
12	12PeriaCyproPILEn	Periactin	Cyproheptadine	960
13	13EklirAclidPILEn	Eklira	Aclidinnium	1,254
14	14BambBambPILEn	Bambec	Bambuterol	1,078
15	15MucodCarboPILEn	Mucodyne	Carbocisteine	1,009
16	16FixotFlutiPILEn	Fixotide	Fluticasone	1,336
17	17AccolZafirPILEn	Accolate	Zafirlukast	1,141

18	18NatriIndapPILEn	Natrilix	Indapamide	1,223
19	19SectrAcebuPILEn	Sectral	Acebutolol	1,249
20	20PletaCilosPILEn	Pletal	Cilostazol	1,073
21	21LixiaEdoxaPILEn	Lixiana	Edoxaban	1,072
22	22ClomiClomiPILEn	Clomid	Clomifene	1,026
23	23SynarNafarPILEn	Synarel	Nafarelin	1,460
24	24ColazBalsaPILEn	Colazide	Balsalazide	1,074
25	25OcufeFlubiPILEn	Ocufen	Flubiprofen	1,165

Table 4. Reduced version of the PILcorpusJ13-17

Taking the last row from the table above as an example '25OcufeFlubiPILEn', the naming system can be described as follows:

- 25 - The first two digits in the file name or ID designate the file number
- Ocufe - The next five digits are a shortened name of the specific medicine
- Flubi - The next five are shortened name of the generic medicine
- PIL - The next three are the same in all text designating the text type, patient information leaflet.
- En - The last two digits indicate the language, English. Although it is not necessary in this dissertation, it was used given that the corpus could be further expanded upon with a Spanish counterpart in order to carry out a contrastive analysis in the future.

3.3.Rhetorical Organisation

The rhetorical analysis has been carried out manually, given that the use of programs proved for the most part inconclusive regarding the search for structural patterns.

Programs were used, however, when checking to see if a particular header appeared in all texts, such as “how to store […]”.

A total of ten texts were chosen at random from the corpus, in order to carry out a thorough and more in-depth analysis. Although one text could have been analysed and then the results extrapolated to the other texts, I considered it more precise to select a few and carry out an analysis of these texts individually and then compare then, in order to avoid overgeneralisation. That is to say, I may have attempted unconsciously to adapt the move structure found in one text to the others.

The general move scheme shared by these ten texts was then extracted and checked with the other texts in order to determine whether there were any anomalies or parts missing in other patient information leaflets.

3.4.Verb Types, Tenses, Modals and Pronouns

In order to generate a list of all of the verbs found within the corpus, the first step that had to be taken was to tag the text. That is to say, mark the words within the text according to their grammatical category, not only verb, noun and so on, but also whether the verb is a gerund, passive, etc. Therefore, I could not only analyse the type of verbs, but also the tenses.

The first step was to combine all of the txt files into one, in order to extract all of the verbs. This is better than doing the analysis individually, because of two reasons: one, the quantity will be greater, and two, the general results can then be cross-examined with the individual results of each text.

The free online tagging software provided by *Free CLAWS WWW tagger* of the University of Lancaster was used in order to tag the combined text. The output was then input into AntConc in order to be analysed. The tagging software used also provides information regarding the tagging system used, detailing the relationship between the letter and the part of speech it represents. All of the verbs had been tagged with the letter *V* followed by a combination of another two letters marking the specific type of verb as can be seen in the table below.

VBB	the "base forms" of the verb "BE" (except the infinitive), i.e. AM, ARE
VBD	past form of the verb "BE", i.e. WAS, WERE
VBG	-ing form of the verb "BE", i.e. BEING
VBI	infinitive of the verb "BE"
VBN	past participle of the verb "BE", i.e. BEEN
VBZ	-s form of the verb "BE", i.e. IS, 'S
VDB	base form of the verb "DO" (except the infinitive), i.e.
VDD	past form of the verb "DO", i.e. DID
VDG	-ing form of the verb "DO", i.e. DOING
VDI	infinitive of the verb "DO"
VDN	past participle of the verb "DO", i.e. DONE
VDZ	-s form of the verb "DO", i.e. DOES
VHB	base form of the verb "HAVE" (except the infinitive), i.e. HAVE
VHD	past tense form of the verb "HAVE", i.e. HAD, 'D
VHG	-ing form of the verb "HAVE", i.e. HAVING
VHI	infinitive of the verb "HAVE"
VHN	past participle of the verb "HAVE", i.e. HAD
VHZ	-s form of the verb "HAVE", i.e. HAS, 'S

VM0	modal auxiliary verb (e.g. CAN, COULD, WILL, 'LL)
VVB	base form of lexical verb (except the infinitive)(e.g. TAKE, LIVE)
VVD	past tense form of lexical verb (e.g. TOOK, LIVED)
VVG	-ing form of lexical verb (e.g. TAKING, LIVING)
VVI	infinitive of lexical verb
VVN	past participle form of lex. verb (e.g. TAKEN, LIVED)
VVZ	-s form of lexical verb (e.g. TAKES, LIVES)

Table 5. Tagging system designations

A combination of various codes was used in order to obtain the frequency of all of the verbs present in the text. The codes used were the following: 'VB*', 'VD*', 'VH*', 'VV*', and 'VM*'. An example of the AntConc result screen can be seen below:

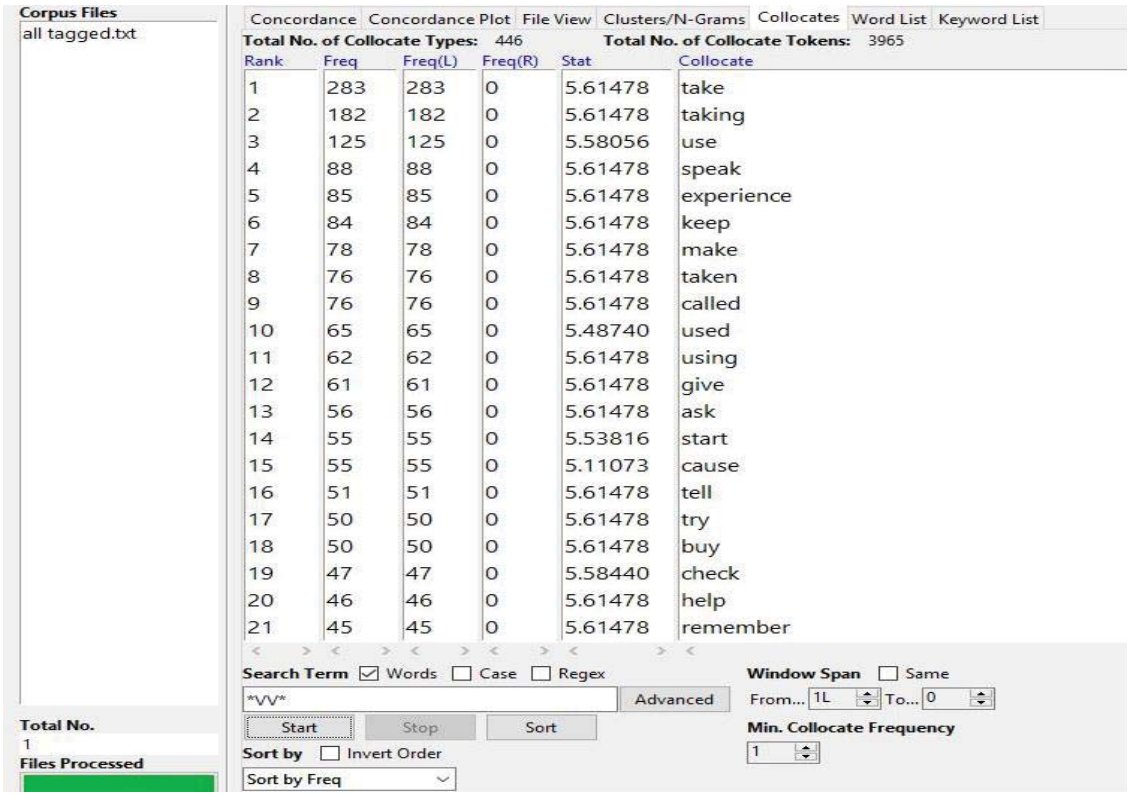


*Image 1. AntConc results *VV**

As it can be seen in the image, in order to obtain a list of the most frequent verbs and the number of occurrences, the collocates section of the program was used. This was because when searching for the code '*VV*', the program would find it in the text as such: "take_VVB" in order to obtain information regarding the verb it tagged, the collocates section was used and set to '1L', which means that it would only select one word to the left of the search term. Therefore, it would show the verb 'take' as in the previous example. This can be seen in the previous image.

The list of verbs obtained in the previous search, part of which can be seen in the previous image, was then added to an excel file in order to obtain a base list of verbs, upon which others may be added when necessary. From this list, all verbs with a total frequency lower than 12 have not been analysed. The reasoning behind this is that if a word occurs 12 times that means that it is certain to have an occurrence less than half of the texts of the corpus. It is clear that there may be cases when one verb is used 15 times and all occurrence of this verb are in one text, but this is not very likely.

A search was then conducted with each individual verb type, those that have been mentioned before in the tagging section: VVB base verb, VVD past tense, and so on. This can be seen in the image below in which a search for the past tense had been carried out. The values were then added to the base list. This was done with each verb tense, including the infinitive. The final list can be seen in the results section.

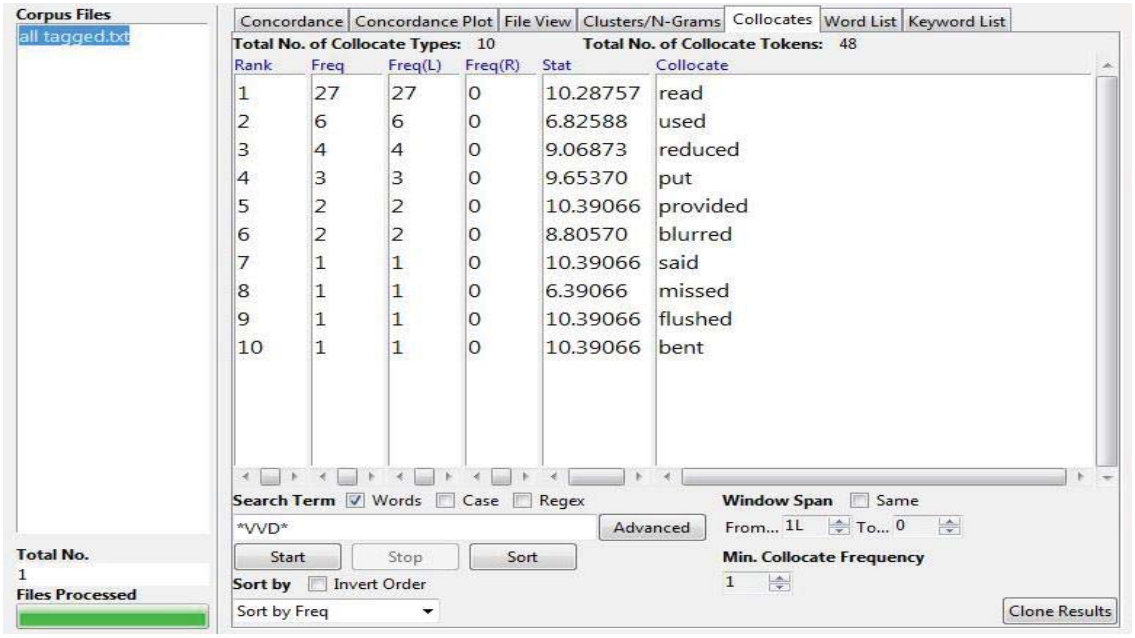


*Image 2. AntConc results *VVD**

In order to obtain a list of the modals verbs present within the text, the same method was used. An individual search was conducted using the code '*VM0*' and was checked for errors. This entailed searching for the modal verbs individually, such as 'can', 'will', 'must', etc. Then, contrasting the information with the previous results to determine the validity of said results. The search for pronouns was also carried out in a similar way, in this case the code *PNP* was used given that it tagged all personal pronouns. A collocation list was created similar to the verbs in order to obtain a list of the different pronouns, not just the total number of pronouns, but a list of the type and token.

4. Results

4.1.Rhetorical organisation

Having carried out the move-based analysis of the texts, the following table was created taking into account both 'moves' and 'submoves'. The first column describes the name of the move, the second column provides information regarding the contents and the third column is an example. One text[4] was used as an example given that it is easier to see, rather than using different texts, although it could be done, given that all of the texts possess the same move structure.

Movement	Description	Example
1-Introduction	The name of the medicine is introduced to patient and is provided with the following information: What it is What it is similar to Dose Allergy Side effects	Naproxen is a medicine called a non-steroidal anti-inflammatory drug. It is also known as 'an NSAID'. Before you take naproxen, let your doctor know if you have ever had a bad reaction to any other anti-inflammatory painkiller.

[4] The file used in the table is '01NaprosynPILEn.txt'.

		Make sure you take naproxen as directed on the label of the pack. Your dose will depend upon your condition and the brand of tablet prescribed
2-About	General information regarding the medicine:	About naproxen
2.1-Type of medicine	Indicating the category of medicine	Type of medicine Non-steroidal anti-inflammatory drug (NSAID)
2.2-Used for	Indicates the use	Used for Relief of pain and inflammation
2.3-Also called	Provides other names by which it may be known	Also called Naprosyn®
2.4-Combination brands	Information about other medicine which contain it as an active component	Combination brands are: Napratec® OP (naproxen in combination with misoprostol); Vimovo® (naproxen in combination with esomeprazole)
2.5-Available as	Describes the formats in which it appears	Available as Tablets
3-General Information	Provides a general overview of the function of the medicine	

3.1-What	Describes the use of the medicine in more detail	Naproxen is used to treat painful conditions such as arthritis, sprains and strains, backache, period (menstrual) pain, and gout pain.
3.2-How	Describes how the medicine works or takes effect	Naproxen works by blocking the effect of chemicals in your body, called cyclo-oxygenase (COX) enzymes. […]
3.3-Availability	States whether it is commercially available or must be prescribed	Naproxen is available on prescription. Short courses of tablets for the treatment of period pain are also available to buy at pharmacies.
4-Before Taking	Provides advice regarding pre-existing medical conditions and the medicine	Before taking naproxen
4.1-General Warning	General warning which is almost identical between all texts. The last line is the first half of a conditional sentence.	Some medicines are not suitable for people with certain conditions, and sometimes a medicine may only be used if extra care is taken. For these reasons, before you start taking naproxen, it is important that

		your doctor or pharmacist knows:
4.2-List	List of pre-existing conditions that may pose a risk when taking the drug. Each line start with “If you” given that it is the second part of the conditional from the previous paragraph.	If you have asthma or any other allergic disorder. If you have ever had a stomach or duodenal ulcer, or if you have an inflammatory bowel disorder such as Crohn's disease or ulcerative colitis. […] If you have ever had an allergic reaction to any other NSAID (such as aspirin, indometacin, diclofenac, and ibuprofen), or to any other medicine.
5-How to Take	Provides information regarding the dosage and the way in which to take the drug.	How to take naproxen
5.1-Consult specific leaflet	Given that these patient information leaflets describe the medicine in general terms without taking into account neither the dosage nor format, the first instruction is to consult the specific leaflet.	Before you start taking naproxen, read the manufacturer's printed information leaflet from inside the pack. […] The manufacturer's leaflet will give you more information about your tablets, and provide a full list of side-effects which you may

		experience from taking them.
5.2-Doses	Different cases in which the medicine may be taken are described and the dosage for each condition is specified.	Make sure you take the tablets exactly as your doctor or pharmacist tells you to. If you are taking naproxen for a long-term condition (such as arthritis), it is usual for adults to be prescribed 500 mg-1 g daily, to be taken as either a single dose, or divided into two doses during the day. Doses for children depend upon the age of the child. […]
5.2.1 – Warning regarding missed dose.	This is common to all texts and varies only slightly.	If you forget to take a dose, take it as soon as you remember unless it is nearly time for your next dose, in which case leave out the missed dose. Do not take two doses together to make up for a missed dose.
6 - Getting the most from your treatment	This is not common to all texts, but it is fairly frequent. Information and recommendations provided by ones doctor regarding the prescription and treatment. Recommends regular contact with doctor if the treatment is	Your doctor will try to prescribe you the lowest dose for the shortest time in order to reduce the risk of side-effects. […] Try to keep any regular appointments with your doctor. This is so your doctor

	long term.	can check on your progress, and is especially important if you are taking naproxen for a long-term condition.
6.1 – Possible hindrances to treatment	This is common to all texts and provides a series of possible situations and what to do in order to continue treatment.	If you have asthma, symptoms such as wheeze or breathlessness can be made worse by anti-inflammatories such as naproxen. If this happens to you, you should stop taking the tablets and see your doctor as soon as possible. […]
7-Possibility of Problems	This paragraph is almost identical among all texts. The only difference is the name of the medicine in question. In this case, "Naproxen".	Can naproxen cause problems? Along with their useful effects, most medicines can cause unwanted side-effects although not everyone experiences them. The table below contains some of the most common ones associated with naproxen. You will find a full list in the manufacturer's information leaflet supplied with your medicine. The unwanted effects often improve as your body adjusts to the new medicine, but speak with your

		doctor or pharmacist if any of the following continue or become troublesome.
8-Side-effects	Describes the possible side-effects from taking the medicine.	Naproxen side-effects What can I do if I experience this?
8.1-Common Side-effects	A list of the possible side-effects alongside solutions in case the patient suffers any of them.	Indigestion, heartburn, stomach pain If the discomfort continues, speak with your doctor Feeling or being sick Stick to simple meals - avoid rich or spicy foods Diarrhoea or constipation Drink plenty of water
8.2-Serious side-effects	Side-effects serious enough as to warrant a consultation from your doctor. Written in a way similar to the warnings in section 4.2. The conditional sentence is separated by a colon, given that there is more than one “If”.	Important: if you experience any of the following less common but more serious symptoms, stop taking naproxen and contact your doctor for advice straightaway:
8.2.1-List	Second half of the conditional sentence, introduced by “If”.	If you have any breathing difficulties such as wheeze or breathlessness. If you have any signs of an allergic reaction such as

		swelling around your mouth or face, or a severe itchy skin rash. If you pass blood or black stools, vomit blood, or have severe abdominal pains. If you experience any other symptoms which you think may be due to this medicine, speak with your doctor or pharmacist for further advice.
9-Storage	Provides information regarding how to store the medicine	How to store naproxen Keep all medicines out of the reach and sight of children. Store in a cool, dry place, away from direct heat and light.
10-Conclusion Advice	This is always the same and is found at the bottom of the text, separate from the rest of the text. This is because it is generic and does not apply specifically to the medicine in question, but to all medicines.	Important information about all medicines Never take more than the prescribed dose. If you suspect that you or someone else might have taken an overdose of this medicine, go to the accident and emergency department of your local hospital. Take the container with you, even if it is empty.

		This medicine is for you. Never give it to other people even if their condition appears to be the same as yours. Do not keep out-of-date or unwanted medicines. Take them to your local pharmacy which will dispose of them for you. If you have any questions about this medicine ask your pharmacist.

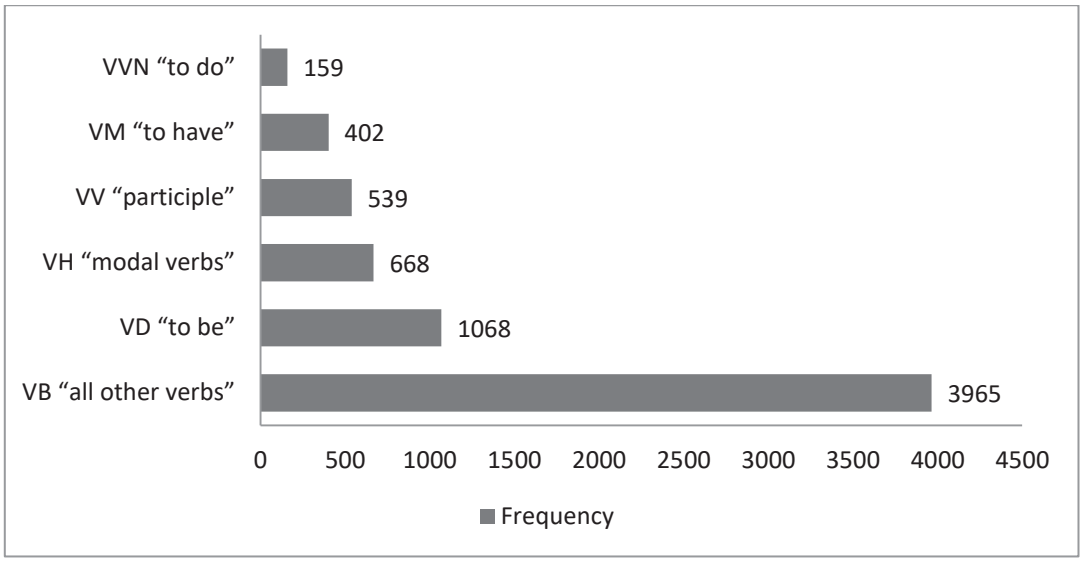
Table 6. Move-based structure

4.2.Lexical Choices

The following section has been divided into two main parts: the first is related to verbs, and the second is related to pronouns. The former is more extensive given that different aspects have been analysed.

4.2.1. Verbs

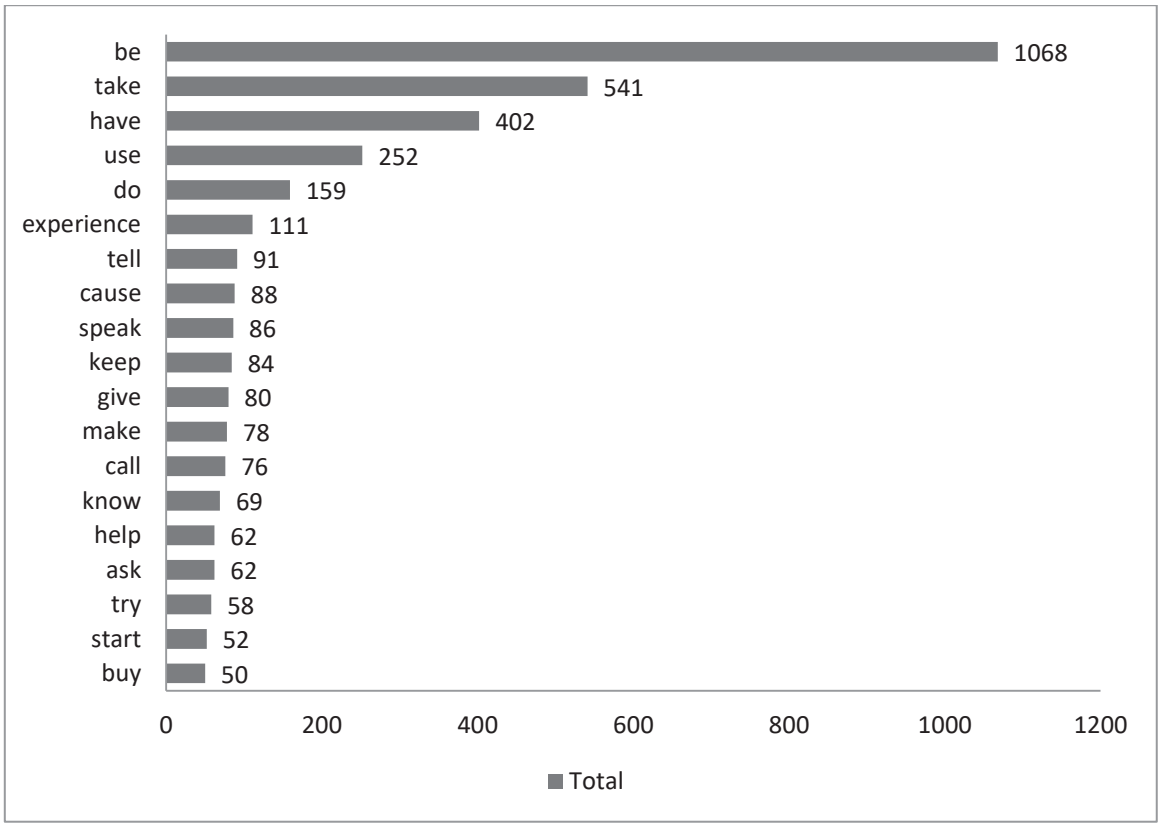
The table below contains data regarding the frequency of verbs in general. It is divided according to the tagging system used. It was compiled by carrying out a search in AntConc with each code. This table has been created in order to provide a general overview of the distribution of verbs throughout the texts. As was expected the most frequent verb, apart from the amalgamation of all other verbs 'VV', is the verb 'to be'. This has been analysed more in-depth in the following section.



Graph 1. Overview of verb frequency

4.2.1.1.Types

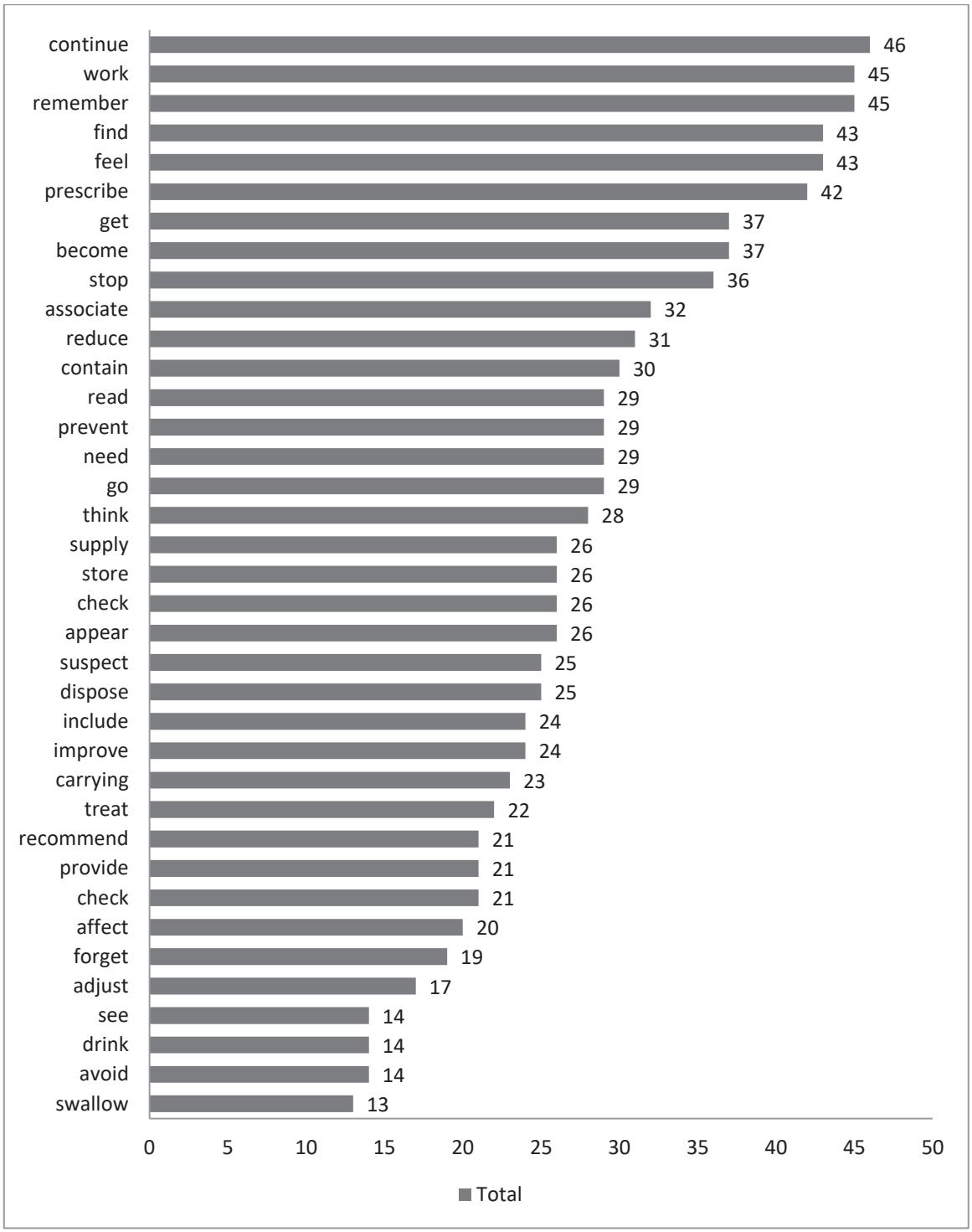
Having carried out a search for all of the verbs and the frequency of each of them, the tables below were created. The data has been divided into two given that there are many verbs and there is little difference between frequencies when it is lower than 50. The most noticeable difference in frequency can be seen in the first table/graph below:



Graph 2. Verbs with frequency >50

As it can be seen in the table, the most frequent verbs are ‘be’, ‘take’, ‘have’, ‘use’ and ‘do’, in that order. This is normal given that three of these verbs are the most used in English, be, have and do. The high frequency of these can be due to many factors given that these verbs are also used in verbal constructions, such as ‘have’ in the present perfect, ‘do’ as dummy do, and ‘be’ in the construction of the gerund.

Therefore, if we discard these regular verbs as a general characteristic of English, we can see that the most frequent verbs would be the following: ‘take’, ‘use’, ‘experience’ and so on. The importance of which will be expanded upon in the conclusion section.



Graph 3. Verbs with frequency <50

There is little difference between the verbs and their frequency, there is a steady decline in rate but this is normal when generating any type of word list. The most important aspect to take into account now is not only the frequency of the verbs themselves but the type of verb, or the type of verb process. Therefore, if we classify

these verbs according verb processes (Halliday, 2004), the following table can be extracted:

Verb Process	Material	Mental	Behavioural	Verbal	Relational	Existential
Nº Different Verbs	44	7	0	3	2	1
Total Frequency	2544	340	0	229	402	1068
Nº /Freq	58	49	0	76	201	1068

Table 7. Frequency of verbs classified by verb process

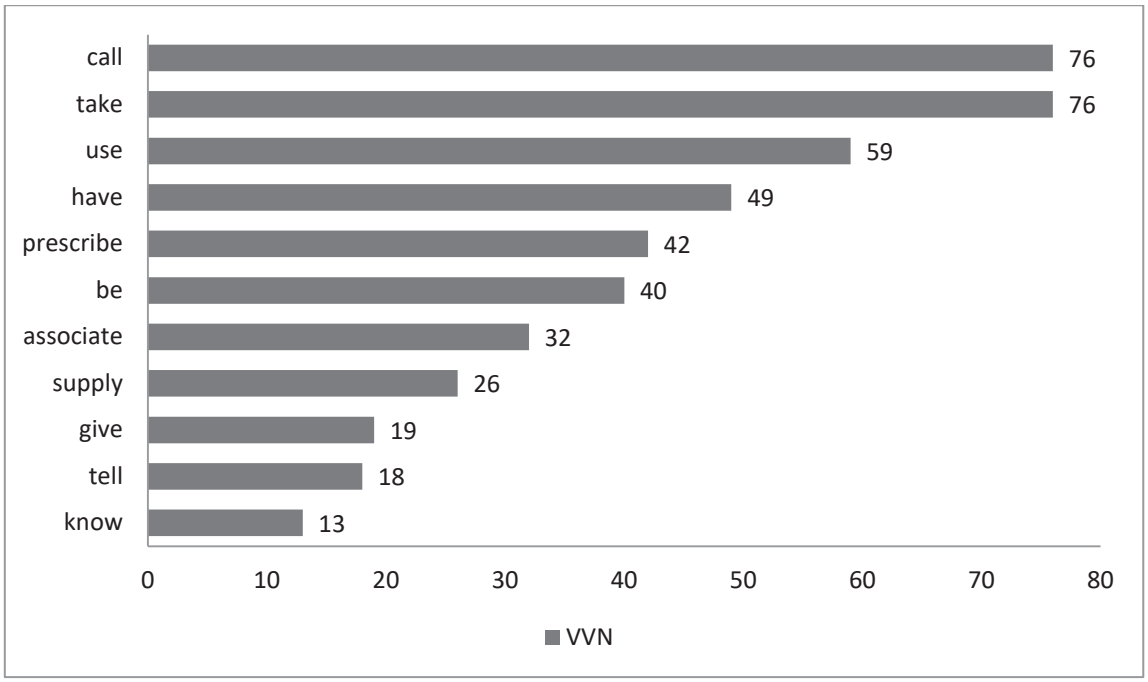
The most common verb process is material, followed by mental, verbal, relational and existential. If we discard the relational and existential categories, given that they are related to the most frequent verbs in the English language: 'have', 'do' and 'be', we can see the most frequent verb process, is verbal, given that the relationship between the number of verbs and the times they appear is the highest 76.

4.2.1.2.Tense

VVB	**VVD**	**VVG**	**VVI**	**VVN**	**VVZ**
1766	45	409	1101	490	690

Table 8. Frequency of verb tenses

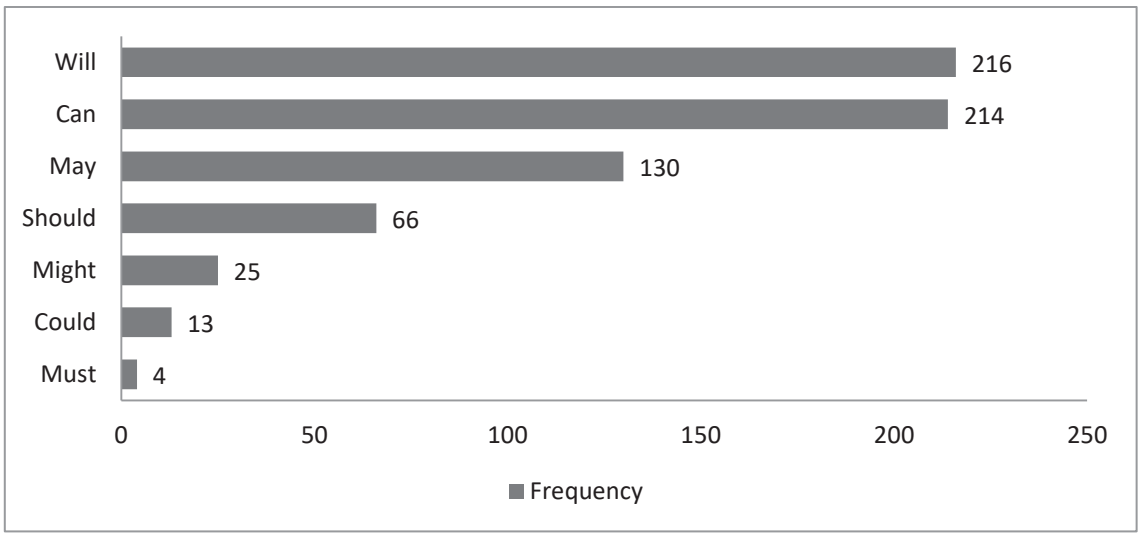
Considering the category VVN, past participle form of lexical verb, the following table was created with the most frequent verbs. For the most part, the past participle was found within passive voice constructions, although there were some instances where the past participle was used in the present perfect simple, i.e. "someone else might have taken."



Graph 4. Frequency of past participles.

The two most frequent verbs are related to the most important aspects within a PIL, the drug itself and the patient. On the one hand, the verb 'called' is used in combination with the drug, such as "Naproxen is a medicine called a non-steroidal anti-inflammatory drug". On the other hand, the verb 'take' is used in combination with the patient i.e. "you may have taken".

4.2.1.3.Modals



Graph 5. Frequency of modals verbs

Taking into account the information extracted from the table above, it is clear that the modal verbs used within the text are for the most part epistemic, which deal with

certainty. Given that the texts main function is informative and instructive, there can be little to no doubt present in the text. The reason behind this is simple; the author of the text does not want to give the reader any sense of uncertainty, since this may negatively impact how the patient takes the medicine or avoids it entirely.

The most common modal verb '*will'* can be grouped together with 'may', 'might' and 'could' given that they all express epistemic modality, related to the probability of something occurring. In this case, the most frequent by far is 'will'. In order to avoid evoking a sense of uncertainty, the modal verb which invokes the highest degree of certainty is used. Examples such as the ones below can be found in the PILs:

> "The manufacturer's leaflet ***will*** give you more information"
>
> "You ***will*** find a list of all of the…"

Both '*should'* and '*can*' have two main functions, both epistemic and deontic. They express both possibility and ability respectively.

Epistemic	*Deontic*
"food ***can*** help to prevent side-effects"	"You ***can*** take your does before…"
"If this ***should*** happen"	"You ***should*** not take these tablets"

The difference between these two is that '*should'* is more frequently used as deontic, whereas '*can'* is more used as epistemic. The modal verb '*must'* is used when the advice given is of the utmost importance, such as "You must use it regularly", but due to its low frequency of 4, and only appearing in 4 different texts, it can be said that it is not used within PILs.

4.2.1.4.Support verbs

Regarding support verbs, the results have not been as conclusive as expected. The only support verbs or delexically verbs found within the text are the following:

take by mouth

make the drowsiness *worse*

have a tendency

give a positive reaction

take care not to touch your eyes

The lack of support verbs may be due to two factors. The first is that given that it is a medical text, these might have been avoided in favour of the specific verb. The second possible explanation is that support verbs are more common within oral speech, given that for the most part they are regarded as being more informal, except in some cases such as, 'make a diagnosis'.

4.2.2. Pronouns

Pronoun	You	It	Them	I	They	Yours
Frequency	1219	341	94	60	43	25

Table 9. Frequency of personal pronouns

The frequency of the pronoun 'I' may seem surprising but this is due to the rhetorical question posed within one of the moves of the PIL titled 'What can *I* do if *I* experience this?' All instances of 'I' are due to this question. Therefore, it can be said that the author or writer of the text is not present. Although the author is not present, the reader is. The pronoun 'You' is the most frequent by far. This is mainly due to move 4.2. and move 8.2.1 which detail pre-existing medical conditions and side effects, respectively. Both 'moves' adopt the same structure, "if you…" This is because the lists are introduced by the first part of a sentence or specifically a conditional, i.e. "it is important that your doctor or pharmacist knows:" or "contact your doctor for advice straightaway:"

It is also worth noting that although there is a high frequency of the pronoun "It", most of these cases are instances of expletives, rather than referential pronouns. "It" is not used as a pronoun which substitutes a noun, rather it fills the empty space left when the subject is non-existent, fulfilling the syntactic requirement that every sentence has a subject. This is clear when talking about the weather, such as, "it is raining". In the text, the following examples can be found:

It is important to…

It is usual for adults…

It helps to take…

Although “It” is also used as a referential pronoun, this is less common, as one of the main features of a PIL is its specificity. Whenever the name of the product can be used, it will be in order to avoid any possible confusion or misunderstanding. When it is used, the reference is quite clear and is normally within the same clause or sentence, as in: “take the container with you, even if *it* is empty.” or “this medicine is for you. Never give *it* to other people [...]”. The latter appears at the end of each and every PIL, in move 10- Conclusion advice.

5. Conclusions

The first conclusion to be drawn is that the way in which PILs are written is very specific and follows a set of moves. These moves are common throughout all the texts in the corpus, and may be said that these moves are common throughout PILs in general, not only the specific ones that I have analyzed. It would be interesting to compare the moves I have discovered in these PILs with those of another country or language, for example British PILs or Spanish PILs, respectively. A contrastive analysis could be carried out, regarding both the presence of said moves and their order. It may be possible that the order is different, which could lead to a comparison between what moves are given more importance, provided before the others.

The presence of this specific set of moves contributes to the fact that these PILs are written in the same way, which is, I suppose, the most efficient way to provide said information, but this is yet to be seen. There is no possible way to correlate the existence of this move pattern with the comprehensibility of said text. In other words, the PILs are organized in a specific way, but it does not mean that it is the best or most efficient. Although I could provide the order in which I believed best, this would be very personal and without any basis, purely subjective. Therefore, it would be interesting to carry out an investigation into which is the best order to convey said information.

Regarding the lexical choices made in PILs, they are as one would expect when taking into account the topic and function of these texts. As it has been said before, these texts are written within a LSP and have two main functions informative and instructive. Evidence of their instructive feature is the abundance of verbs in imperative, which is also related to two of the verbs with the highest rate of occurrence, ‘take’ and ‘use’. They are used in reference to the patient and the drug, the two main ‘participants’

in the PIL. The conclusion may be reached that the use of verbs is closely related to the intended reader of the PIL, the patient, the person who is going to 'take' or 'use' the medicine and who may 'experience' the side effects.

This importance of the patient is also evident in the use of pronouns. As it can be seen in the results section, the most used pronoun is, by far, 'you'. This abundance also contributes to the lack of other pronouns, specifically, the first person 'I' or 'we'. The author of the PIL is not important, nor is it necessary for the author to be present. The PIL is written as fact, the presence of a 'I' figure may make the information within the PIL seem subjective. The absence of 'I' is also related to the abundance of high certainty epistemic modal verbs. These two elements increase the certainty of the text, making the information contained seem, in the eyes of the patient more factual. In general, PILs could be described as a well-organized collection of objective facts and instructions, written by an unknown, albeit unimportant writer, for a patient.

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