Cancer metaphors in scientific popularization articles and their translation into Spanish

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ABSTRACT

Capitalizing on the insights from Conceptual Metaphor Theory and a growing number of studies on the role of metaphor in the health sciences, this study explores cancer metaphors in a corpus of 6 English scientific popularization articles published by the *New York Times* and *Scientific American* and their corresponding translations into Spanish. Framed within a cognitive-discursive approach, a descriptive-contrastive methodology was applied to examine metaphor patterns used to talk about cancer and immunotherapy and explore their Spanish translations. Metaphorical expressions (MEs) in the English corpus were identified, described and quantified. In line with previous studies, Violence MEs of the prototypical warfare variety were found to be recurrently used to conceptualize the cancer-patient relationship and to explain the workings of immunotherapy. Mechanicist metaphors were also recurrent to explain the functioning of the immune system and depict cancer scientists' actions. Other comparatively less recurrent patterns were also identified. The analysis went beyond the description of the linguistic form and considered the textual, discursive, rhetorical and cognitive functioning of metaphors. Their textual function proved to be of great importance for translation. MEs were observed to occur in chains and construct image-rich scenarios serving a rhetorical intensifying function and lending cohesion to the text. Special consideration was given to their cognitive functioning as the prevailing metaphorical frames reveal an antagonistic conceptualization of health and disease that may influence lay audiences' thinking and acting concerning cancer. Second, the analysis concentrated on Spanish translations. Similarities and differences as to conceptual domains and local and global effects were observed. Results indicate that MEs are at times simply dropped or substituted with non-metaphorical material. Even in cases of retention, the actual MEs chosen in Spanish are often less image-rich and less specific than the English ones. Micro level choices were examined and found to be significant for they produce different ideational and discursive effects. The overall results suggest metaphors must not be considered as an individual linguistic phenomenon as they do not occur in isolated, unconnected and sporadic form but rather in a patterned way. In order to employ MEs that bring about the same local and global effects, translators need to be aware of metaphors' essential multifunctionality and their contribution to textual connectedness.

LIST OF ABBREVIATIONS AND ACRONYMS

CMT	Conceptual Metaphor Theory
DA	Discourse Analysis
EN	English
ME	Metaphorical expression
MIP	Metaphor Identification Procedure
NF	Normalized frequency
NYT	New York Times
SA	Scientific American
SD	Source domain
SL	Source language
SP	Spanish
ST	Source text
TD	Target domain
TL	Target language
TT	Target text
TWC	Total Word Count

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Metaphors are a fundamental mechanism for human cognition. This was forcefully voiced in Lakoff and Johnson's 1980 landmark work that ignited the field of cognitive studies. Far from being a mere ornamental device in language, metaphors are a major means of human cognition. Nowadays, metaphors are largely accepted as being both a matter of thought and a matter of language. In line with the broad cognitive approach that guides this research, we conceive of metaphor as "a way of talking, and potentially thinking, about one thing as if it was something else, where a similarity can be perceived between the two entities" (Semino, 2008 as cited in Semino, Demjén, Hardie, Payne and Rayson, 2018, p. 29). Metaphors are by no means rare and exclusive to literary texts but common and all pervasive. They have been profusely studied in a wide array of genres and domains, including the media (Charteris-Black, 2004; Santa Ana, 2002), politics (Charteris-Black, 2005; Mussolf, 2016), mental health (Tay, 2017) and science (Boyd, 1993; Keller, 1995; Knudsen, 2005), among others. Likewise, metaphors have been found to play a particularly important role in science popularization texts (Calsamiglia and van Dijk, 2004; Nerlich, Elliott and Larson, 2009 and Olohan, 2016) as facilitating tools to reach non-expert audiences.

Choosing a particular referential domain over possible others to talk about highly sensitive issues, like diseases, is not without effects. The recurrent use of one particular metaphor pattern in relationship to a particular domain, for instance repeatedly using war metaphors to talk about the response to the recent COVID-19 pandemic, over other possible ones, is revealing of how we think of that domain. At the same time, this metaphorical framing helps to shape our understanding of such a topic or experience. Thus, metaphors have powerful framing and evaluative effects as "they facilitate different ways of making sense of and evaluating a particular topic or experience, by foregrounding some aspects while backgrounding others" (Semino et al., 2018, p. 281). They influence how we reason and possibly react to particular topics. Thinking of the COVID-19 pandemic in terms of a war, for example, frames the scenario as one calling for swift and possibly non-consensual action, thus justifying a government's deployment of extraordinary powers.

This work centers on the metaphors used to talk about cancer therapies in a corpus of scientific popularization articles. However, besides identifying what metaphors are used and what effects they bring about, be those textual, discursive, cognitive or sociocultural, this work examines how such metaphors are translated into Spanish. Capitalizing on the insights by researchers that have explored metaphors in science popularization, cancer metaphors and metaphor translation, this study examines the translation strategies translators tap into when faced with the problem of translating metaphors in scientific popularization texts.

1.2 Statement of the problem

This study is based on the assumption that metaphor translation poses a problem for translators and seeks to describe the various translation solutions that are used in a corpus of scientific popularization articles. Even if the metaphorical structure of our cognitive system seems to be universal, some of the specific metaphorical expressions we use as speakers of a language are culturally-bound. As Snell-Hornby (1988) observes "the essential problem posed by metaphor in translation is that different cultures, hence different languages, conceptualize and create symbols in varying ways, and therefore the sense of the metaphor is frequently culture-specific" (p. 56). The cultural imbrication of some metaphors, together with the specific functions they are put to serve in popularization texts, presents a challenge for translators who not only often fail to recognize and understand metaphors in the source language but also find it hard to transfer them into the target language. Alternatively, translators either ignore metaphors or work on the assumption that they are non-problematic and can be simply imported into the target language, neglecting the associated local and global effects.

Framed within a cognitive-discursive approach, this study follows a descriptive-contrastive methodology to achieve a two-fold objective a) to examine the metaphor patterns used to talk about cancer in a corpus of English semi-popularization articles and b) to explore what translators actually do, i.e., what translation solutions they offer, when they come across cancer metaphors in these texts and have to translate them into Spanish.

1.3 Rationale for the study

In the face of a growing interest in cancer metaphors (Semino et. al., 2015 and 2018; Williams Camus, 2009), and a relatively large number of studies that focus on metaphor in scientific popularization (Ciapuscio, 2005; Myers, 2003; Williams Camus,

2014, among others) and metaphor translation (Boquera Matarredona, 2000; Dobrzyńska, 1995; Shuttleworth, 2011, 2014a, 2014b and 2017, among others), to date there seems to be no systematic research addressing the translation from English into Spanish of cancer metaphors in scientific popularization texts. If studies examining cancer metaphors in the particular genre under study are scarce, studies on its translation are almost non-existent. Shuttleworth (2017) is the only exception. He examined a large corpus of metaphors from *Scientific American* articles together with their translations into five European languages. However, Spanish was not included. This work attempts to bridge that gap by centering on the translation into Spanish of metaphors used to talk about cancer therapies in scientific popularization articles. Adhering to the idea that linguistic description can help translation at preliminary stage (Prandi, 2007), this study intends to make a contribution to the study of metaphor by offering a thorough and detailed analysis doubly informed by a discursive and a cognitive approach.

In addition to examining what translation procedures are employed with cancer metaphors, this research focuses on the effects or consequences such procedures bring about on the textual, discursive, cognitive and sociocultural/contextual dimensions. The detailed analysis of source language metaphor patterns together with a focus on the effects brought about by translators' solutions is a major differentiator that sets this study apart from most studies on metaphor translation that stop at the classification of translation strategies. We explore how metaphors may guide and condition particular interpretations, influence the layperson's perceptions of cancer and at the same time catch their attention, impact their emotions, build particular relationships and identities for participants and favor certain positions, among other rhetorical and discursive effects. In this respect, this study explores some of the areas of metaphor in translation that Shuttleworth (2019) identifies as requiring further research. In a very recent chapter reviewing unexplored or underexplored areas of metaphor translation, he calls for fine-tuning the distinction between translation procedures and effects, which is an area particularly addressed in this study. He also insists on expanding work on metaphor in specialized translation and the need of further exploring the textual patterning of metaphors: this study specifically explores how metaphorical expressions (ME) do not occur in isolation but in variously patterned ways and falls within the broad field of specialized scientific translation.

My personal interest for the analysis of metaphor in translation comes from observing the difficulties translation trainees, and even experienced translators, encounter when dealing with metaphors. Both as a professional translator, regular proofreader and

translation professor, I have noticed that students in my classes often fail to properly recognize, interpret and translate metaphors. Even if their translation-training program includes a rather comprehensive linguistic training, they usually fail to apply such linguistic skills to the translation tasks at hand, thus revealing a need of highlighting connections between what they seem to perceive as separate and isolated knowledge compartments. This study aims at achieving a systematic, corpus-based and theory-grounded examination of these observations that will throw some light on the relationship between problems, translation competence and translation solutions related to metaphors. This work could ultimately allow us to derive some practical applications that will enhance our approach to metaphor translation in the local context of specialized translation training.

1.4 Research questions and objectives

Metaphor is a key conceptual mechanism in human cognition allowing us to understand one domain of experience in terms of another. Due to its descriptive and explicative potential, metaphors are a major resource to facilitate the communication of medical-scientific findings on cancer to lay audiences. This study seeks to answer four main research questions:

1. What metaphors are used to talk about cancer and immunotherapy in scientific popularization articles?
2. What functions do medical-scientific metaphors play in such popularization articles?
3. What procedures are used to translate such metaphors into Spanish?
4. What global and local effects do such translation solutions bring about?

The two general objectives of this study are to a) gain a general understanding of the functions metaphors are put to serve in a corpus of popularization articles written in English and b) to explore their translation into Spanish. The specific objectives are: a) to identify the conceptual domains involved in the conceptualization of cancer in scientific popularization articles; b) to describe the recurrent procedures employed in the translation of English metaphors into Spanish in popularization articles; c) to interpret the local and global effects that such translation solutions bring about, and d) to derive some practical implications applicable to specialized translators' training.

1.5 Organization of this document

This thesis is organized into six chapters. Chapter 1 introduces the problem being investigated by stating the rationale that guides this work, its research questions and objectives. Chapter 2 provides an overview of the main issues that pervade the field of metaphor translation and reviews previous studies that shed light on how scientific metaphors are translated. The theoretical framework that supports the study is also described here. Chapter 3 presents and justifies the methodological approach adopted in this research, including a detailed account of how the corpus was collected, systematized and analyzed. Research findings are presented and discussed in Chapters 4 and 5. While Chapter 4 outlines the metaphor patterns that pervade the English corpus and describes the multiple functions they serve, Chapter 5 focuses on the translation solutions provided in the Spanish corpus and explores the micro and macro level effects such solutions bring about. Finally, Chapter 6 reviews the research questions that guide this work and draws some observations, implications and limitations. This chapter concludes by outlining some lines of future research and making some suggestions for practical application of the research findings.

CHAPTER 2

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

In this chapter, previous studies that orient this research are reviewed. The literature review is organized in three major areas pertaining to the topic under study. First, there is an overview of the place of metaphor in scientific popularization, with a special focus on the functions it has been found to serve. Second, there is a revision of the studies that set the ground for our exploration of cancer metaphors in public discourse. Third, a number of previous studies that focus on metaphor in translation, with a special focus on those that have explored scientific/medical metaphors, are discussed. Finally, the theoretical framework upon which this study is grounded is presented by outlining the three main theoretical strands that serve us to explore the data.

2.1 Metaphor in scientific popularization

The presence of metaphor in scientific discourse has been traditionally resented by what has been called the logical positivist view of science that dominated earlier studies, as pointed out by De Bustos, 2000; Galán Rodríguez and Montero, 2002; Ortony, 1993 and Shuttleworth, 2017. Metaphor, conceived of as exclusive to literature and a mere superfluous embellishment of texts, was deemed as an unsuitable feature of scientific writing. Scientific texts were "supposed to be characterized by precision and the absence of ambiguity, and the language of science is assumed to be correspondingly precise and unambiguous—in short, literal" (Ortony, 1993, p. 1). In the face of the contemporary growing consensus about metaphor being a fundamental mechanism of human cognition and pervasive in all types of discourse (Lakoff and Johnson, 1980), including the scientific, this position is untenable today. Metaphors play an important role in scientific theory-making and modelling (Semino, 2013, p. 133) and are a key cognitive resource for communication.

However, it is surprising to still find today advocates of such metaphor avoidance position. For instance, Claros Diaz (2017) advises against the use of metaphors in his manual on translating and writing scientific texts. This material is currently included as suggested bibliography in the syllabus of Scientific Translation. Claros Diaz explicitly states

"comparisons and metaphors should be left for comedians"[1] (2017, p. 17, my translation). Similarly, metaphor is still viewed as synonymous with meaning obfuscation in Argentine Law. Article 7 of Act 26529 on Patients' Rights in Relationship to Healthcare Professionals and Institutions specifically states as follows:

> The written informed consent shall consist of an exhaustive and guided explanation by the health-care professional of the activities that will be carried out on the patient and shall be written in a concrete, clear and precise way, with terms that the patient or, in case of disability or impossibility, their family member or legally authorized representative, may understand, omitting metaphors or synonyms that make the writing ambiguous, are misleading or may be misinterpreted". (My translation; my underlining)

In a likewise fashion, this study rejects the dominant or simplistic view of scientific popularization that was based on a hierarchical conception of scientific and lay knowledge, which lead to the conception of two radically separate discourses belonging to these two separate communities: that of experts and lay people. Popularization has been traditionally regarded as the process of dumbing down or qualitative downgrading a high content. As Myers (2003) puts it, popularization was thought of as involving a "one-way process of simplification, one in which scientific articles are the originals of knowledge that is then debased by translation for a public that is ignorant of such matters, a blank slate" (p. 265). Far from this cognitive-deficit model that views audiences as blank slates, this study adheres instead to the view of popularization as a continuum. Science popularization involves a transformation of specialized knowledge into lay knowledge as well as a recontextualization of scientific discourse for lay audiences. This is done in line with their anticipated interests and diverse backgrounds, in the realm of the public discourses of the mass media and other social institutions (Calsamiglia and Van Dijk, 2004, Ciapuscio, 2005 and 2011 and Myers, 2003). From this perspective, science popularization stands in the middle of a cline that goes from media to academic discourse, passing through newspaper discourse and scientific discourse respectively.

As a major conceptualization mechanism for the communication of science due to "its epistemological potential to open up new modes and ways of thinking and because by evoking everyday conceptual domains it offers an effective communicative resource for explaining and illustrating scientific content to different types of audiences"

[1] "Deja las comparaciones y las metáforas para los humoristas."(2017, p. 15)

(Ciapuscio, 2011, p. 91, my translation), metaphor is a conventional feature of popularization genres (Knudsen, 2003 and Olohan, 2016). Metaphor plays a prominent role as a major strategy of explanation and, along with descriptions, definitions and examples, allows for the establishment of links between two domains of experience, meaning or knowledge.

Even if the study of scientific popularization is not recent (the first works by Ciapuscio, 2005; Calsamiglia and Van Dijk, 2004; Knudsen, 2003 and Myers, 2003 are over 15 years old), metaphor, as a fundamental feature of this specialized discourse, continues receiving lots of attention. More recent studies that examine metaphors in the popularization of infectious diseases like Ebola (Balterio, 2017) and dengue (Drovetta and Eynard, 2011) as well as studies that explore the use of metaphor in scientific popularization texts of biology and economics (Gallardo, 2012) seem to attest to this. This study adds to the available literature on the role of metaphor in scientific popularization but centers its attention on a particular kind of metaphors: those that are used to communicate scientific advances on cancer treatment to a non-specialized audience.

The present research is also oriented by Rey Vanin's (2014) contrastive examination of a trilingual French-English-Spanish parallel corpus of scientific popularization articles. Coincidently, some of the texts that make up Rey Vanin's English corpus come from the magazine *Scientific American*. Even if Rey Vanin did not focus specifically on metaphors but rather on the transformations pertaining to rhetorical textual elements in general, the results of her analysis throw light on what happens to metaphors in popularization articles when they are translated. She noticed that rhetorical elements, including metaphors, simply disappeared from the Spanish versions. Interestingly, Shuttleworth (2017) made the same observation: a large number of expressions were omitted or removed in the translation process. Rey Vanin put forward a possible explanation for such a phenomenon. She claimed that in the Spanish version of popularization articles "the informative component takes priority while all the elements that could be deemed 'ludic' or introduce doubt by questioning some argument are eliminated" (2014, p. 61). This study takes stock of these observations and attempts to throw some light onto what seems to be a frequent translation solution in the genre under study.

2.1.1 Functions of metaphor in popularization articles

This study draws upon a relatively vast literature on the many functions metaphors are put to serve in science popularization. Even if there may be some terminological differences, all authors seem to coincide on the fact that metaphors play a pedagogical or exegetical role in science popularization (Knudsen, 2003; Van Rijn-van Tongeren, 1997; Semino, 2013). Drawing upon Boyd's 1993 influential distinction between theory-constructive and pedagogical metaphor, Semino (2013) states that metaphors "are used to explain scientific concepts to non-experts" (p. 134), thus emphasizing how metaphors are adapted to fit different communicative purposes. Given the genre under study and its specific communicative purposes (see 3.2.1. in Chapter 3), this general explanatory purpose of metaphors is particularly relevant and worth exploring.

However, in popularization texts, metaphors do more than simply explain. Even if metaphors may be used specifically for representational purposes, including explanation, elucidation and modeling, they may also serve a rhetorical function as they are often used to attract the reader's attention (Williams Camus, 2009 and 2016) and foreground certain entities (Gallardo, 2012). Most interestingly, metaphors have also been found to convey attitudes, evaluation or stance (Semino, 2008 and Semino et al, 2018) and thus serve evaluative purposes. This was also found to be the case for popularization articles.

William Camus (2016) looked at a corpus of newspaper popularization articles to explore the ways in which science is framed via metaphor in the press. Her analysis revealed that cancer therapies that were still under development, namely, biotherapies, were portrayed in a more positive light, thus possibly contributing to the creation of false expectations, than the traditional and most readily available chemo and radiation therapies. Her results add to the growing awareness of the framing power of metaphor in sensible areas such as healthcare (Hauser and Schwarz, 2015; Reisfield and Wilson, 2004; Semino et al., 2015, among others) and the perils of communicating the biosciences by using a too optimistic, hyped-up metaphorical framing, oblivious of its ethical implications for science and society (Nerlich, Elliott and Larson, 2009).

Metaphors also serve to negotiate relationships and build individual and group identities (Semino et al., 2018). That is, they also operate on the interpersonal dimension. Being largely informed by Semino et al.'s (2018) analysis of cancer metaphors, this study takes heed of "the need to consider the functional and interpersonal dimensions of

metaphor use alongside the representational and conceptual dimensions, which have traditionally received more attention" (p. 268).

Metaphors are also key resources for textual structuring and serve major textual purposes by contributing to the internal cohesion and coherence of a text (Goatly, 1997; Semino et al., 2008). As pointed out by Shuttleworth (2019) in a recent discussion of the main research areas in metaphor translation still requiring work to be done, the textual patterning of metaphor is the area that "represents what is possibly the most important new development that requires proper implementation in our research" (p. 57). Considering the different types of metaphor patterning summarized by Dorst (2016), this study explores which metaphor patterns are at play in the English source texts and observes whether, or to what extent, such patterns are reproduced in the Spanish translations.

Dorst (2016, p. 179-184) lists eight different ways in which metaphor can be observed to occur in authentic discourse. These eight metaphor patterns are as follows:

1. Repetition: a single word occurring multiple times within a stretch of discourse.
2. Recurrence: described by Semino (2008, p. 23) as "the use of different expressions relating to the same broad source domain in different parts of the text".
3. Clustering: MEs focused in specific stretches of text.
4. Extension: a group of MEs that evoke the same source domain and are used in close proximity to one another.
5. Combination and mixing: a group of MEs grouped closely together but relating to different source domains.
6. Literal/metaphorical interplay: the simultaneous evocation of an expression's metaphorical and non-metaphorical meanings, as occurs in punning.
7. Signaling devices drawing the reader's or listener's attention to the presence of a ME (e.g., the expression "as it were").
8. Intertextual relations: MEs reused across different texts or discourse events.

Described as "flexible, varied, dynamic and specific to the discourse context in which they are used" (2016, p. 179), these patterns guide our exploration of cancer metaphors in popularization articles and their translation solutions.

To summarize, this study conceives of metaphor as a context and usage-dependent phenomenon and centers on the metaphors that are used to communicate scientific advances on cancer treatment to a non-specialized audience. Besides capitalizing on the

insights from previous studies that have explored metaphor functions, the overall analysis is guided by a core, though often ignored, linguistic principle: the same linguistic form (or ME) can serve different functions in different texts, contexts and genres. As a result, "the choice of a particular metaphor, or indeed of patterns of metaphor, cannot be properly explained without taking into consideration its contextual nature" (Semino et al., 2018: 32). MEs are examined as patterned occurrences and their functions are described with a view to their textual, discursive, cognitive and sociocultural contexts of use.

2.2 Cancer metaphors in public discourse

Since the pioneering, and hotly debated, work on the metaphorization of cancer and tuberculosis written by Susan Sontag back in 1974, there has been a growing interest in the study of metaphors that are used to talk about health and disease. At present, there is a vast literature on metaphors used to talk about physical illnesses (Demjén and Semino, 2017 provide the most complete literature overview to date) and mental disorders (Tay, 2017). Similarly, there is a growing number of studies exploring cancer metaphors in medical texts (Reisfield and Wilson, 2004; van Rijn-van Tongeren, 1997; Williams Camus, 2009a) as well as in patient's personal accounts of the disease (Fillion, 2013; Huijbrechts, 2016).

One of the most extensively studied conceptual metaphors connected with cancer maps the source domain WAR onto the target domain CANCER. Commonly referred to as violence (or war/military) metaphor, this type of metaphor has been widely criticized in several studies that range from Sontag's informal analysis based on literary images (1974) to recent studies supported by corpus linguistics carried out by Demmen et al. (2015), Semino et al. (2015 and 2018) and Potts and Semino (2017). They have also received criticism in some experimental studies (e.g., by Hauser and Schwarz, 2014 and by Hendricks, Demjén, Semino and Boroditsky, 2018). The work by psychologists Hauser and Schwarz (2014) has greatly contributed to fueling the military metaphor debate. In a practice-based experimental study, these authors argue that the predominant conceptualization of cancer in terms of war could be detrimental to patients by negatively influencing strategies of prevention. The debate has gone beyond the academic boundaries to reach newspaper headlines and fill pages of columns and news stories[2].

[2] E.g., 'Having cancer is not a fight or a battle,' The Guardian, 25 April, available at https://bit.ly/2TBtgRf; "In Discussing Cancer, Remove Military Terminology From Public

The current work is largely grounded on the research on cancer metaphor carried out by scholars from Lancaster University including Semino, Demmen and Demjén. Their work has set the ground for the current research by highlighting some fertile theoretical and methodological associations.

Lancaster researchers have been exploring the use of metaphors in end-of-life care for the last eight years and have published their results in several journals. Always combining manual qualitative analysis with computer-assisted quantitative analysis, they compare the use of violence metaphors and journey metaphors made by patients, carers and healthcare providers in online writing (Demmen et al, 2015; Semino, Demjén and Demmen, 2016; Semino et al, 2018). Their results reject oversimplification and point to the contextual nature of metaphor use, that is, their inherent variability across contexts, users and genres while insisting on the need of identifying the framing function it serves.

Their thorough and detailed analysis of a large corpus of cancer metaphors used in online forums gives special attention to violence and journey metaphors. They found out that violence metaphors are the most frequent and present the cancer experience as an antagonistic/adversarial one (i.e., the patient is always facing and opponent, whether this be the illness, the treatment, health professionals, etc.) and this framing may both reflect and reinforce "feelings of vulnerability, passivity, impending threat and, most negatively, personal failure if the disease is found to be incurable" (Semino et al., 2015, p. 5). By contrast, journey metaphors present the experience of illness as an ongoing process that is shared by others. The patient can therefore take on a role that is active without being oppositional.

Semino et al. (2018) point to the shortcomings of war-related metaphors by claiming they involve "potential disempowering effects" (p. 124). Their findings confirm the need for caution in the use of violence metaphors in public discourse and in healthcare professionals' communication with patients. They suggest physicians should refrain from imposing the role of "fighter" onto patients. Alternatively, they hold journey metaphors have some advantages to offer. Unlike violence metaphors, they can be used to suggest a positive, empowering approach to the cancer experience, in which the patient feels "a sense of companionship with others and can choose the degree of control he or she wishes to have in the decisions and processes that affect them" (Semino et al., 2015, p. 6). More

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Discourse, Study Suggests" *CureToday*, available at https://bit.ly/2ug9Jv3; "The Trouble With Medicine's Metaphors", *The Atlantic*, available at: https://bit.ly/3as6cdC, among others.

interestingly, Semino et al.'s work supports policy change and has applicable social implications. In the UK, the increasing awareness among healthcare professionals and policymakers of the potential negative consequences war-related cancer metaphors may have for patients has given way to actual policy changes. As Semino, Demjén and Demmen (2016) explain in their work "policy documents on cancer care in the UK avoid references to 'battles', 'wars', and 'fights' in favor of the metaphor of cancer as the patient's 'journey'" (p. 7).

However, Semino et al.'s (2018) analysis digs deeper. Their findings indicate that violence metaphors are not inherently bad while journey metaphors are not inherently good for everyone but rather, different people can use these metaphors in both empowering and disempowering ways. That is, the same person may resort to one or the other to create different empowering or disempowering scenarios. Working on the assumption that different metaphors suit different people or the same person at different times, a "Metaphor menu for people living with cancer"[3] has been recently released. Based on research carried out by the Lancaster University research team led by Semino, this resource includes a repertoire of 17 different metaphors that offers an alternative to military cancer metaphors.

This study is greatly indebted to the systematic work done by Semino et al. (2018). We share their interest in exploring the framing effects and evaluative potential of cancer metaphors. Thus, we follow closely on both their theoretical and methodological approach when it comes to identifying and describing the functions and discursive effects of cancer metaphors in our corpus of English popularization texts.

2.3 Metaphor in translation

The phenomenon of metaphor has been widely discussed in the field of translation studies, in relationship to both its degree of translatability and its various possible transfer methods (Schäffner, 2004).

The first issue, that of the translatability or transferability of metaphors, has triggered hot debates in the field of translation studies and even led to a feud between two opposing views: the "no problem" school (metaphor translation entails no particular difficulty so all metaphors are fully translatable) versus the "no solution" school

[3] This "menu" can be accessed and downloaded from the team's website at http://wp.lancs.ac.uk/melc/files/2019/10/Metaphor-Menu-for-People-Living-with-Cancer-A4-Leaflet.pdf.

(metaphors are untranslatable), as Dagut (1976, p. 25) has called them. As pointed out by Samaniego-Fernández, Velasco Sacristán and Fuertes Olivera (2005), the main problem with the position endorsed by advocates of these two schools is that they are mostly simply theoretical proposals, prescriptive in nature and therefore fallible (p. 69). Even if today some researchers differ in their evaluation of the difficulties involved in translating metaphors (most notably Steen, 2014), there is a general consensus that views metaphor translation as not problem-free (Shuttleworth, 2019). Metaphors, though possibly not all of them and not always to the same extent, do pose a singular challenge to translators "since transferring them from one language and culture to another one may be hampered by linguistic and cultural differences" (Schäffner, 2004, p. 1253). This view has been endorsed by many well-known translation scholars including Newmark (1988), Snell-Hornby (1988), Dobrzyńska (1995) and Toury (1995), among others, and has more recently received empirical support by cognitive studies on metaphor translation processes (Jensen, 2005 and Sjørup, 2013) which explore the greater cognitive effort required by translating metaphors.

The second relevant issue regarding metaphor translation has to do with the various modes, procedures or strategies proposed for translating metaphors. That is, once we assume metaphors can be somehow translated or recreated into a target text, a host of other difficulties appears. Various metaphor typologies and lists of translation procedures have been put forward by both prescriptive approaches (those focusing on how metaphors should be translated) and descriptive approaches (those focusing on how metaphors are actually dealt with).

Newmark has dedicated a whole chapter to the translation of metaphor in a textbook that has largely influenced the field of translation studies and translation training. In his 1988 work, the author urges translators to pay more attention to metaphors for "in serious non-literary texts, original or recent metaphors must be treated with the same respect as those in serious literature (p. 94)". He proposes seven main procedures for their translation, arranged by order of preference (p. 84-96):

1. Reproducing the same image in the TL
2. Replacing the image in the SL with a standard TL image
3. Translation of metaphor by simile, retaining the image
4. Translation of metaphor by simile plus sense
5. Conversion of metaphor to sense
6. Deletion

7. Same metaphor combined with sense

Even if Newmark's comprehensive proposal was a pioneering analysis at the time and one of the first formal attempts to address the translation of non-literary metaphors, it is questionable on at least three grounds. First, it is prescriptive rather than descriptive. Instead of examining actual instances of metaphor translation, he produces a recipe of recommended procedures and guidelines for translation and translators' training. Second, his approach to metaphor is purely linguistic, thus disregarding the dual conceptual-linguistic nature of metaphor. Third, his approach is somewhat reductionist as it contains traces of the traditional view that prevailed in the translation field that held literary translation as the ideal and purest form, assuming a marginal or secondary place for all other types of specialized (non-literary) translation.

However, Newark's analysis is useful for defining what this study is not. This study does not intend to produce a general recipe for metaphor translation. Much on the contrary, this study is in line with the need for systematic descriptive studies that explore how metaphors are translated in real text occurrences. The focus is on what translators actually do when they come across metaphors and, rather than speculating about theoretical possibilities and combinations, this study produces a fine-grained description of the various solutions Spanish translators come up with when actually dealing with metaphors in specialized texts. Far from adding to the already numerous proposed classifications of metaphor translation strategies or prescribing an *a priori* list of possible strategies for translating metaphors based on introspection, this study depicts the actual solutions professional translators offer when faced with a metaphor and, more importantly, it examines the effects created by such solutions. To this end, taxonomy proposals offered by other authors have been revisited.

Toury (1995) advocates for a descriptive translation approach "to attain exhaustive descriptions and viable explanations" (p. 110) and puts forward a more comprehensive repertoire of metaphor translation solutions. He expands the scope of analysis looking not only at the source but also the target text and outlining 6 alternative possibilities (listed below). The biggest innovation in his proposal is that items 5 and 6 involve metaphor appearing in the target text as a translation solution rather than as a translation problem.

1) metaphor *into* 'same' metaphor (i.e., the metaphor is the same in both languages)

2) metaphor *into* 'different' metaphor (i.e., the figure of speech is retained but the

metaphor changes in the two languages; substitution)

3) metaphor *into* non-metaphor (i.e., metaphor is paraphrased)

4*)* metaphor *into* zero (i.e., complete obliteration of metaphor)

5) non-metaphor *into* metaphor (i.e., the use of a metaphor in the TT for a non-metaphorical expression in the ST)

6) 0 *into* metaphor (i.e., addition of new metaphor in the TT with no linguistic motivation in the ST, zero into metaphor)

Even if Toury's expanded framework, being a descriptivist approach, is somewhat closer than Newmark's to the perspective adopted in this study, both approaches are lacking in that they do not incorporate a specific cognitive component. Given the cognitive approach to metaphor that distinguishes this work, we draw upon other taxonomies for coding translation strategies, namely, those that factor in the linguistic-conceptual duality of metaphor and can account for different or similar mappings between domains. In exploring the various metaphor translation solutions and effects, we expect to produce our own data-based description of translation solutions. However, we follow Jensen (2005, p. 193) in applying Andersen's (2000) classification of translation strategies[4] which serves us as a stepping stone. The four different scenarios for metaphor translation depicted by Jensen (2005) include:

1. Use an equivalent of the original metaphor, which would express a similar conceptual mapping (M→M)
2. Replace a metaphor of the original with a metaphor based on a different conceptual metaphor (M→D)
3. Replace a metaphor with a paraphrase (M→P)
4. Deletion – a complete deletion of the metaphorical expression (Del)

This work is also based on one of the first studies explicitly grounded on a distinctive cognitive approach that offers insights on metaphor and translation. Schäffner (2014) focuses on authentic cases of metaphor translations from English into German in a corpus of political speeches. She questions the validity of previously established translation procedures to account for how translators handle metaphorical expressions. She observes that conceptual metaphors may be preserved at a macro level even if their

[4] Even if for some authors strategies may imply a conscious or intentional choice, we use the terms "translation strategy" and "translation solution" interchangeably for we are not interested in exploring the possible cognitive factors affecting a translator's choice but rather describing the contrastive effects produced by the solutions provided.

specific textual manifestations at the micro-level are not rendered in exactly the same way in the TT. Apart from introducing the useful distinction between macro versus micro level, Schäffner examines cases of conceptual metaphor explicitation, elaboration and shift and shows how the analysis of actual translations and their effects can contribute to elucidating the cultural aspects of metaphors.

A number of other factors may have an impact on metaphor translation solutions and their resulting effects. Samaniego Fernandez, Velasco Sacristan and Fuertes Olivera (2013, p. 66) enumerate a long list of variables that may have a bearing on the translation of metaphors. Such a list includes cultural references, communicative purpose (of the text and of the metaphor itself), functional relevance, information burden, metaphor typology, cotext and context restrictions, degree of compatibility of conceptual and formal structures of the two languages involved, prevalent synchronic norms, degree of lexicalization of the metaphor, translator's competence, connotations, absences of exact semantic equivalents, comprehensibility of the metaphor and cognitive role. Additionally, they claim there are even more variables, related to the often-ignored reality of translators' work[5] that should be added to the list. This is in line with what Schäffner (2017) identifies as the area of "professional practices" that call for further research.

Summing up, metaphor translation poses a challenge that requires problem awareness, problem identification and problem solving: once translators identify a metaphor in the ST, they have to recognize its functions and effects. Second, they have to decide how such metaphor shall be transferred into the TT (can the metaphorical mappings be kept the same? shall the metaphor be transformed or simply dropped?). In some cases, transformations of some sort may occur, giving rise to various effects that translators should be aware of.

2.3.1 Scientific/medical metaphors in translation

In this section, we review studies that have analyzed Spanish translations of scientific and medical metaphors, though not specifically cancer metaphors. Such studies include the work by Boquera Matarredona (2000) and Piccioni (2017). We also consider studies that have analyzed the translation of scientific metaphors but into languages other

[5] Professional and institutional practices that impinge on translators' work include time pressure constraints, stylistic alterations introduced by post-translation revisions, client-imposed terms and conditions, translation rates, among others.

than Spanish (Shuttleworth, 2019). In all cases, we assess their contribution to the current work.

Boquera Matarredona (2000) examined the translation of medical metaphors into Spanish. Drawing upon Toury's (1995) classification of translation strategies (described in the previous section), Boquerra Matarredona analyzes a brief popularization article on immunology originally written in German and translated into both Spanish and English. She finds instances of 4 of the 6 procedures put forward by Toury (1995) for the translation of a number of metaphorical expressions she identifies in the text, which are predominantly based on the conventional war conceptual metaphor. Despite some clear differences between the current study and Boquera Matarredona's, the main one being that her work is based on the analysis of a single text, we take note of her spotting correspondences between languages for the conceptualization of the immune system and the human body. Even when she does not elaborate on the shifts that some of the translation solutions examined bring about, her work serves to guide this research.

In a more recent study, Piccioni (2017) examines the translation of metaphors in corporate sustainability reports. She bases her analysis on a set of linguistic tendencies offered in the literature to account for the differences that distinguish translated texts from original texts (that is, texts originally written in the target language). As pointed out by Baker (1996), translated texts tend to show a) simplification (a tendency to simplify the language in the translatithreeon, thus resulting in less lexical density, greater use of high frequency words, etc.), b) explicitation (a tendency to spell things out in translation), c) normalization/conventionalization (a tendency to conform to the target language's typical patterns) and what has come to be referred to as d) "shining through" of the original language in the target language. Piccioni's observations regarding this last notion offer some insights that may be of relevance for our study. In her corpus-based descriptive translation research, she compares Spanish monolingual texts originally written in Spanish with English into Spanish translations and observes what seems to be a common phenomenon (also discussed by Samaniego Fernandez, Velasco Sacristan and Fuertes Olivera, 2013) brought about by the literal translation of source text metaphors. When compared to texts originally written in Spanish, Spanish translations include a greater number of atypical collocations as well as some metaphors that seem to be exclusive to them, that is, metaphors that are not characteristic of Spanish native texts. This is accounted for in terms of the so-called "shining through effect" (Teich, 2003 as cited in Piccioni, 2017) that takes place when the translation is more oriented towards the source

language so that features typical of the source text "shine through" or reverberate in the target text. This particular finding may prove to be useful for the analysis and we will be examining the Spanish corpus for unconventional uses that may possibly result from literal translation solutions.

This work is also theoretically and methodologically oriented by Shuttleworth's (2017) systematic analysis of how different types of metaphors are translated in scientific discourse. Like Shuttleworth, we focus on popularization articles retrieved from *Scientific American.* We share his interest in "the effect that translator's micro-level decisions have on the overall configuration of metaphors in a text, and the specific procedures adopted by translators when rendering source-text metaphors and metaphorical expressions into a TL" (p. 20). Likewise, we endorse his defense of an interdisciplinary approach to the analysis of metaphors and partly adhere to his methodological outlook by also considering simple numerical data but laying emphasis on qualitative description.

Shuttleworth (2017) analyzes a large multilingual parallel corpus involving two different disciplines and six target languages. In all cases, English is the SL. He examines a wide range of metaphor types and explores how they are handled by translators depending on their characteristics. Considering 6 parameters of analysis (namely, 1. Existence category, 2. Metaphor as mapping, 3. Purpose, 4. Conventionality, 5. Image schemas and image richness and 6. Image metaphors), he draws a number of interesting generalizations. He also puts forward a new enlarged list of 11 translation procedures emerging from his analysis of translation solutions.

This study follows Shuttleworth's approach in combining cognitive metaphor studies with translation studies. Following Shuttleworth, we consider that using concepts from metaphor theory to help reflect on translation procedures is a very valuable endeavor. Yet, we also include insights from discourse analysis to recognize the discursive effects of metaphors in the light of the various contextual factors involved and we pay special attention to their ideational, interpersonal and textual functioning. Shuttleworth's analysis distinguishes itself for being multilingual as he analyzes translations into 6 different languages. However, his corpus does not include Spanish, which is, along with English, the language of the texts that make up our parallel corpus.

To date, there is no study that has explored the translation of cancer metaphors into Spanish. Capitalizing on the insights achieved by previous studies that explore similar texts and similar metaphor patterns, as well as those that address metaphor translation into languages other than Spanish, this study attempts to narrow down this gap

and offer some insights to advance knowledge about the translation of cancer metaphors into Spanish.

2.4 Conceptual Metaphor Theory and cognitive approach to metaphor translation

This work is grounded on what has come to be called Conceptual Metaphor Theory (CMT), originally proposed by Lakoff and Johnson (1980). It also incorporates some of its further developments by authors working within a broadly cognitive approach (Charteris-Black, 2005 and 2009; Kövecses, 2000 and 2015 and Semino, 2008).

In line with the basic tenets of CMT, metaphor is not a merely linguistic entity. Instead, conventional patterns of metaphorical expressions in language such as "She demolished his arguments", "His position is indefensible"; "She attacked every weak point in my argument", etc. are seen as evidence of conventional patterns of metaphorical thought, or conceptual metaphors (in this case, ARGUMENT IS WAR). Conceptual metaphor is thus conceived of as a fundamental mechanism for the conceptualization of experiences, practices, events and complex situations by means of more basic concrete and well-known concepts. Metaphors are not purely linguistic but cognitive phenomena, and they are necessary for our thinking, speaking and acting.

This cognitive mechanism is particularly relevant when it comes to conceptualizing abstractions, such as time and emotions, which are among the abstract and complex experiences that are more frequently metaphorized (Kövecses, 2000). Illness, death and the emotions associated with them are also "typically talked about metaphorically, precisely because of their sensitive and subjective nature" (Semino et al., 2018, p. 29). For this reason, cancer, described by the WHO[6] as the second leading cause of death worldwide, is a particularly sensitive topic[7] where metaphors flourish.

In order to understand CMT, it is important to distinguish between what authors identify as the abstract cognitive structure allowing to group metaphoric expressions of a kind (what is referred to as conceptual metaphor) and the individual linguistic realizations of such conventional patterns of thought (the so-called linguistic metaphors or metaphorical expressions). That is, in order to unravel the conceptual metaphors that structure our cognitive apparatus, we need to start from the identification of the linguistic

[6] https://www.who.int/news-room/fact-sheets/detail/cancer (last accessed 1/9/2020)

[7] Note we are using the term topic in a communicative pragmatic way to refer to that that is talked about (namely, cancer and its treatments) and not in the sense of the common distinction between Topic and Vehicle, being the former the literal entity in the world of the text about which something is predicated in a figurative manner.

metaphorical expressions (MEs) that count as their surface instantiations. In other words, metaphorical language is just the surface realization of our conceptual structure. Metaphor from this perspective involves a dual conceptual and linguistic dimension; thus, we will be talking about conceptual metaphors when the focus is on the conceptual mappings and we will be talking about MEs when the focus is on the individual linguistic expressions that encode such mappings.

Conceptual metaphors conceptualize one thing in terms of another and involve mappings, associations or sets of correspondences from a source domain[8] (e.g., going back to the previous example, WAR is the source domain) to a target domain (e.g., ARGUMENT). These mappings are unidirectional (i.e., the transfer of features works only from the source domain towards the target domain and not vice versa) and partial (i.e., only some, not all, the features of the source domain are employed in a conceptual metaphor). Such mappings are not arbitrary but grounded on body perception and everyday experience and knowledge.

Target domains are generally more subjective, abstract, complex, sensitive in some way, and poorly delineated than source domains, which are typically more intersubjectively accessible, tangible, concrete, simple, and image-rich (Potts and Semino, 2017, Semino et al., 2018)[9]. As the source domain is mapped onto the target domain, correspondences of two kinds are established: ontological and epistemic. On the one hand, ontological correspondences are correspondences between basic constituent elements in the source domain and in the target domain and they have a structuring function. On the other hand, epistemic correspondences involve the carry-over of knowledge-based inferences and entailments between the domains, that is, knowledge transfers between the already-known phenomena and the phenomena the metaphor aims to describe.

The postulated similarity between the two entities or domains that is captured by metaphor "inevitably provides a particular take on the topic at hand, it highlights some aspects (the similarities that can be established between the two) and backgrounds others (things that are different or irrelevant for the comparison)" (Semino et al., 2018, p. 29).

[8] Within this framework, a conceptual domain is understood as the "knowledge about a particular area of experience, normally including rich and complex networks of elements and relations, such as our knowledge about war, life, journeys, illness and so on" (Semino et al., 2018, p. 280).

[9] Common source domains include the human body, animals, games and sports, movement and direction, while common target domains include emotions, time, thought, life and death, human relationships, etc.

For example, the ARGUMENT IS WAR conceptual metaphor frames arguments as antagonistic activities and downplays their potential collaborative aspects. In other words, metaphors not only have a descriptive function but also a great evaluative potential. "Although metaphor has multiple functions, this capacity to indirectly add an evaluative dimension to what is said is among one of its most important functions" (Semino et al., 2018, p. 30). This framing potential is what Semino et al. (2018) particularly focus on: the ability of different metaphors to reflect and facilitate different ways of making sense of and evaluating a particular topic or experience, by foregrounding some aspects while backgrounding others (p. 281).

In line with the basic tenets of the CMT, translating a metaphor is a conceptual rather than a purely linguistic phenomenon and calls for a specific translation competence. Such a competence encompasses not only a linguistic and cultural awareness regarding the two languages involved but also, and this is the main argument put forward in this research, a discursive-textual competence: the translator should be able to identify the mapping, interpret the function of the metaphor in the text and find an appropriate conceptual and linguistic equivalent in the target text. As Jensen puts it, "the translator needs to be aware of the cohesive force of metaphors, as well as the fact that metaphoric language adds an element of ambiguity and also a possibility, or even a necessity, of different interpretations to the text" (2005, p. 189).

2.5 A discourse approach to metaphor

One key aspect that distinguishes the current study from similar studies on the translation of metaphors is its adoption of an interdisciplinary approach to the object under study. We combine some insights from the Anglo-European discourse analysis (DA) tradition (Fairclough, 1989 and van Dijk, 1995) with the contributions of CMT.

This study is ultimately grounded on the social constructionism paradigm. Rather than conceiving language as a mere reflection of reality, this perspective views discourse as constitutive of reality because it helps to configure a conventional collective representation of the current state of affairs. Metaphors are not the exception and can be used to construct (contestable, biased, not-neutral) versions of reality as they necessarily involve the selection of some features as critical and others as non-critical (in other words, they highlight some aspects and background others). In Fairclough's terms, "any aspect of experience can be represented in terms of a number of metaphors, and it is the relationship between alternative metaphors that is of particular interest, for different

metaphors have different ideological attachments" (1989, p. 119). We are thus alert to the potential ideological significance of cancer metaphors and their role in building possibly biased versions of reality.

In this study, ideologies are defined as "basic systems of fundamental social cognitions and organizing the attitudes and other social representations shared by members of a group" (van Dijk, 1995, p. 243). That is, they are not seen as an individual construct but as socially shared representations related to socio-political structures involving a set of interested systems of beliefs (ideas, thoughts, judgments and values) which provide more or less relevant or efficient frameworks for the interpretation of particular social groups and their actions.

As we embrace a discursive approach to metaphor, the forms and functions of metaphors will be examined in authentic language use, "taking into account who uses them, why, in what contexts and with what possible effects and consequences" (Semino, Demjén and Demmen, 2016, p. 2). Far from working with made-up (i.e., theoretically constructed), context-less or minimally contextualized metaphoric expressions, this work is interested in the analysis of actual metaphor use (how metaphor actually presents itself in texts) in richly described contexts. This is in line with Kövecses' (2015) call for paying more attention to context in the analysis of metaphor. To this end, this study pays a distinctive attention to both the interpersonal function of language and the general sociocultural context: not only do we explore the ideational function[10] of metaphors in the construction of particular scenarios, experiences and realities but also focus on their evaluative and persuasive potential in the communication of scientific breakthroughs and their role in setting up social identities and relationships.

In addition, taking a discourse perspective to the analysis of metaphor enlarges the scope of analysis which is not restricted to the linguistic form but goes beyond semantics to factor in the textual, pragmatic and communicative dimensions. In this sense, this study is in line with discourse-based studies that have analyzed choices and patterns of metaphorical expressions in authentic data "with heightened empirical rigor in language-in-use, aware of socio-cultural, cognitive, and functional-grammatical

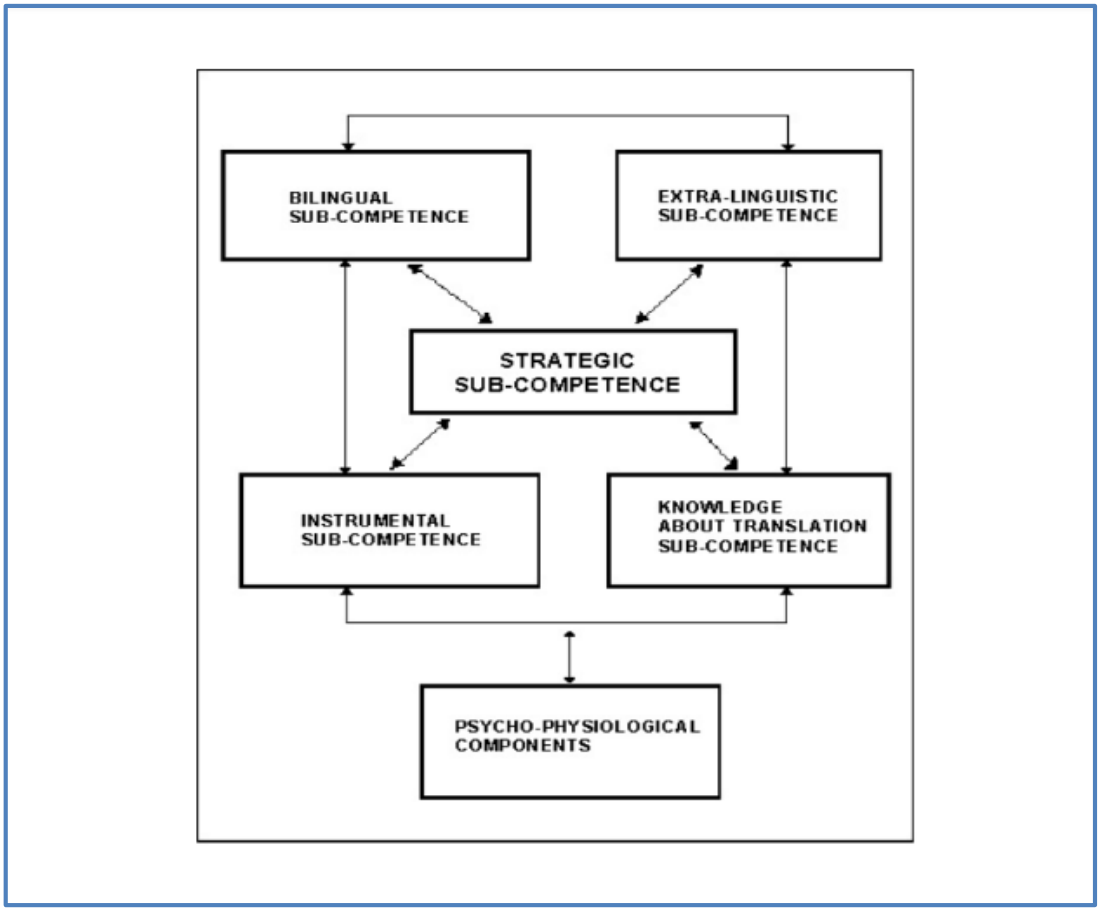
[10] This approach is basically oriented by the three Hallidayan macro-functions of language. As defined by Halliday and Hassan (1985, p. 23), language performs simultaneously three macro-functions as it 1) represents and constructs socio-cultural reality (ideational function), 2) constitutes social relations and identities (interpersonal function) and 3) structures texts and the relationships between texts as well as their verbal co-text and non-verbal context of situation and culture (textual function).

dimensions, and their interactions" (Herrmann, 2013, p. 31). Adopting this sociocognitive-discursive approach allows us to capitalize on its many theoretical and methodological cross-fertilizations.

2.6 Translation competence

This study is grounded upon the conception of translation as a decision-making and problem-solving process that leads to both loss and gain. Following the well-known and largely accepted model proposed by the PACTE (2003) research group led by Hurtado Albir, translation competence is understood as the underlying system of knowledge needed to translate. More specifically, it can be defined as an expert knowledge that includes declarative and procedural knowledge and is qualitatively different from bilingual competence. It comprises a system of five interrelated subcompetences (see Figure 1 below): the bilingual, extra-linguistic, knowledge about translation, instrumental and strategic, of which the strategic subcompetence plays a crucial role (PACTE 2002 and 2003).

Figure 1. PACTE model of translation competence (PACTE, 2003)



This study focuses on the particular translation problem posed by metaphors in English popularization articles and the various solutions deployed for translating them into Spanish. Solving this problem is assumed to require "a specific competence, which includes cross-cultural knowledge, an understanding of the duality of metaphor as both a mental concept and linguistic expression, as well as an awareness of the textual function of metaphors" (Jensen, 2005, p. 192).

Rather than adding one more taxonomy to the many already proposed (see 2.3 above), this study concentrates on the effects produced by various translation solutions. As we are not interested in theorizing about differences between the terms "procedure", "strategy", "technique" and "solution", we often use them interchangeably to refer to the translator's particular way of solving a source-text problem (namely, translating a ME). As observed by Shuttleworth (2017, p. 92), in the translation of metaphors from ST to TT, local and global changes occur in the text and such shifts will be our focus of attention.

CHAPTER 3

METHODOLOGICAL APPROACH

This chapter depicts the methodology followed in this research. Studying cancer-metaphors and their translation into Spanish involved a two-phased approach. In the first phase, the metaphorization of cancer in a corpus of scientific popularization articles written in English is described employing analytical tools from both DA and CMT. This involved identifying the conceptual domains that were most frequently drawn upon to talk about cancer and its treatments as well as recognizing the cognitive, rhetorical and textual functions of the metaphors included in these popularization texts. In the second phase, the strategies used for the translation of such metaphors and their various effects were identified. This involved addressing the similarities and differences in the conceptual domains and mappings between the two languages and examining the different local and global effects brought about by the translation solutions.

In the sections below, the methodological approach adopted for this research is introduced advocating for its relevance for the analysis of the data. Next, the corpus is described, referring to both the data collection procedures and the data systematization procedures that were followed. Some comments are made on the specific genre under analysis and a general background of the media sources that make up the corpus is included. Finally, all the data processing steps for the collection of metaphorical expressions are specified. This entails depicting the decisions taken in order to systematize the data, discussing the specific metaphor identification procedure that was followed and describing the reliability measures that were implemented.

3.1 Mixed methodology

In this descriptive-contrastive study we follow a largely qualitative descriptive methodology, though including some very simple frequency calculations. We hold that the complexity of metaphor translation can be better accounted for by a multidisciplinary approach that brings together key insights from the field of discourse analysis, translation studies and cognitive linguistics. This is in line with the two main systematic and theoretically-grounded studies that guide this two-phased research (Semino et al., 2018 and Shuttleworth, 2017), both of which promote a multidisciplinary theoretical and methodological approach to the study of metaphor.

Methodologically, we take note of some of the main concerns that pervade the CMT field. To counter the often criticized lack of an explicit and consistent methodology for the identification and analysis of metaphor in language (forcefully voiced by the Pragglejaz Group, 2007), we use a widely-accepted Metaphor Identification Procedure (known by its acronym MIP) for the sake of achieving maximal scientific rigor in terms of a reliable identification of metaphor. At the same time, we work inductively, on an exploratory basis that departs from the surface linguistics realizations (that is, the actual metaphorical expressions) and then moves on to examine potentially underlying conceptual mappings. In addition, in line with the discursive approach orienting this research, we also consider the various contextual factors involved that have a bearing on the observed discursive meaning effects.

In contrast with what Cameron (2003, p. 20) calls "armchair reflection" methods of data collection for metaphor analysis, whereby examples of metaphors are simply recalled by native speakers, we work with a corpus of authentic science popularization articles that are available online and their corresponding official Spanish translations. Although we do not resort to a highly-sophisticated software-enabled corpus analysis like Semino et al. (2018) but rather perform a manual analysis on a tiny corpus compared to their 1.5 million word corpus, we do find it useful to emulate some of the methodological decisions made by these authors (details about this are included in section 3.3.2 below).

In the following sections, our methodology is explicitly stated and every criterion used in the selection of the corpus is accounted for. Likewise every analytical step is specified and the procedure for the identification of metaphors that was adopted is thoroughly described. Finally, the problems encountered along the way are acknowledged, together with the decisions made in every case.

3.2 The corpus

A total of 6 semi-popularization articles was collected from two well-known science popularization platforms: the digital edition of *The New York Times* (NYT) and the online version of *Scientific American* (SA) magazine. Both websites[11] offer an advanced search function which allowed us to find articles for our corpus by searching for the words "cancer, cancer treatment, oncology, metastasis, immunotherapy and tumor" in the Title section and narrowing down the results to articles published in the

[11] https://www.nytimes.com and https://www.scientificamerican.com/

Health and Science sections (thus excluding, economic analysis of the cancer burden or opinion columns on cancer). The 6 articles were selected on thematic grounds. All of them address the topic of cancer immunotherapy, a relatively new type of cancer treatment that is receiving increased attention and promotion as an alternative to the more traditional chemotherapy and radiation therapy.

In all the cases, the articles selected were originally written in English and then translated into Spanish. The 6 articles deal with cancer and immunotherapy and were published between October 2015 and April 2018. In most cases, the Spanish version was published between 2 to 7 days after the English original publication and was significantly shorter than the English original article.

Apart from working with this specialized corpus, i.e., a corpus collected for our very specific purposes, made up of 6 articles on immunotherapy, a parallel corpus was collected. This parallel corpus includes the corresponding 6 official Spanish translations. Thus, the global corpus is made of 12 texts. The texts were aligned using a simple two-column table format. In some cases, the English articles featured pull-out quotes and more background information relevant to their specific US target audience which did not get translated into Spanish. English sections lacking a Spanish matching segment were excluded from the analysis.

The 12 texts that make up our global corpus of over 16,000 words are listed in Table 1 below. Table 1 also includes information about total word count per language. The complete list of texts in the corpus together with the 6 bilingual table files created for processing the 12 texts are included in Appendix I.

Table 1: Texts of the corpus

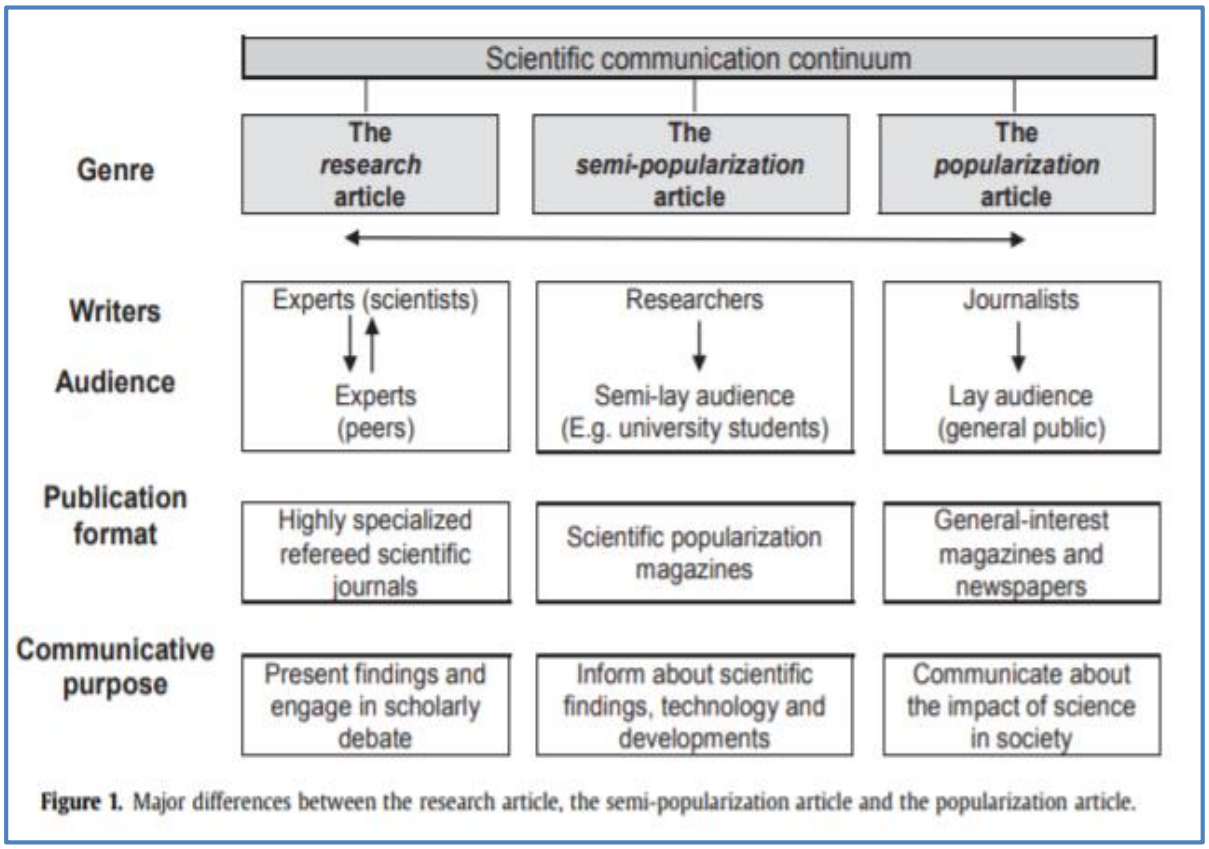
Text #_Source Publication Date		**TWC EN**	**TWC SP**	**TWC**
Text 1_SA October 2015	Cancer Immunotherapy: The Cutting Edge Gets Sharper	1835		1835
	Inmunoterapia para el cáncer: el tratamiento de vanguardia se vuelve más preciso		2052	2052

Text 2_NYT July 2016	Harnessing the Immune System to Fight Cancer	1693		1693
	Una esperanza contra el cáncer en nuestro propio organismo		1958	1958
Text 3_NYT February 2018	Doctors Said Immunotherapy Would Not Cure Her Cancer. They Were Wrong.	1366		1366
	Cuatro remisiones inesperadas apuntan a nuevos tratamientos contra		1467	1467
Text 4_NYT April 2018	Lung Cancer Patients Live Longer With Immune Therapy	724		724
	La inmunoterapia puede extender la vida de pacientes con cáncer de pulmón		843	843
Tex 5_NYT April 2018	Desperation Oncology': When Patients Are Dying, Some Cancer Doctors Turn to Immunotherapy.	1144		1144
	‘Oncología desesperada’: inmunoterapia como último recurso		1243	1243
Text 6_NYT June 2018	A Promising Cancer Treatment Made Patients Worse, Not Better	1154		1154
	Un revés para la inmunoterapia: hace que algunos pacientes con cáncer empeoren		1273	1273
TWC		7916	8836	**16752**

3.2.1 The semi-popularization article

Following Ciapuscio (2003), this work views scientific communication as a continuum. The research article, written by scientists and addressed to specialized readers in the same discipline, is at one end of the spectrum while the popularization article, written by journalists and addressed to a non-specialist heterogeneous readership, is at the other end. Both of these genres have been profusely described (by Calsamiglia, 1997; Ciapuscio, 1997; Cubo de Severino, 2005; Myers, 2003; Swales, 1990; among others). However, in between these ends, there is a distinct genre, the semi-popularization article which has been described by Gallardo (1998) and Ciapuscio and Kuguel (2002) over 20 years ago but has received very limited attention ever since (being the work by Muñoz, 2015 of the few recent genre-specific contributions). Figure 2 below sums up key differences between these three related genres.

Figure 2. The semi-popularization article in the scientific communication continuum



(Taken from Muñoz, 2015, p. 28)

Semi-popularization articles are usually written by researchers and may be written by specially trained science popularizers. These articles are addressed to readers

described by Ciapuscio as "semi-laypersons" (2003, p. 230), who have some level of proficiency and expertise in the field that distinguish them from the two poles represented by lay readers and expert readers alike. Even if they are generally referred to as scientific popularization articles, the texts in the corpus under analysis belong to this in-between genre. This applies to the article selected from the specialized science popularization magazine *Scientific American* and to the 5 articles published by the NYT that make up the corpus. Even when the newspaper articles published in the Science and Health sections of the world-renowned quality newspaper *The New York Times* can be placed more towards the general popularization end of the continuum, their being written by highly-authoritative scientific journalists (who are in some cases, trained scientists and book writers of acclaimed scientific books themselves as in the case of Gina Kolata and Denise Grady), differentiates them from the general popularization articles published by other media. Contrary to research articles, popularization articles do not follow a conventional rigid structure but typically involve a more creative combination of their two main journalistic and didactic components (Gallardo, 1999 as cited in Galán Rodríguez, 2003, p. 148). In the former, the theme (which typically equals to the research results) is presented along with some sort of evaluation (commentary or interpretation made by the journalist). In the latter, the research results are contextualized by providing background information necessary for the addressee to understand (the relevance of) the news.

3.2.2 *The New York Times* and *Scientific American*

The 12 texts that make up the global corpus were downloaded in pdf format from the website of these two prestigious American media outlets: the website of the leading American newspaper *The New York Times* (NYT) and the website of the prestigious popularization magazine *Scientific American* (SA). Both sources offer specific sections devoted to Health, Medicine and Science that include quality scientific popularization articles in English as well as translations into Spanish (and other languages) targeted to a well-educated audience interested in science. We initially intended to have a balanced corpus including an even number of articles from both sources. However, at the time of collecting the corpus, we found out that even if SA goes on publishing articles on the latest advances on cancer therapies in English, it has stopped translating them. Since we needed to collect both the English original article and its corresponding translation into

Spanish for the purposes of this research, we ended up including only one article from this source.

The New York Times is owned by The New York Times Company and was founded back in 1851. Based in New York City, this American newspaper is considered one of the leading newspapers in the world. Its readers typically belong to the better-educated upper-middle class, although the newspaper functions more generally as the newspaper of reference, as is the case for *Le Monde* in France. The articles that make up the corpus were published in its Science and Health sections and were written by highly-authoritative scientific journalists. The NYT began publishing daily on the World Wide Web in 1996 and the number of visitors to its website (www.nytimes.com) makes it the most visited newspaper site. In January 2016, the NTY launched its Spanish language edition that featured articles originally written in Spanish or Spanish translations. This initiative was abruptly and controversially ended on September 17, 2019 on grounds of not being financially successful. A few Spanish translations go on being published at www.nytimes.com/es.

Scientific American is a monthly magazine which was founded in New York City in 1845. As a non-refereed publication, SA does not aim to publish original research but rather accounts of recent work that has already been published elsewhere, written by the research scientists themselves (Shuttleworth, 2017) or by authoritative science journalists and senior editors. The magazine's audience comprises not only educated, although non-specialist, lay people but also some scientists who wish to keep informed about fields other than their own (Olohan, 2016, p. 174). Its articles report on scientific findings recently disclosed in leading scientific journals like *Nature* and *Science* and usually include definitions of scientific terms and lots of pictures and illustrations. It has international editions in 14 languages and is a leading scientific popularization magazine whose articles have been frequently examined by researchers working on scientific popularization (including Knudsen, 2003; Rey Vanin, 2014 and Shuttleworth, 2017). The Spanish edition was launched under the name *Investigación y Ciencia* in 1976 and is one of the principal science popularization magazines in Spain. In 1996, SA launched its website and in October 2014 they launched their online channel with a special focus on science news and information in Spanish (www.scientificamerican.com/espanol). They published several Spanish translations on cancer in its Health and Science sections up to the year 2017, when they stopped offering Spanish translations.

Even when the English and Spanish versions of the articles selected include author information, no information is provided about the translators. We could retrieve some information about the translation team working for the Spanish online edition of the NYT from an interview with its editorial editor Elías López published back in 2017. He explains that they never use automatic translation software and that translations are made by professional translators and go through at least two editorial filters. He says translations are provided by a Mexican company, so the Spanish they use for their Latin American edition may be influenced by that regional variety.

3.3 Data processing steps

This section depicts all the steps that were followed to both process and analyze the data and validate the analysis. An entire detailed section is devoted to discussing the metaphor identification procedure that was followed and to clearly identifying all the methodological decisions that were taken along the way.

3.3.1 Systematization of the corpus texts

All texts were downloaded in PDF format and thoroughly read. Then, texts were aligned. This involved matching every English original segment with its corresponding Spanish rendition. Texts were then processed using the bilingual table format template included below.

Bilingual table format template

TEXT #	English	Spanish
URL		
Caption		
Section		
Byline		
Date		
Header		
Lead		

Completing this template involved removing photographs, hyperlinks and disruptive formatting as well as deleting all English segments with no matching Spanish translations, for our analysis only considered parallel segments. For illustrative purposes, the same portion of the processing template included above is shown below for Text 1 in a complete fashion.

TEXT 1	English	Spanish
URL	https://www.nytimes.com/2016/07/31/health/harnessing-the-immune-system-to-fight-cancer.html?ref=nyt-es&mcid=nyt-es&subid=article	https://www.nytimes.com/es/2016/08/03/una-esperanza-contra-el-cancer-en-nuestro-propio-organismo/?rref=collection%2Fsectioncollection%2Findex
Caption	Steve Cara in an examination room at Memorial Sloan Kettering Cancer Center. Mr. Cara learned two years ago that he had advanced lung cancer, but immunotherapy drugs called checkpoint inhibitors have helped wipe out the disease.	Steve Cara en el Centro Oncológico Memorial Sloan Kettering. Hace dos años Cara fue diagnosticado con un cáncer de pulmón avanzado, pero con inmunoterapia ha logrado deshacerse de la enfermedad.
Section	HEALTH	NOTICIAS |CIENCIA
Byline	DENISE GRADY	
Date	July 30, 2016	3 de agosto de 2016
Header	Harnessing the Immune System to Fight Cancer	Una esperanza contra el cáncer en nuestro propio organismo
Subhead	New drugs and methods of altering a patient's own immune cells are helping some cancer patients — but not all — even when standard treatments fail.	Algunas personas con cáncer están curándose con inmunoterapia, que en lugar de atacar directamente las células malignas trata de provocar que las propias defensas del paciente combatan la enfermedad.

Lead	Steve Cara expected to sail through the routine medical tests required to increase his life insurance in October 2014. But the results were devastating. He had lung cancer, at age 53. It had begun to spread, and doctors told him it was inoperable.	En octubre de 2014, Steve Cara esperaba pasar sin ningún problema los exámenes médicos de rutina requeridos para extender su seguro de vida. Sin embargo, los resultados fueron devastadores: a sus 53 años tenía cáncer de pulmón. Había comenzado a esparcirse y los doctores le dijeron que no era operable.

Once texts were arranged in these templates, a manual analysis of the data was performed. The starting point was the identification of metaphorical expressions (ME) in the English source segments. In order to do so, we applied the well-established and widely used Metaphor Identification Procedure (MIP) but included some of its later adjustments and a few additional restrictions. The complete procedure, together with the restrictions applied and the methodological decisions made by the researcher, is described in the following section.

3.3.2 Processing of metaphorical expressions

Metaphors in our data were manually identified using the MIP put forward by the Pragglejaz Group back in 2007. The name Pragglejaz is compiled out of the first names of ten metaphor researchers[12] who come from different disciplines such as cognitive linguistics, discourse analysis, corpus linguistics and psycholinguistics. Aware of the discretionality, unreliability and unilaterality that characterizes the process of metaphor identification in a vast portion of research, they proposed a reliable, explicit and empirically sound metaphor identification method allowing for the precise definition of what constitutes metaphor language. The MIP was refined and extended in 2010 and renamed MIPVU (where VU stands for University Amsterdam, the institutional affiliation of its authors Gerard Steen, Lettie Dorst, Berenike Herrmann, Anna Kaal and Tina Krennmayr). This method offers a systematic and transparent procedure for the identification of MEs and, most importantly, the possibility of achieving inter-coder

[12] **P**eter Crisp, **R**ay Gibbs, **A**lan Cienki, **G**erard Steen, **G**raham Low, **L**ynne Cameron, **E**lena Semino, **J**oe Grady, **A**lice Deignan and **Z**oltan Kövecses

reliability. Also, applying this method is consistent with the inductive bottom-up methodological approach embraced. Instead of departing from a predefined conceptual metaphor and browsing the texts to find concrete manifestations to match our preconceived mapping, we depart from the actual MEs used in the corpus to talk about immunotherapies and cancer to only later, at a second separate stage, formulate the potential source domains involved.

In line with this procedure, an expression is regarded as metaphorically used when two conditions are met: a) its contextual meaning contrasts with a basic meaning that is more physical and concrete (although not necessarily more frequent), and b) its contextual meaning can be understood via a comparison with its basic meaning. Basically, all expressions that have a more basic reference (spatio-physical, sensory or otherwise more basic) than the expression's contextual meaning are regarded as metaphorical. The full procedure is as follows:

1. Read the entire text-discourse to establish a general understanding of the meaning.

2. Determine the lexical units in the text-discourse.

3. (a) For each lexical unit in the text, establish its meaning in context, i.e., how it applies to an entity, relation or attribute in the situation evoked by the text (contextual meaning). Take into account what comes before and after the lexical unit.

(b) For each lexical unit, determine if it has a more basic contemporary meaning in other contexts than the one in the given context. For our purposes, basic meanings tend to be:

i. more concrete; what they evoke is easier to imagine, see, hear, feel, smell, and taste;

ii. related to bodily action;

iii. more precise (as opposed to vague);

iv. historically older;

Basic meanings are not necessarily the most frequent meanings of the lexical unit.

(c) If the lexical unit has a more basic current-contemporary meaning in other contexts than the given context, decide whether the contextual meaning contrasts with the basic meaning but can be understood in comparison with it.

4. If yes, mark the lexical unit as metaphorical.

(Pragglejaz Group, 2007, p. 3)

Given our definition of metaphor, this study does not make a distinction between conventional metaphorical meanings (what some authors call lexicalized or dead metaphors) and more innovative, creative uses of language (original or novel metaphors). Even if metaphors vary along the novelty/conventionality continuum, this aspect was not taken into account for our identification or classification purposes. We do touch upon this conventional versus innovative distinction when analyzing metaphor translation solutions. Neither do we make a distinction between indirect, direct and implicit metaphors. We consider there is metaphorical meaning in all cases where one thing is represented in terms of another, thus similes and open comparisons are included. Like Semino et al. (2018), we followed the MIP outlined above but adopted some of the later refinements proposed in its latest form, namely the MIPVU. Thus, basic meanings were not necessarily expected to be historically older than contextual meanings. In other words, we only regarded criteria i, ii and iii in step 3b above. In line with the rationale behind this methodology, all components used in the analysis and all restrictions and methodological decisions made need to be explicitly acknowledged to enhance trustworthiness. To this end, we follow Semino et al. (2018) and explicitly state below a) dictionary used for reference; b) unit of analysis; and c) *a priori* exclusions that were made.

a) When it came to identifying basic meanings of MEs in English, we used the recent and corpus-based *Macmillan Dictionary* (as both Steen et al., 2007 and Semino et al., 2018 do) as a point of reference and resorted to the *Longman Dictionary of Contemporary English* in cases of doubt.

When it came to recognizing MEs in the Spanish translation, we resorted to *Diccionario de la Lengua Española* (RAE online).

b) We took the word as our unit of analysis. The analysis was restricted to open class lexical units, that is, nouns, verbs, adverbs and adjectives[13]. Although an individual word is taken as a lexical unit in the MIPVU, we made some exceptions, thus partly siding with those who claim metaphor can extend beyond a single word to surrounding context (Cameron and Maslen, 2010). We considered phrasal verbs (e.g., "melt away", "sail through", "race down") as well as hyphenated compound forms ("game-changer", "jump-start") to constitute one lexical unit, for they form a type of inseparable unit "and their individual parts do not require independent analysis for potential metaphorical meanings" (Steen et al., 2010, p. 28). Hence, "melt away" was regarded as a single lexical unit instead of considering "melt" and "away" independently as two separate lexical units. The same reasoning was applied to some idiomatic and conventionalized expressions (e.g., "shot in the dark") present in the corpus. Unlike MIPVU, which treats them as semantically decomposable for each word is considered as a separate lexical unit, this study analyzed them in a non-compositional fashion regarding them as a unit for the sake of metaphor identification.

c) One major restriction applied to the analysis of metaphors in the corpus concerns the topics or target domain involved. We only considered MEs that were used to broadly talk about cancer and immunotherapy, including the relationship between patients/doctors/scientists with cancer and immunotherapy, how immunotherapy works to treat cancer, the immune system reaction to immunotherapy, the effects of immunotherapy, among others. Thus, we excluded all other MEs that were present in the texts but were not strictly relevant to talk about these issues.

Once all MEs were identified using the MIP, the next step was to identify the source and target conceptual domains involved in each case and examine the correspondences or mappings across domains. To do this, all the MEs from the corpus

[13] Thus, excluding closed-class (grammatical) words such as prepositions and conjunctions.

were included in an Excel file and classified[14] on the basis of the tentative source conceptual domain they draw upon to talk about cancer and immunotherapy. This provided us with some simple quantitative information revealing the most and least frequently used source domains. We could then identify the number of metaphors used in each article to talk about cancer therapies and the number of metaphors per source domain that were used. A detailed, qualitative analysis of each ME was also performed at this time. MEs were examined in their discursive context to recognize their main functions and effects.

Finally, the comparative/contrastive portion of the analysis was carried out. Similarities and differences as to the MEs used in the English and Spanish texts were observed. Special attention was given to cases of Spanish MEs that involved some kind of change. When analyzing translation solutions, frequencies were also counted and this allowed us to note correspondences and contrasts between the two languages.

3.3.3 Reliability in metaphor identification

Besides recording all decisions made during the processing steps as to what is included and excluded in the MIP (as detailed in 3.3.2 above), reliability in metaphor identification was optimized resorting to two independent raters. Two colleague analysts were asked to validate our identification of metaphors by carrying out an independent analysis of the MEs present in a sample of texts from the corpus. The two raters are English translators holding MA degrees. They are both translation teachers with a solid background in linguistics.

Their job consisted in individually analyzing a sample of texts from the corpus and validating (or questioning) the identification of MEs and translation strategies done by the researcher. Raters were provided with an ad hoc summary of the MIP prepared by the researcher (this summary is included in Appendix II). This summary outlines the procedural steps of the MIP and includes some application examples. In addition, raters were provided with the seminal paper on the MIP published in 2007 by Steen et al. for further reference.

[14] Following Steen et al. (2010) and Semino et al. (2018), we resorted to the When-In-Doubt-Leave-It-In or WIDLI criterion with some borderline cases.

Fairly reliable results were obtained between the researcher and the two individual raters: even if there were a few cases of disagreement as to the identification of some MEs, cases were discussed until consensus was reached. A rate of about 90 % inter-rater agreement was reached, which fares quite well if we consider that a 75% inter-rater agreement in identifying metaphor is usually thought to be acceptable (Cameron, 2003). The two raters were also asked to evaluate whether they considered the ME was kept the same or has undergone some sort of transformation when translated into Spanish. Needless to say, this does not entail metaphor identification is 100% accurate in this corpus as there might be instances of MEs that were overlooked or wrongly classified. However, serious efforts were made towards applying a systematic procedure in a reliable and replicable way.

CHAPTER 4

ENGLISH METAPHOR PATTERNS

This chapter presents the quantitative and qualitative description of the main metaphor patterns identified in the analysis of metaphorical expressions (MEs) in our English corpus. A subsection is devoted to each predominant type and illustrative examples from the corpus are provided in each case. We discuss how metaphors combine to serve ideational, interpersonal and textual functions in the scientific popularization articles under analysis. Finally, some of the difficulties encountered in the analysis stage are discussed and a brief summary of the main findings related to this first analytical phase is included in the closing section of the chapter.

4.1 Metaphor patterns in the English corpus

We identified a total of 221 MEs in the English corpus. These MEs are not evenly distributed in the corpus, with Texts 1 and 2 showing the greatest number of cancer-related MEs. As Texts 1 and 2 are, coincidentally, the longer ones in the corpus, metaphorical density was calculated based on a normalized index of metaphor density expressed per 1,000 words[15]. The resulting normalized frequencies (NFs) are included in Table 2 below. The scientific popularization texts that make up the corpus included an average of 26.05 MEs per 1000 words. Interestingly, albeit the possible limitations in the construction of these averages, this figure coincides with the metaphor density of 27 MEs per 1000 words identified by Cameron (2003, p. 86) for spoken educational discourse rather than the frequency of 10 MEs per 1000 words expected to be found in classroom (written) texts.

[15] The normalized frequency of every text in the corpus was calculated by dividing the number of cancer-related metaphors identified in each text by their total word count and then multiplying by 1,000.

Table 2. MEs in the corpus

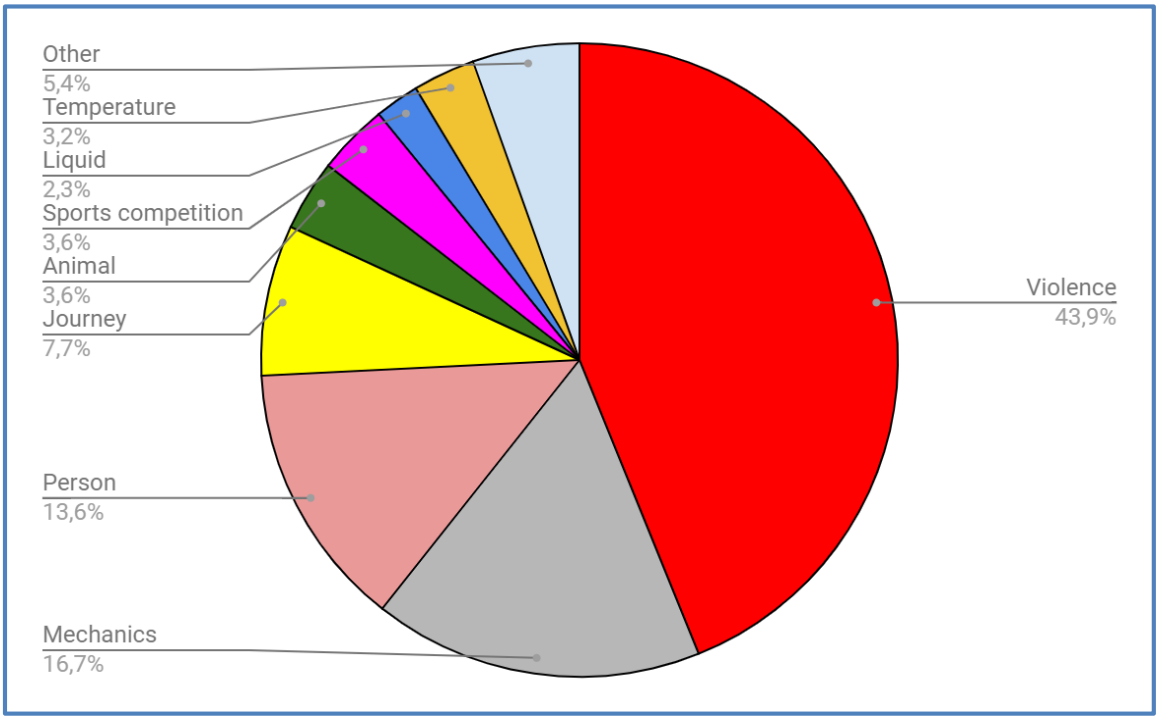
Text #_Source Publication Date		**TWC EN**	**TWC SP**	**TWC**
Text 1_SA				
	Cancer Immunotherapy: The Cutting Edge Gets Sharper	1835		1835
	Inmunoterapia para el cáncer: el tratamiento de vanguardia se vuelve más preciso 66 MEs		2052	2052
NF per 1000/w		**36.51**		
Text 2_NYT				
	Harnessing the Immune System to Fight Cancer	1693		1693
	Una esperanza contra el cáncer en nuestro propio organismo 63 MEs		1958	1958
NF per 1000/w		**37.21**		
Text 3_NYT				
	Doctors Said Immunotherapy Would Not Cure Her Cancer. They Were Wrong.	1366		1366
	Cuatro remisiones inesperadas apuntan a nuevos tratamientos contra el cáncer 42 MEs		1467	1467
NF per 1000/w		**29.99**		
Text 4_NYT				

	Lung Cancer Patients Live Longer With Immune Therapy	724		724
	La inmunoterapia puede extender la vida de pacientes con cáncer de pulmón 16 MEs		843	843
NF per 1000/w		**23.48**		
Tex 5_NYT				
	Desperation Oncology': When Patients Are Dying, Some Cancer Doctors Turn to Immunotherapy.	1144		1144
	'Oncología desesperada': inmunoterapia como último recurso 17 MEs		1243	1243
NF per 1000/w		**16.60**		
Text 6_NYT				
	A Promising Cancer Treatment Made Patients Worse, Not Better	1154		1154
	Un revés para la inmunoterapia: hace que algunos pacientes con cáncer empeoren 17 MEs		1273	1273
NF per 1000/w		**12.56**		
TWC		7916	8836	**16752**

The results from this study add up to many previous studies that have observed that violence or militaristic metaphors are, by far, the most frequently used when it comes to conceptualizing diseases. Cancer is not an exception. The violence source domain is a rich and widely exploited domain that serves to account for different aspects of the cancer

experience[16]. Figure 3 below shows the distribution of the source domains linked to the 221 MEs identified in the English corpus.

Figure 3. Distribution of metaphor patterns according to source domain



As it can be seen, the red segment of the graph represents the overwhelming predominance of violence metaphors to talk about cancer and cancer therapies followed by mechanicist metaphors in grey and instances of personification in pink. All other metaphor patterns were found to be less frequently used in the corpus. In the sections below, a detailed combined analysis is presented together with examples of all metaphor patterns that achieved a frequency of about 4%. For some MEs we identified a metaphorical meaning but it was hard to subsume them under a single potential source domain. All those cases were classified as "Other" and accounted for 5% of the MEs related to immunotherapy and cancer. "Other" worked as a miscellaneous category including MEs that occurred more sporadically. This category comprise MEs that involve a sartorial character (for example, [immunotherapy] is not one size fits all, T1); similes that explicitly state a physical resemblance (tumor cells were like bags of hidden proteins, T4), or set phrases working on their own in a particular textual context whose literal

[16] It comes as no surprise then that the few cases of MEs added in the Spanish translations also originate in this violence source domain.

meaning contrast with their conventional metaphorical interpretation (It's [Immunotherapy] a shoot in the dark, T3).

4.1.1 Confrontational scenario between human/animal-like entities

The CANCER as WAR conceptual metaphor establishes a correspondence between the source domain WAR and the target domain CANCER and this is a) explicitly stated in T1 as the metaphor takes a nominal form (Example 1) and b) given an informationally prominent position as the heading of T2 (Example 2). In the latter case, the conceptualization of cancer as a war is presented right from the beginning in a textually salient position, somehow anticipating that this is the particular framing that will prevail in the text.

Example 1

…questions remain to be answered before anyone can declare victory in the war on cancer. (T1)

Example 2

Harnessing the Immune System to Fight Cancer (T2)

The military scenario is evoked through a vast array of related MEs that set up multiple correspondences between the WAR and CANCER domains. Cancer is portrayed as the enemy against which a fierce and tenacious patient (note she presents herself as not yielding) is resolved to wage a fight (Example 3) and the immune system is described as an army of cells that defends the body against invaders (Example 4). Just like military troops, immune cells can be urged to act, by means of immunotherapy (Example 5).

Example 3

"I have aggressive cancer, but I'm not giving in to it," Ms. Sabol said. "It's going to be a big battle with me." (T2)

Example 4

The immune system — a network of cells, tissues and biochemicals that they secrete — defends the body against viruses, bacteria and other invaders. (T2)

Example 5

Rather than attacking the cancer directly, as chemo does, immunotherapy tries to rally the patient's own immune system to fight the disease. (T1)

In line with Williams Camus's findings (2009), a large number of nouns and verbs related to the war domain are used to explain how cancer therapies work. Table 3 below contains a list of metaphorical expressions related to the war domain collected from the corpus. The list includes verbs in their infinitive form only for the sake of showing the wide variety of manifestations of this pattern and does not include repetitions. That is to say, the infinitive form "attack" is included only once in the list although this ME was recurrently identified (16 instances in the corpus) and occurred in different inflected forms (e.g., attacks, attacking, attacked).

Table 3. MEs of CANCER is a WAR

Nouns	Verbs	Adjectives
invader, weapons, soldiers, battle, crossfire, victory, attack, shield, arsenal, destruction, defenders, explosion, blockade	kill, attack, fight, wipe out, defend, quell, strike, demolish, destroy, mobilize, rally, struggle, shatter, catch, halt, spur, give in, dismantle, rebuff, pierce, repel, target, suppress, threaten	devastating, fierce, aggressive

In line with the high frequency of personification and humanization in popularization articles observed by Shuttleworth (2017), the person metaphor is the third dominant cross-domain mapping in our corpus. Both the patient's immune system and cancer cells are recurrently represented under this anthropomorphic light:

a) They are attributed human features such as intention and volition.

"This makes it easier for the immune system to pay attention" (T1)

"But cancer often finds ways to hide from the immune system or block its ability to fight" (T2)

So the immune system leaves them alone (T3);

b) They are ascribed typically human personality traits like deviousness ("cancer cell's ability to fool the immune system", T1) and the major human ability of recognition ("The immune system sees these tumors as foreign", T3; "the immune system may recognize that cells in which (...) are dangerous", T3).

c) They are said to show different modes of behavior, mainly aggressiveness, and have distinct human emotions, such as wrath (I have aggressive cancer, but I'm not giving in to it, T2; "But turning the wrath of the immune system against cancer can be a risky endeavor", T2).

Along with personification, an alternative cross-domain mapping that draws upon the ANIMAL source domain was identified. The corpus includes MEs that represent the immune cells as insects moving in large groups (But when white blood cells swarm in to attack the cancer cells, they bounce back, rebuffed). In addition, there seems to be a pervasive conceptualization of the immune system in terms of a forceful, wild and untamed beast that needs both restraint (Harnessing the Immune System to Fight Cancer, T1; (…) unleash the patient's own immune system to kill malignant cells, T4) and training (All that matters is that the immune system be trained to see the tumor as a foreign invader, T5). We find this metaphorical structuring underlying the headline of T2 that reads "Harnessing the Immune System to Fight Cancer". The contextual meaning of the verb, i.e., gaining control over the immune cells to defend the patient against the disease, contrasts with its more basic primary meaning which involves putting a harness on an animal so that it can, for instance, pull a cart. Interestingly, this metaphor assumes it is doctors who are in charge of the harnessing, thus bringing about particular identity-building effects.

In the context of the confrontational scenario promoted by the pervasive VIOLENCE metaphor, immune cells are presented as well-trained hunting helpers, much like hound dogs, which can be perfectly controlled to hunt down a prey, that is, cancer cells (… help immune cells — unleashed by the checkpoint drugs — to identify their prey, T4). However, preys are not easy to find, they are not in the open but hiding, and so cancer cells are portrayed as a menacing but obscure living entity (undetectable amounts of cancer might still be lurking somewhere in the body, T1).

Finally, we can observe that both the conceptualization of cancer as a war and the conceptualization of immune cells and cancer cells in terms of the predator-prey dyad, achieve a similar effect. In both frames, the patient is left out of the picture. In line with Williams Camus's (2009) observation, the effect is that of rendering cancer patients

invisible (p. 488) since the main protagonists highlighted are the cancers (be them enemies or preys) and the doctors (be them commanders-in-chief or hunters).

4.1.2 Human machinery

Machine metaphors are the second most frequent metaphor type in our corpus. They are mostly used to talk about the workings of immunotherapy and its effects on the immune system and cancer cells. In addition, they are used to represent the actions performed by medical researchers.

The conceptualization of the human body in mechanicist terms is not new. In fact, it has pervaded Western biology and medicine since the times of the Industrial Revolution. In our corpus, we identified an extension of this metaphor by means of which a specific part of our body, the immune system, is conceived of in terms of a machine. Within this framing, our immune system, much like a complex electronic system, can be set up and fine-tuned as suggested by the metaphorical use of the verb "tweak" in Example 6 below.

Example 6

Investigators have developed several different methods for tweaking a patient's immune system (…) (T1)

Like all mechanical systems, the human body can have parts that fail to operate correctly and "malfunction". In Example 7 below, it is proteins the piece of the machine that shows a defective functioning. In this case, it is particularly relevant to emphasize the contextual nature of metaphoricity. In a different linguistic context, or if occurring independently as an isolated instance, the adjective "malfunctioning" can be arguably said to be non-metaphorical and be simply referring to the human body's physiological functioning. However, against this systematic mechanicist framing, it acquires a clear metaphoric resonance.

Example 7

They [genetic mutations that cause cancer] do not create the wide range of malfunctioning proteins that would usually attract the immune system's attention. (T1)

This mechanicist metaphorical structuring gets more specific in some passages. In example 8, the human body is depicted as having brakes, a gas pedal and a gear stick, all of which researchers can manipulate and control.

Example 8

They [cancer researchers] are starting to figure out when it's more important to take the brakes off the body's immune responses, when to step on the accelerator to get a sluggish reaction into high gear—and when they can safely do both. (T1)

Thus, while several MEs like the one in Examples 6 and 7 set up a correspondence between an non-specific type of machinery and the immune system, all the MEs in Example 8 (as well as in Examples 9-11 below) set up a direct analogy involving a particular type of machine, namely, an automobile. This conceptualization recurrently emerges in the texts that make up our corpus and is part of a particularly productive extended metaphor.

By means of the MACHINE metaphor correspondences are established between the MOTOR VEHICLE source domain and the target domain of IMMUNOTHERAPY. Some aspects regarding the parts and the operation of an automobile are used to conceptualize, in the familiar terms a semi-lay audience may understand, the effects of immunotherapy drugs on the human organism. Example 8 above illustrates the clear explanatory function served by mechanicist metaphors that cluster at particular stretches of text in the articles under analysis. Immunotherapy is still today a largely unknown therapeutic option for cancer patients and understanding its complex workings call for a rather advanced knowledge of human biology. However, by drawing an analogy between the parts and the operation of an automobile (that is, a familiar kind of machine close to everybody's everyday experience) and the workings of this breakthrough oncological treatment, the metaphor allows for the concepts to be clearly understood and driven home.

However, this metaphor does not perform a solely ideational function as it also conveys particular interpersonal meanings. On the one hand, researchers are positioned as the mechanical experts who have all the necessary technical expertise to drive this "vehicle machine" for they can decide what gear to put it in and change its speed at will. They are the technical experts in charge of both a) careful engineering design (note the use of the verb "engineer" in Example 9 below which comes from the machinery source

domain and is currently widely used to refer to cell genetic modification) and b) operation of the machine (as shown in example 10 below). With time, scientists can improve their driving skills to gain a better "handle" or maneuver of immunotherapy unwanted effects. On the other hand, patients are simply the pieces of a system over which others have control; patients and their bodies are objectified and, consequently, dehumanized.

Example 9

CAR T cells are immune cells that have been genetically engineered [by investigators] to target tumors in a much more powerful way than normal immune cells can. (T1)

Example 10

As investigators study different combinations of treatments and dosages, they (...) and believe they are getting a better handle on some of the most severe side effects (T1)

In consonance with this framing, the human body is conceived of as a machine made up of lower level controllable entities, such as cells. The same mechanicist conceptual metaphor applies to such entities. The machine body possesses switchers, levers and buttons that are activated and cells seem to fit this role. This cellular switching may bring about positive effects. In Example 11 below, the activation of white cells thanks to immunotherapy initiates the immune response against cancer. In Example 12 below, immunotherapy drugs are said to be useful in preventing cancer cells from rendering this switching mechanism inoperable.

Example 11

If so, the patients will get an immunotherapy drug to help activate their white blood cells to attack the tumor. (T3)

Example 12

The drugs free immune cells to fight cancer by blocking a mechanism — called a checkpoint — that cancer uses to shut down the immune system (T2)

All these switching MEs[17] seem to be ultimately based on an understanding of body processes in simplified mechanical and relatively linear terms. As pointed out by Williams Camus (2009), such a conceptualization "highlights that the actions, functions and processes to which they refer are controllable and are executed quickly" (p. 474). The overall effects of such a conceptualization are similar to those achieved by animal metaphors. You may conceive of the immune system either as an undisciplined animal that needs training in order to obey the instructions given by its owner, that is, the person in the know (the doctors/scientists), or represent it like a mechanical system that can be controlled by simply pushing some buttons. In either case, these conceptualizations rest upon a dangerous simplification which assumes utter controllability of a complex system that is far from obeying straightforward mechanical rules.

4.1.3 New scenarios

In addition to the general antagonistic background described in 4.1.1, we can also identify some instances of MEs that draw upon the SPORTS COMPETITION source domain. For instance, a race metaphor pattern crops up in a narrative passage that tells the story of a patient who ended up resorting to immunotherapy. We get to know that the patient ran out of alternative therapeutic options and was advised by doctor A to try immunotherapy. Hesitant about this new treatment, the patient asked for a second opinion and decided to see doctor B. Example 13 below includes a) the passage from T2 in which this patient retells the answer he got from this second doctor and b) the wrapping-up of the narrative offered by the text-producer. Interestingly, this summarizing segment includes a ME that keeps within the same source domain.

Example 13

(a) When the doctor heard the answer, Mr. Cara recalled, "he closed up the folder, handed it back to me and said, 'Run back(1) there as fast as you can.'"

(b) Many others are racing(2) down the same path(3).

This passage contains 3 MEs that are used to describe the patient's opting for immunotherapy. While both MEs #1 and #3 imply some kind of movement along a path,

[17] Another variant to this framing was identified in segments referring to cancer "turning off" the immune system (T2) and cancer "turning the defenders [immune cells] off" (T1)

ME #2 explicitly depicts this movement in terms of a race. In all the cases, the use of such MEs contributes to evoking the sense of urgency and desperation that pervades the search for cancer therapies. The activity carried out by researchers who explore immunotherapy is also represented as a hectic race against the clock with a similar franticness ("researchers are rushing to find ways to combine treatments to improve their effects", T4). This is the response type demanded by what is metaphorically represented as a new playing field that imposes a new set of "rules".

Example 14

"Under rules of desperation oncology, you engage in a different kind of oncology than the rational guideline thought," Dr. Sartor said. (T5)

The metaphorical use of the term "rules" in Example 14 above activates what may be identified as the submetaphor CANCER TREATMENT IS A GAME within the superordinate metaphor CANCER IS A COMPETITION. The ME produced by the quotee, Dr. Sartor, contributes to further depicting this frame as one of exceptionality and urgency. In this new scenario, physicians' decisions may not follow the standards of rationality and rigor that are assumed to characterize modern medicine. Within this frame, physicians can turn a blind eye to long-established evidence-based practices and offer drugs to some terminal patients not based on a clinically proven reliable criterion but rather, as Dr. Sartor is quoted to say in a later passage, "as a roll of the dice" (T5). Ultimately, immunotherapy is portrayed in terms of a game of luck, devoid of ethical implications.

Cancer, or more specifically the search for a cure for cancer, is also conceptualized as involving some kind of movement along a path. In our corpus, patients are often framed as the travelers who hustle along the way towards a goal (as shown by the metaphorical use of the noun "path" in Example 13 above). Even when there are just a few instances of the CANCER as a JOURNEY metaphor which has been found to be frequently used by cancer patients, unpaid family carers and health professionals in Semino et al.'s (2018) study, some basic path-related MEs were found in our corpus but with a much lower frequency. This may be partly accounted for in terms of the particular genre under study and the thematic restrictions applied. The texts in our corpus are mainly devoted to presenting immunotherapy and discussing its pros and cons to semi-lay audiences and, in contrast to the data from the online forums and blogs analyzed by Semino et al. (2018),

our texts do not dwell on the depiction of the patient's personal experience with the disease. Most of the path-related MEs identified in our corpus are used to talk about the advancement of the broad field of oncology and immunotherapy in terms of a forward/backward movement along a trajectory. These cross-domain mappings at times highlight the positive step-by-step forward motion of research on new treatments, including immunotherapy ("Stanford University oncologist Ron Levy has taken this concept one step further by using low-dose radiation treatment to kill a few malignant cells, T1). Alternatively, a related path/territory-based metaphor is used to cast doubt about immunotherapy, by postulating that those who suffer unexpected side effects after receiving immunotherapy are in unknown, and possibly perilous, grounds, moving about a space but lacking a map (Patients like her are in uncharted territory, T2).

4.2 Richness, clusters and coherence

War and mechanicist metaphors are the most prevalent in our corpus and together they represent over 50% of all MEs. This is hardly surprising as they are extremely conventional and productive metaphors in English and have been found to be frequently used in the comparable popularization articles studied by Williams Camus (2009). We have examined how these metaphor patterns recur in our corpus and produce various effects. Three additional observations can be made regarding metaphor patterns in the English corpus. These observations are discussed below in association with illustrative cases from the corpus.

a. It is striking to observe the degree of richness and intense vividness of the scenarios evoked by extended war and mechanicist metaphors.
b. Metaphors do not only come in chains (that is, in extended form) but also in clusters. The fact that metaphors occur in specific stretches of text and cluster is indicative of some kind of discourse work going on.
c. Some metaphors seem to play a major structural/textual function by contributing to textual coherence.

First, extended[18] war and mechanicist metaphors in the corpus create vivid scenarios rich in details and associations. Even if the term "war" was not explicitly included in any of the popularization texts examined by Williams Camus (2009), we did

[18] We understand extended metaphor as "the occurrence of several words in close proximity that express the same metaphorical comparison" (Semino et al., 2018, p. 281)

find the explicit metaphor “war on cancer” in our corpus. In Text 1, we get to know scientists still lack a definite answer that can allow them “to declare victory in the war on cancer”. Once a general warfare framing is explicitly introduced to talk about cancer and its treatment in the article’s lead, it is not surprising to find numerous other MEs scattered throughout the text that expand on such conceptualization. Far from isolated and unconnected instantiations of the war metaphor, there is a rich network of war-related MEs with references to the “weapons” the immune system has in an “arsenal” (Example 15), the T-cells as the soldiers acting as “defenders” of the immune system (Example 16), and the deployment of military convoys (Example 16) to rebuff the enemy. By means of this creative elaboration of the war metaphor, each new ME added contributes to the weaving of this bellicose scenario rich in allegedly shared images of a potentially high emotional and cultural resonance.

Example 15

The immune system has such powerful weapons in its arsenal (…) (T1)

Example 16

In these cases the immune system has already dispatched lots of immune cells to the tumor; it's just that the cancer manages to turn the defenders off whenever they arrive. (T1)

Additionally, Example 16 above includes what Shuttleworth (2014b, 2019) calls “rich images". A metaphorical expression is deemed “to involve a rich image if it appears to evoke a sophisticated complex of associations, whether these are judged highly developed or only moderately so” (Shuttleworth, 2019, p. 236). The use of the verb “dispatch” (applied to immune cells, conceived of as troops) in Example 16 above is richer in associations and details than a possible blander alternative like “send”. The same applies to “turn off” (“the cancer manages to turn the defenders off whenever they arrive”) in this very same example with its associations to a switching mechanicist framing. Richness seems to be linked to other notions such as the degree of vividness, specificity and level of detail of a metaphorical expression. This richness parameter has proven to be significant in Shuttleworth’s (2019) multilingual analysis of translation solutions as there seems to be a tendency to replace a rich image with a non-rich image. As there are several

rich metaphorical expressions in our corpus, this observation will be of relevance when it comes to examining translation solutions.

Second, as observed by Cameron (2008, p. 200), metaphors in talk, as well as in some written texts, do not tend to be evenly distributed but cluster at certain points and may be almost totally absent at some other points. This seems to be the case in our corpus. As noted by Corts and Pollio (Corts and Pollio, 1999, as cited in Cameron 2008, p. 200), these "bursts of figurative language are characterized by a coherent metaphor that is then elaborated by an interrelated network of ideas and images". Clusters in our corpus seem to be linked to a topical need, i.e., several MEs occurring in a sequence and focusing on the same theme are produced for the sake of explaining concepts that are removed from everyday experience. Identified as "the main discourse work carried out in clusters" (Cameron and Stelma, 2004, p. 115) in other genres such as lectures and lessons, it also seems to be at play in our corpus when explanations of difficult or unfamiliar topics are offered by means of the extended use of the metaphor the BODY IS A VEHICLE.

Third, apart from serving an explanatory and rhetorical function, the extended war and mechanicist metaphors in the corpus of the present study also seem to be working at the textual level. Text 1 has a particularly high number of machinery metaphors (25% of the total of MEs identified in this text are of this type) that occur in close textual adjacency and are repeatedly and consistently used to explain how immunotherapies act on the immune system. After the text-producer puts forward the idea that controlling the immune system is comparable to controlling a car (see Example 8 above), it is only natural to interpret the second lot of mechanicist MEs included a few passages below (see Example 17) as emanating from the same root metaphor and producing linear and global coherence which results in the rich depiction of a homogenous and extended mechanicist scenario.

Example 17

Indeed, the idea that you don't have to kill all the cancer cells in a tumor to get the immune system going sparked a lot of interest at the conference (…) (T1)

By killing a few cells, it may prime the immune system to respond better to later treatments. In some cases the release of cancer proteins jump-starts the immune response. In others a chemotherapy drug such as gemcitabine actually releases the brakes by temporarily eliminating the cells whose normal job is to tamp down the immune system. (T1)

What needs to be considered here, especially with an eye to the contrastive analysis of translation solutions that follows, is that the use of MEs like “get going”, “prime”, “jump-start” and “release the brakes” attributable to the same automobile source domain contributes to the continuity of sense in this passage. We feel that any change in one of the links that make up this metaphorical chain may have a bearing on the global coherence of the text.

4.3 Difficulties along the way

Once problems with the identification of MEs following the MIP were overcome and consensus was reached with the raters, it was time to identify the conceptual domain evoked by all the MEs. This proved to be far from unproblematic. As noted by previous researchers (Krennmayr, 2011), this step still heavily depends on the researcher’s subjective evaluation.

Coming up with broad general labels for the source domains identified was not straightforward. We had to adjust our classification of metaphor patterns several times along the process. For instance, as the great majority of the MEs identified in the text seem to coherently and collaboratively build an antagonistic prototypical warfare scenario we initially postulated a WAR metaphor pattern. However, we noticed that some of the MEs we had ascribed to such domain did not involve that specific kind of violence. For instance, the adjective form “devastating” in “But the results were devastating (T2)" does not necessarily conjure up the prototypical warfare scenario (or at least not to the same extent “arsenal”, “killing” and “demolish” do) but rather the effects of any general kind of violence or aggression (in this particular case, the consequences of a cancer diagnosis on a person’s life). Thus, we postulated an encompassing primary VIOLENCE metaphor pattern to include all such cases and acknowledged the subpatterns involved.

The same applies to the MEs that draw upon what we call the GAME source domain (see 4.1.3 above). Even if we had initially postulated two separate patterns to distinguish between instances based on a SPORTS COMPETITION source domain and instances based on a GAME source domain, we ended up postulating a broad general pattern. As games typically involves a competition of at least two opposing parties, we included GAME instances within the upper-level COMPETITION metaphor pattern.

Additionally, we observed that at times boundaries between domains are not clear-cut. For example, the SPORTS COMPETITION and WARFARE domains seem to have a lot in common, as both entail an adversarial scenario. Does this mean we should have

included both patterns within a single more abstract higher-level cross-domain mapping such as CANCER IS A COMPETITION?

The same reasoning applies to the cases of personification identified in the corpus. The linguistic forms of personification were analyzed following the MIP (Pragglejaz Group, 2007). The application of this procedure entails that there should be a non-human contextual sense and a human basic sense and that these can be contrasted but also compared (Dorst, 2011, p. 118). Deciding whether the basic sense is human is thus of key importance. How can we claim that the use of the ME "trained" (see 4.1.1 above) in relation to the immune system activates the animal source domain and not the human source domain? We coincide with Dorst (2011) who claims that "it may not always be clear whether a basic sense should be interpreted as human only, human and animal, sentient beings, animate beings, concrete entities, and so forth" (p. 118). In the particular case of the verb "train", the primary sense definition of the term included in the MacMillan dictionary proved to be of help as it includes the humanness quality: "to teach someone to do a particular job or activity"[19]. However, we acknowledge that some of the cases in the corpus that were classified as instances of personification could have been alternatively classified as ANIMAL metaphors from this alternative approach.

Additionally, we could have made a distinction between an overarching superordinate and more encompassing CANCER as a LIVING ORGANISM metaphor and then identified at least two subordinate subpatterns: CANCER is a PERSON and CANCER is an ANIMAL. Yet, as the main objective of our research is to explore translation solutions, we can settle with the rather perfectible classification exposed in this section. This general account of the most prevalent metaphor patterns offers us a decent starting point for recognizing possible differences in how metaphorical meanings (irrespective of the level of abstraction involved in their labeling) are transferred or not into Spanish and observe the associated effects.

[19] https://www.macmillandictionary.com/dictionary/british/train_2, my underlining.

CHAPTER 5

SPANISH TRANSLATION SOLUTIONS

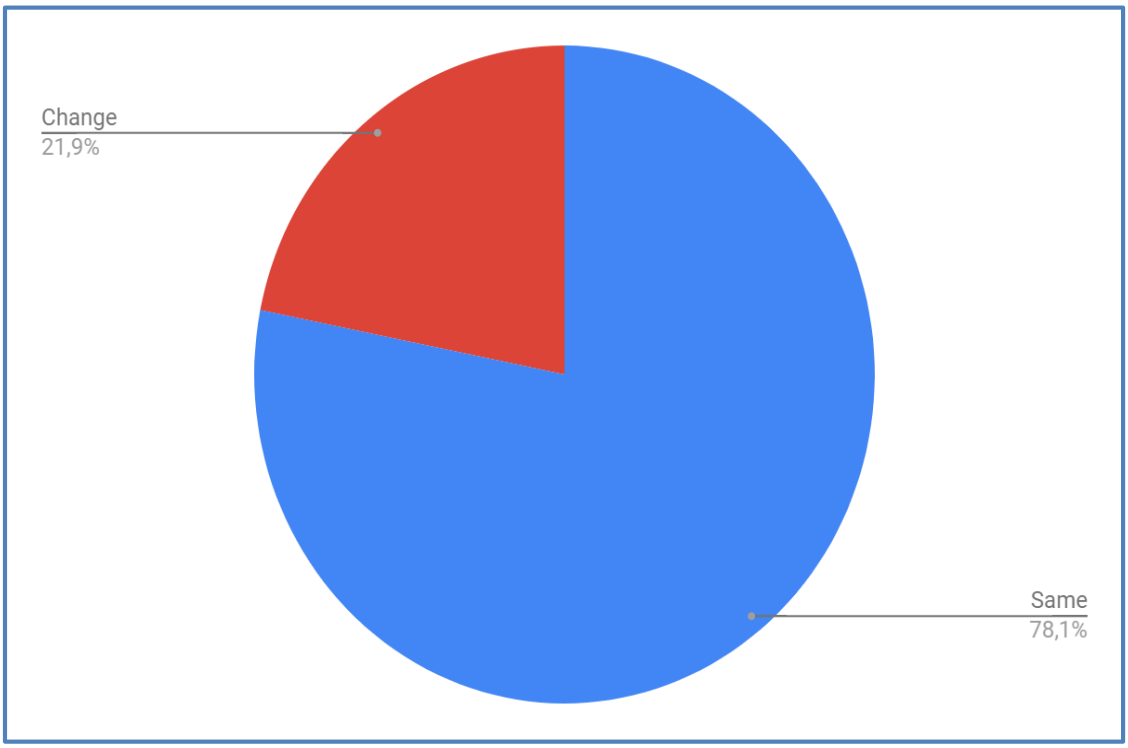
This chapter presents the quantitative and qualitative description of how metaphorical expressions (MEs) were translated into Spanish. The different Spanish translation solutions are thus examined with respect to the main metaphor patterns of the English corpus. The translation strategies observed include complete deletion, translation of metaphor into same metaphor, translation of metaphor into different metaphor and translation of metaphor into non-metaphor. We argue that this classification can only offer a limited understanding of how MEs are dealt with in translation and, in line with the basic goal of our study, attention is paid to the effects brought about by such translation solutions. A contrastive analysis sheds light on the shifts undergone by metaphors and examines losses and gains in terms of idiomaticity, metaphor systematicity, metaphor specificity and meaning.

5.1 Overview of translation solutions

Out of a total of 221 MEs identified in the English corpus to talk about cancer therapies, a great majority, accounting for 78% of the cases, is translated into Spanish using the same metaphor (M > M). Both the conceptual metaphor and the linguistic expression (that is, the ME that realizes the metaphor) are predominantly retained in the Spanish rendition. This translation strategy seems to be the default choice in our corpus and is represented by the larger blue segment of the pie chart included in Figure 4 below. The across-the-board application of this translation strategy brings about some particular effects that call for further examination. These will be discussed in subsection 5.4 below.

A total of 47 MEs are either totally missing or somewhat changed in the Spanish translations. As illustrated in the red segment of Figure 4 below, in almost 22% of the cases, the translators' solutions reveal other ways of dealing with MEs other than simply copying the source ME.

Figure 4. Broad view of translation strategies in the corpus



As expected, shifts are of various types and bring about a number of effects. Considering that translating metaphor into the same metaphor (M > M) seems to be the norm rather than the exception, the instances in which translators, for some reason, do not resort to an equivalent ME in Spanish deserve careful attention. In the sections below, these shifts are discussed from two different angles. First, translation solutions are examined according to the metaphor type involved. Second, translation solutions are analyzed with an eye to the different effects they bring about in the Spanish renditions. However, before delving into the analysis of translation solutions and shifts, attention is given to a special case. In line with the more comprehensive translation approach advocated by Toury (1995), attention is paid to MEs present in the Spanish renditions but missing from the English source. This resulted in the identification of a few but revealing additions. Although these cases are not represented in Figure 3, for the general process of ME identification was done departing from the English source texts and comparing source to target, this finding is revealing and will be discussed in the following section.

5.2 Additions: non-metaphor into metaphor

In line with what Samaniego Fernandez, Velasco Sacristan and Fuertes Olivera (2013) observed in their study, a small percentage of MEs were created by translators and

added to the Spanish renditions. Interestingly, in our corpus the very few target MEs created from non-metaphorical source text material all belong to the VIOLENCE type. Example 18 below serves to illustrate that, on rare occasions, translators seem to introduce metaphors of their own design. In this particular passage, the words of a medical doctor who runs a clinical trial on immunotherapies are quoted. Although the quotee does not use the verb "fight" to label what they, as immunopathologists, do with tumors and he simply uses the English verb "treat", the matching Spanish segment includes the ME *combatir*. This ME is consistent with the pervasive war scenario that is created to talk about cancer (which was discussed in depth in Chapter 4).

Example 18

English	Spanish
"If we have learned anything, it is that it is not the tumor type we are treating — it is the immune system." (T3)	"Si algo hemos aprendido es que no se trata del tipo de tumor que combatimos, sino del sistema inmunitario". (T3)

The metaphoricity of the verb included in the Spanish version adds a shade of antagonism to doctors' approach to cancer. However, such hostile framing is not the translator's innovative creation. Much on the contrary, the translator's use of this ME comes as a natural and consistent choice given the prevalent violence framing resulting from the extensive use of war metaphors in the source text. This finding suggests that translators may create their own MEs. Irrespective of their being deliberate or not, the emerging local result is in line with the ongoing discourse: the added ME does not set up a new mapping between completely new or arbitrary domains but is rather grounded on the prevailing framing at play, thus representing a discursively coherent choice.

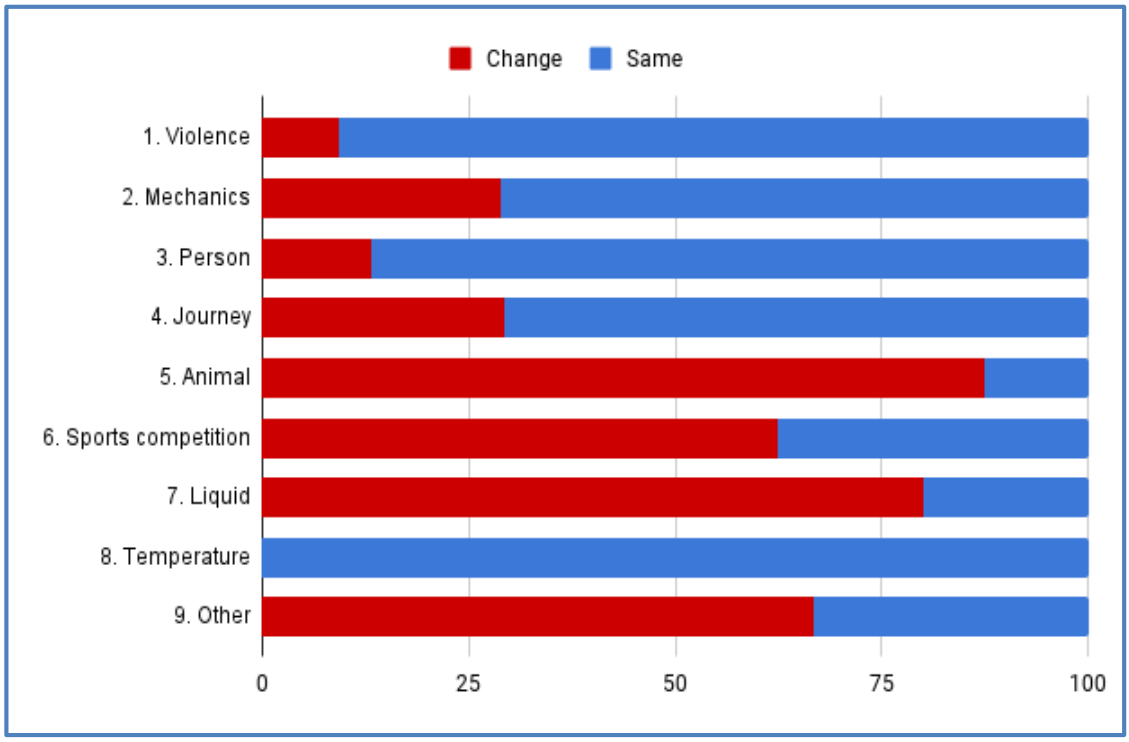
5.3 Translation solutions according to metaphor types

Even if there is a 22% change or transformation in the corpus, we observe a general tendency to isomorphism. Similarly to Samaniego Fernandez, Velasco Sacristan and Fuertes Olivera's (2013) findings, the Spanish translations in our corpus tend to copy the English original; thus, in general terms, the great majority of source MEs are

translated into Spanish using an equivalent ME that expresses a similar conceptual mapping. However, not all metaphors are kept the same to the same extent.

As illustrated by Figure 5 below, when the aggregate data is broken up into different categories (i.e., the different metaphor patterns identified in the corpus), a somewhat different and more nuanced picture emerges. Considering that the red portion of the bars identifies change of the source metaphor while the blue portion identifies retention of the source metaphor, we can make some further observations.

Figure 5. Retention or modification: MEs according to source domain



First, a few TEMPERATURE MEs, specifically employed in the English corpus to describe cancer tumors as either hot or cold, are all transferred intact into Spanish (illustrated by the full blue bar in row 8). Even if TEMPERATURE metaphors have been extensively studied vis-à-vis the target field of EMOTIONS (Kövecses, 2000), there is no previous study which has addressed the use of TEMPERATURE metaphors to talk about cancer or immunotherapy. In the corpus, the terms “hot” and “cold” are not used in their basic, physical sense to talk about tumors having a high or low temperature. By contrast, they are metaphorically, and highly technically, used to describe tumors in relation to their having a high or low quantity of a particular type of immune cells which,

consequently, renders them more of less likely to respond to immunotherapy[20]. This specific metaphorical use is explicitly flagged though the use of metaphoricity signaling devices. In both EN and SP, the MEs in question, "hot/*calientes*" and "cold/*fríos*", are enclosed within quotation marks when first used in reference to tumors. In addition to indicating that the terms are used in a technical sense, the presence of the quotation marks serve to draw the reader's attention to the presence of a ME[21].

Second, as it can be observed in row 1, VIOLENCE MEs are kept to a remarkably greater extent than the MEs belonging to all other types. Out of the total of 97 VIOLENCE MEs identified in the English corpus, an equivalent Spanish metaphor, that is a ME that draws upon the same source conceptual domain and establishes exactly the same cross-domain mappings, is used in over 90% of the cases. Table 4 below includes an illustrative array of VIOLENCE MEs present in the English texts and the corresponding MEs used in the Spanish translations.

Table 4. Violence MEs translated into the same Violence MEs

VIOLENCE framing		
Word category	**English**	**Spanish**
Nouns	invader, weapons, soldiers, battle, crossfire, victory, attack, shield, arsenal, destruction, defenders, explosion, blockade	invasor, armas, soldados, batalla, fuego cruzado, victoria, ataque, escudo, arsenal, destrucción, defensores, explosión, bloqueo
Verbs	kill, attack, fight, defend, quell, demolish/destroy, mobilize, struggle, shatter, halt, spur, give in, dismantle, rebuff, pierce, repel, target, suppress, threaten	matar, atacar, combatir, defender, suprimir, destruir, movilizar, batallar, hacer añicos, detener, lanzar, rendirse, desmantelar, rechazar, perforar, repeler, atacar, suprimir, amenazar
Adjectives	devastating, fierce, aggressive	devastador, feroz, agresivo

[20] https://www.cancer.gov/publications/dictionaries/cancer-terms/def/hot-tumor

[21] These instances serve as illustrations of what Gutiérrez Rodilla (2005, p. 43) identifies as neologisms of meaning, a process by means of which new terms are coined on the basis of existing words that take on new (in this case new and metaphorical) meanings. This process is claimed to be more frequently used in recently created areas of scientific knowledge, which is the case of cancer immunology.

Cancer and immune cells are personified as if they were animate entities involved in a violent confrontation. VIOLENCE MEs are richly elaborated and expanded to create the highly specific war scenarios already discussed in 4.2 above in both the English and the Spanish texts. The predominant use of this translation strategy, which simply involves reproducing the source ME in the Spanish rendition, indicates that the conceptualization of cancer treatment in terms of a violent confrontation is stable, highly conventional and widely accepted in both cultures and is realized at the textual level by means of the same linguistic expressions. MECHANICIST and JOURNEY MEs are the next two most frequent types in the English corpus as shown in rows 2 and 3 of Figure 5. As opposed to VIOLENCE MEs which are predominantly translated into the same metaphor, these seem to give rise to a more diverse repertoire of translation solutions, some of which will be discussed below.

Third, source MEs grounded on the ANIMAL, LIQUID and SPORTS COMPETITION domains are only rarely translated using the same ME, as indicated by the red portion of the bars (rows 5, 6 and 7) pertaining to these three metaphor patterns in Figure 5. Even when these three types occurred with a very low frequency in our corpus, the sum of which accounts for only 9% of all MEs, their translation into Spanish seems to bring about shifts of various sorts which will be further examined in this analysis.

5.4 Metaphor into same metaphor

As it was already mentioned, most VIOLENCE MEs are translated into Spanish by simply applying the M > M procedure, thus showing a correspondence both in terms of how the two languages conceive of cancer and immunotherapy and how both languages employ similar idiomatic realizations (e.g., the ones listed in Table 3 above). However, it was noticed that, at times, the choices made by translators, even if much attuned to the militaristic prevailing framing, include some atypical collocations that impact on the naturalness and native-like[22] quality of the resulting translation.

Following the MIP, the verb "struggle" (in Example 19 below) was identified as an instance of a ME, for its contextual meaning (that is, making an effort to achieve a goal) contrasts with its basic meaning (using one's physical strength against someone or

[22] We opt to use the term "native-like" to characterize this general quality that contributes to making a translation read as fluently and naturally as the original. Some authors refer to this same notion as idiomaticity (Steen, 2014; Piccioni, 2013).

something) and it can be understood in comparison with it. Thus, we can conceive of abstract effort in terms of physical effort, difficulty, opposition and conflict.

Example 19

English	Spanish
"The tale has befuddled scientists, who are struggling to understand why the drugs worked (...)" (T3)	"La historia ha dejado perplejos a los científicos, quienes batallan por comprender por qué los medicamentos funcionaron (…)" (T3)

The struggling attributed to scientists in English gets translated into Spanish by means of the ME *batallar* which, even if grounded on the same general conceptual antagonistic metaphor, gives rise to a rather atypical combination (**batallar por comprender*). Despite the availability of a more natural idiomatic option, possibly realized by using the verb *esforzarse* or the verbal locution *hacer un esfuerzo*, the translator chooses an innovative metaphorical, but rather atypical collocation, in the target language. Far from involving a different metaphorization or a loss in the metaphorical rendition, the Spanish ME reinforces the metaphor. This points to two observations that will be further illustrated and discussed below 1. metaphoricity seems to be a graded phenomenon and 2. metaphor translation solutions, even if classified as belonging to the same general broad type, bring about different effects.

Example 20 below includes one of the many realizations of the second most common framing that prevails in the corpus. The mechanicist ME "shut down" is fully retained in the Spanish rendition, i.e., the translator uses a strictly literal equivalent (namely, *apagar*) that expresses the same conceptual metaphorical mapping.

Example 20

English	Spanish

"His next step is to try to combine this method (...) with monoclonal antibodies that prevent tumors from shutting the immune system down " (T1)	"Su próximo paso es tratar de combinar este método (...) con anticuerpos monoclonales que previenen que el tumor apague el sistema inmune" (T1)

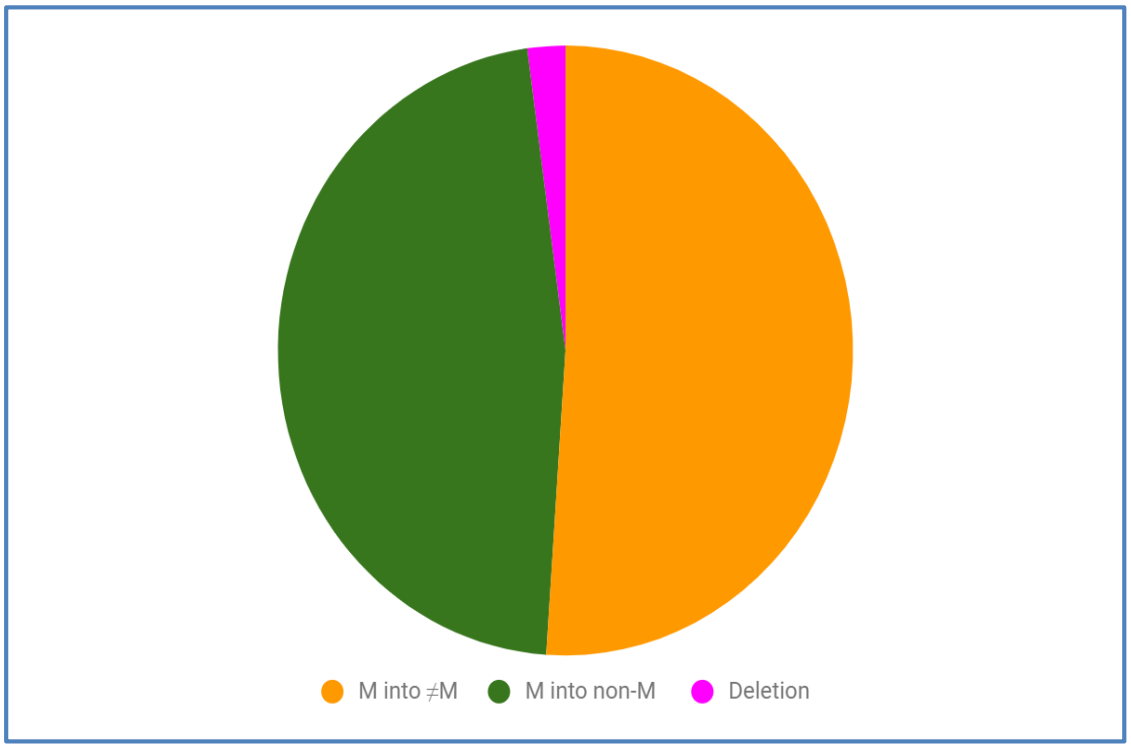
The translation solution provided is fully consistent with the mechanicist metaphorical framing but the ME used gives rise to a semantic clash between the verb (*apagar*) and the noun expressing its direct object (*el sistema inmune*). As pointed out above, a large number of the mechanicist MEs identified in the English corpus are translated into Spanish by means of equivalent MEs, which proves these cross-domain mappings between machine and human body are not exclusive to English. However, the verb *apagar* applied to the immune system (instead of another available alternative like *desactivar* which is still based on the same conceptual domain) is rather atypical in Spanish. The mechanicist conceptual metaphor is retained, although it is realized by a rather unusual collocation. Whether it be intentional or not, this translation solution seems to be introducing a novel metaphorical expression, modelled on the source language. These observations are arguably pointing to the "source language shining-through" effect (Teich, 2013, as cited in Piccioni, 2017) observed by both Piccioni (2017) and Samaniego Fernandez, Velasco Sacristan and Fuertes Olivera (2013) in their studies. In these cases, ST material is turned into novel metaphors by means of literal translations.

5.5 Focus on shifts: changes and effects

So far we have discussed cases of retention of the source ME. We have observed that metaphor translation solutions, even when classified as belonging to the same general broad type, bring about at least two different effects, namely that of metaphor reinforcement and that of source-language reverberation via the atypical ME chosen. Now, when MEs are not translated into the same metaphor, several effects also take place. Figure 6 below offers a zoomed-in representation of the red segment indicating changes in Figure 4 above. That is, we now examine all the translation solutions that instead of keeping the metaphor the same, involve a change or transformation of the source ME. These are classified as belonging to three main types, as indicated by the orange, green and pink segments below. Only one metaphor was dropped altogether from the Spanish rendition. This is represented by the narrow pink segment and this translation solution is

what Toury (1995) and Jensen (2005) describe as "Deletion" (metaphor into Ø). Contrasting with the results presented in Rey Vanin (2014) and Shuttleworth (2017), in our corpus MEs do not wholly disappear. However, this does not mean changes do not take place. The two other general strategies observed consisted either of **1**) substituting a metaphor with a ME based on a different conceptual metaphor (M into ≠M) or **2**) replacing a ME with a non-metaphorical paraphrase (M into non-M).

Figure 6. Focus on shifts: main translation solutions in the corpus



Solutions 1 and 2 were used with roughly the same frequency in the corpus, with metaphor into a different metaphor (solution 1 represented by the orange segment) showing a slightly higher frequency than replacement by a paraphrase (solution 2 represented by the green segment). Even when identifying the general metaphor translation solutions used in Spanish scientific popularization texts can be of interest in its own right, for it adds to Shuttleworth's multilingual analysis whose corpus did not include Spanish, this study centers on effects rather than taxonomies. Thus, translation solutions are contrastively examined in the three subsections below with an eye to addressing the effects they bring about in the Spanish texts.

5.5.1 Metaphor into different metaphor

The corpus includes a few instances of the LIQUID metaphor pattern. As noted above, source MEs grounded on the LIQUID domain are only rarely translated into Spanish using the exact same literal ME. For instance, in three different texts from the corpus, the LIQUID source domain is used to describe how immunotherapy acts on cancer tumors. As exemplified in Table 4 below, the ME "melt away" depicts tumors in terms of some sort of frozen fluid, be it ice or snow, which, thanks to immunotherapy drugs, can thaw in a relatively short period of time, as expressed by the temporal adverbials "overnight" in 2 and "within a few months" in 3.

Table 5. Focus on liquid MEs: the case of "melt away"

English	Spanish
1. Remarkable stories of tumors melting away (...) (T2)	1. Varias historias notables de tumores que desaparecen (T2)
2. When the drugs work, a cancer may seem to melt away overnight. (T5)	2. Cuando estos medicamentos funcionan, parece que el cáncer se disuelve de un día para otro. (T5)
3. Within a few months her tumors melted away (...) (T1)	3. Unos pocos meses después sus tumores se desvanecieron (...) (T1)

None of the three different Spanish renditions for the source ME "melt away" resorts to the most literal possible translation, i.e., none uses the Spanish verb *derretirse*. In fact, it would be quite awkward and unidiomatic to find such a verb used metaphorically in this context (**tumores que se derriten*) as *derretirse* in Spanish seems to have only a concrete physical meaning. While the metaphorical conceptualization of the process is completely missing in 1, which translates "melt away" as *desaparecer*, 2 and 3 do offer metaphorical equivalents which, while not necessarily based on an unequivocally LIQUID source domain, still describe the process in terms of a swift change of state. Verbs such as *disolverse* and *desvanecerse* retain the metaphorical image and, although representing somewhat innovative metaphorical uses in this context, they are not squarely disruptive.

Thus, the translation solution provided by the metaphorical verbs used in 2 and 3 retains the metaphorical image and its rich associations.

Example 21 below shows an instance of a ME that is grounded on the JOURNEY source domain. The metaphorical use of the phrasal verb "sail through" seems to be highly culture-specific. This nautical ME is deployed in the narrative lead of this article, which serves to catch the reader's attention and sets the scene against which immunotherapy is later on introduced as an alternative to traditional therapies.

Example 21

English	**Spanish**
Steve Cara expected to sail through the routine medical tests (T2)	Steve Cara esperaba pasar sin ningún problema los exámenes médicos de rutina (T2)

In the Spanish rendition, the ME is substituted by a paraphrase, also identified as translating "metaphor *into* non-metaphor" (Toury, 1995) and "conversion of metaphor to sense" (Newmark, 1988). This is not the only case of substitution by paraphrase that we find in the corpus. Even though it can be observed here that the metaphor is not lost altogether (for *pasar* can still be recognized as metaphorical), the translation solution is more of an explanation of the metaphor, devoid of the subtler image richness of the metaphorical rendition.

The two cases (i.e., the Spanish translation provided for "melt away" and "sail through") discussed in this subsection also back up the hypothesis that holds explicitation is a tendency of translated texts, thus supporting Piccioni's (2017) findings. They also provide further evidence of the general tendency of replacing a rich image with a non-rich image (Shuttleworth, 2019). In addition, the presence of alternative renditions (both non-metaphorical and metaphorical) for the same ME, as observed in the case of "melt away" (Example 20), together with the frequent use of paraphrase, which may not involve demetaphorization but always seems to entail a shift in the image richness of the source ME (as discussed in Example 21 above), can be interpreted as springing from conceptual and linguistic incompatibilities between the source and target languages.

We can concede to Steen's (2014) position and accept that in certain cases the differences between metaphor use in ST and TT "are caused by differences between SL

and TL regarding the availability of conventionalized metaphorical senses across the lexicon" (2014, p. 12). However, our corpus includes cases where shifts cannot be accounted for simply in terms of the (un)availability of a corresponding conceptual metaphor and/or a ME in the target language. In the next section, we examine several cases where translation solutions bring about significant effects that range from affecting a metaphor's richness and specificity to introducing significantly distorted interpretations. No matter what factors condition these translation solutions, the resulting effects are noticeable when performing a contrastive analysis and do not seem to be of little significance, as Steen seems to uphold (2014, p. 23).

5.5.2 Loss of specificity and distorted meanings

While mechanicist MEs are the second most frequent type in our English corpus, when we look at the translation solutions in the Spanish texts, they are among the ones that show the most significant shifts.

In some cases, the translation keeps intact the mechanicist conceptualization, even as it becomes specific, as illustrated in Example 22 below.

Example 22

English	Spanish
They [cancer researchers] are starting to figure out when it's more important to take the brakes off the body's immune responses, when to step on the accelerator to get a sluggish reaction into high gear—and when they can safely do both.	[Los investigadores oncológicos] están empezando a entender cuándo es más importante eliminar el freno a la respuesta inmune del organismo, cuándo pisar el acelerador para que una reacción lenta se transforme en una a toda marcha– y cuándo se pueden hacer ambas cosas de manera segura.

All the underlined source and target MEs set up this noticeable analogy between immunotherapy and the operation of an automobile (already discussed in 4.1.2). The immune system is described in terms of a motor vehicle and controlling the immune system is explained in terms of driving a car. For all the English MEs that make up this extended metaphor, the Spanish translation solution involves using vehicle-related MEs,

equally conventionalized and readily available in the lexicon, that retain the richness and specificity of the source MACHINE metaphor.

However, at times, the same mechanicist metaphorical structuring is kept in the translation but the particular ME chosen brings about some loss in the richness and specificity of the source metaphoric image. The metaphorical use of the verb "jump-start" in Example 23 below is functional to the construction of the specific analogy between the immune system and the automobile and contributes to weaving this particularly productive extended metaphor.

Example 23

English	Spanish
In some cases the release of cancer proteins jump-starts the immune response. (T1)	En algunos casos la liberación de proteínas del cáncer activa la respuesta inmune. (T1)

While the choice of the verb *activar* in Spanish sets up a correspondence between the MACHINE SD and the TD of the immune system, this ME points to a general non-specific mechanicist metaphor pattern instead of drawing upon the particular automobile subdomain. That is, despite that fact that this ME would be classified as belonging to the mechanicist type, the choice of *activar*, as opposed to other more specifically vehicle-related possibilities that could have been used like *arrancar* or *poner en marcha*, entails a loss at the level of metaphor specificity.

Next, in Example 24 taken from the very same text, we observe a somewhat different kind of shift. The mechanicist ME "get going" is translated into Spanish using a ME but the source domain involved is no longer that of mechanics but rather that of the physiological processes of animate beings. The translation solution involved here is that of translating a metaphor into a different metaphor. The use of a ME such as *poner en marcha* belonging to the same general mechanicist and specific automobile conceptual subdomain would have been a more coherent choice in this case, particularly considering that this is an extended metaphor that impinges on textual cohesion and coherence.

Example 24

English	Spanish
(...) you don't have to kill all the cancer cells in a tumor to get the immune system going. (T1)	(...) no hay que matar todas las células cancerosas en un tumor para que el sistema inmunológico se despierte (T1).

What transpires from the three examples analyzed in this subsection is that the mere classification of the translation procedures followed by translators does not suffice to offer a fine-grained understanding of how MEs are dealt with as the resulting effects should also be considered. Example 24 above includes an instance that would be classified as M >M and the very same label could be used to describe how source automobile MEs are translated into the same target automobile MEs in example 22 above. However, the analysis of this corpus shows that, even in keeping with the general macro-level mechanicist conceptualization, the particular MEs chosen do not lead to the same effects. If we simply go by the translation procedure and fail to examine the actual micro-level linguistic realizations of the metaphor, we fail to observe the resulting gains or losses in the specificity and richness of the different Spanish translations.

Lastly, in a few but interesting cases, metaphor translation solutions bring about significant changes that result in actual semantic distortions. One of such cases is discussed in example 25 below.

Example 25

English	Spanish
A "complete response" is not necessarily the same thing as a cure because undetectable amounts of cancer might still be lurking somewhere in the body (T1)	Una “respuesta completa” no es necesariamente lo mismo que una cura, porque hay cantidades indetectables de cáncer que aún pueden estar deambulando en algún lugar del cuerpo (T1)

Although both the metaphorical verb “lurk” used in English and the verb *deambular* in the Spanish translation equally personify cancer cells, the semantic associations generated by both expressions are not the same. While “lurk” denotes the

action of waiting, sometimes hiding, in order to frighten, annoy, or attack someone (Macmillan Online Dictionary), *deambular* in Spanish refers to the action of walking without purpose or direction (Real Academia Española). Choosing the verb *deambular* to translate this source ME results in a significant loss of meaning for the inherent threat of the source ME and the intentionality of the action are not kept in the translation. A verb such as *merodear* or *acechar* could have offered a better solution in Spanish and could have been more consistent with the meaning of the source ME and the confrontational scenario that is constructed for cancer as an enemy on the prowl. The semantic distortion introduced in the Spanish text has a clear impact on textual cohesion and coherence.

5.5.3 Metaphor into non-metaphor

As noted above, there are some cases of metaphors translated by non-metaphors. In such cases, the ME is replaced by identifiable non-metaphorical textual material (Shuttleworth, 2017), which means they are paraphrased. Two different cases will be examined below.

The lead in one of the articles narrates the experience of a patient who ended up resorting to immunotherapy after running out of other therapeutic options. When this patient's oncologist suggested trying immunotherapy, the patient was initially reluctant and opted for getting a second opinion. In Example 26 below, the account of the response he got from that second physician is quoted using direct discourse representation.

Example 26

English	Spanish
When the doctor heard the answer, Mr. Cara recalled, "he closed up the folder, handed it back to me and said, 'Run back(1)there as fast as you can.'" Many others are racing(2) down the same path(3).	Cuando este doctor escuchó la respuesta, recuerda Cara, "cerró el folder, me lo regresó y me dijo: 'Regrese* ahí tan pronto como pueda'". Muchos otros están tomando* ese mismo camino**.**

The English passage contains three MEs. All of them describe the process of patients' choosing immunotherapy as one involving movement along a path and are functional to the construction of a sense of urgency and desperation in relation to the

search for cancer therapies (as discussed in greater detail in 4.1.3). Despite the fact that in the Spanish rendition the source ME "path" is translated as *camino*, which keeps the same JOURNEY metaphorical conceptualization, for the other two MEs (namely, 1 and 2) the metaphors are dropped altogether, along with their metaphorical images and their respective associations. The urgency denoted by the doctor's recommendation in English urging the patient to opt for immunotherapy through the verbal phrase "run back" is simply lost by translating it as *regrese*; the frenzy with which patients are described to be opting for immunotherapy in English by means of the verb phrase "race down" is translated by the blander use of the verb *tomar*[23].

Example 27 offers one more illustration of a translation shift that involves a significant meaning loss.

Example 27

English	Spanish
By killing a few cells, it may prime the immune system to respond better (T1)	Matar a unas pocas células puede preparar al sistema inmune… (T1)

In English, the choice of the verb "to prime" applied to the immune system (conceived as the engine of a vehicle that must be primed for it to work) is not accidental or arbitrary, but rather an instantiation of the extended conceptual metaphor THE IMMUNE SYSTEM IS A MACHINE at play in this text. In this case, the source ME is translated into a non-metaphor. Although the meaning of the ME is rendered, the metaphor is lost together with all its rich associations.

All in all, the contrastive analysis performed so far shows that metaphors undergo several transformations in the translation process. Some of the translation solutions found in this corpus result in significant changes that impact on meaning, as specific

[23]This difference can be accounted for by resorting to Talmy's (2002) and Slobin's (1996) insights on lexicalization patterns. That is, English and Spanish have different syntactic means available for the expression of manner information. English can more readily conflate manner and motion in the verb itself while Spanish needs to express manner in an adverbial phrase or gerund, which necessarily entails bringing such components into the foreground and ascribing to it more narrative weight than in the source. To avoid these cognitive and rhetorical side-effects, a translator that comes across the ME "run back" may simply opt for omitting the manner altogether and use the non-metaphorical rendition "regresar". In any case, the desperate hectic quality of the action is not expressed in the translation.

metaphorical connotations are lost and image rich MEs are replaced by non-specific MEs or blander non-MEs. In this study, we uphold that all these shifts also have a bearing on the global coherence of the text as the omitted or shifted MEs are often part of a rich network or metaphorical chain that serves not only an ideational but also a crucial textual function. We thus argue that discrepancies are not negligible but significant as this qualitative analysis has attempted to demonstrate.

CHAPTER 6

CONCLUSIONS

Originated in my personal research interests and nonsystematic observations of the difficulties associated with the translation of metaphors in non-literary texts, this study set out to provide a theoretically sound examination of how metaphors are translated in a corpus of scientific popularization texts. More specifically, it focused on cancer metaphors, in particular metaphors about cancer immunotherapy, in a corpus of scientific popularization articles originally written in English and translated into Spanish. This chapter begins with a revision of the main results achieved in the analysis in relation to the four research questions that framed the investigation. Next, implications and limitations of the study are identified. The assessment of both implications and limitations leads to suggesting possible lines of future research and proposing some practical applications. The chapter finishes with some concluding remarks on the opportunities of further theoretical and practical exploration on metaphor translation solutions and some personal reflections on conducting this research study.

6.1 Research questions revisited

In line with the cognitive-discursive approach adopted, a descriptive and contrastive qualitative methodology was applied in an attempt to offer possible answers to four research questions. The two first questions were oriented to the descriptive stage of this work, namely, 1. what metaphors are used to talk about cancer and immunotherapy in scientific popularization articles? and 2. what functions do medical-scientific metaphors play in such popularization articles? The other two research questions pertain to the contrastive approach of this work and centered on the translation solutions present in the Spanish parallel texts, namely, 3. what procedures are used to translate such metaphors into Spanish? and 4. what global and local effects do such translation solutions bring about?

Taking a descriptive approach, the analysis initially focused solely on the English corpus in an attempt to answer questions 1 and 2. The detailed examination of the MEs on cancer and immunotherapies employed in the English corpus has shed light on the predominance of Violence and Mechanicist metaphors. Special attention was paid to

these two predominant types. Other comparatively less recurrent patterns, including MEs drawing upon the general Person, Journey, Animal, Sports Competition, Temperature and Liquid source domains were also identified. Violence MEs of the prototypical warfare variety were found to be recurrently used to conceptualize the cancer-patient relationship and to explain the workings of immunotherapy. In addition, violence metaphors were observed to productively combine with personification and the use of animal MEs. First, we observed a tendency to humanize both cancer and immune cells (or the immune system as a whole) which are represented as having typically human features, personality traits and behaviors. Second, these struggling entities were represented by drawing upon the ANIMAL source domain; it was particularly noticeable how the immune system was recurrently characterized as a wild beast in need of control. Irrespective of the type of metaphor involved, be it based on a war or an animal domain, the resulting scenario was that of human-like or animal-like violent confrontation and such framing was found to give rise to a number of significant identity and relationship building effects (4.1.1). A mechanicist conceptualization was also found to be frequent in the corpus and a whole section was devoted to the analysis of this metaphor pattern (4.1.2). In line with previous studies on the pedagogical role of metaphors in science popularization, machine-based MEs were observed to serve a clearly ideational function in the corpus under analysis. Along with violence metaphors, they were also found to bring about rhetorical and discursive effects.

In all cases, the analysis of MEs went beyond the mere description of the linguistic form and, in line with the discursive approach adopted in this study, attention was paid to the textual, discursive, rhetorical and cognitive functioning of metaphors. The textual functioning of metaphors in the corpus received particular attention and proved to be of importance for their translation. Several observations were made in this regard. First, apart from recurrently emerging in the corpus, violence and mechanicist metaphors were found to be particularly exploited in an extended fashion; thus, along with recurrence, extension was identified as a major textual metaphor pattern. This crucial observation raises a red flag for translation by highlighting the need to always recognize how MEs group together and relate to each other within texts. Second, it was observed that image-rich MEs evoking the VIOLENCE or MACHINE source domains were used in close proximity to one another, forming a connected metaphorical chain. Vivid scenarios, rich in details and associations, evolved from those chains as each new link either elaborated

on or reinforced the given metaphor scenario. Such metaphorical chains were observed to serve a rhetorical intensifying function. In addition, they were also found to serve a textual function as their chain-occurrence lends structure and cohesion to the text. Finally, MEs were observed to cluster at specific stretches of the text and such bundled occurrences were indicative of the communicative needs that orient this genre. Science popularizers seem to resort to the heightened use of metaphors for explaining complex topics (e.g., the working of immunotherapy) to lay audiences.

In this work, attention was also paid to the implications of the resulting metaphorical frames. Metaphors are essential in science communication and this study has attested to their high frequency of use and their multifunctional role. Metaphors, by definition, involve the foregrounding of some aspects of the source domain at the expense of a) other possible aspects which are thus backgrounded, or b) alternative possible domains which could have been selected. Given their discourse constitutive role and the necessary selection they involve, metaphors in scientific popularization articles are used to frame scientific issues. For instance, even if the conceptualization of the living organism in terms of a vehicle might be particularly effective for helping the ordinary person grasp the workings of immunotherapy, the mechanicist framing that emerges may forcefully influence readers' understanding of that topic. Such a framing may contribute to creating a simplistic vision of how immunotherapy works and possibly bring about false expectations by presenting a complex and innovative treatment as a mere question of pushing the right lever. In this sense, metaphors open up a space for thinking, and ultimately acting, in particular ways. They construct a particular version of reality, which, in turn, may “create visions and expectations that set patterns for action” (Nerlich, Elliot and Larson, 2009). While a simplistic mechanicist framing may contribute to ultimately casting a positive light on immunotherapy, the seemingly entrenched militarization of cancer and its therapies may severely restrict our imagination and prevent us from conceiving other possible (non-antagonistic) ways of understanding health and disease. As Nerlich, Elliot and Larson (2009) point out, “every metaphor has ethical implications for science and society, which need to be explored in more detail” (p. xiv).

Adding a contrastive perspective to the analysis, the Spanish corpus was examined to identify how source MEs were translated (research question number 3). Following the taxonomies available in the literature (particularly Jensen, 2005 and Toury, 1995), translation solutions in the Spanish corpus were classified as 1. Metaphor into same

metaphor, 2. Metaphor into different metaphor, 3. Metaphor into non-metaphor, 4. Deletion, and the special case of 5. Non-metaphor into metaphor. In concordance with the results of previous studies (Piccioni, 2017; Samaniego Fernandez, Velasco Sacristan and Fuertes Olivera, 2013; Shuttleworth, 2017), Metaphor into same metaphor, i.e., retention, was the translation solution that predominated in our corpus. However, there was a 22% of what we called "change" in the Spanish corpus. That is, for a total of 47 MEs the translation solution provided did not involve keeping the same metaphor used in English. There was only one instance of total deletion and three cases of addition of a ME from non-metaphorical source material (section 5.2). Metaphor into non-metaphor (i.e., paraphrase) and metaphor into a different metaphor were used with almost the same frequency. Additionally, translation solutions were observed to vary according to the metaphor type involved (section 5.3). For instance, violence MEs were mostly retained (equivalent linguistic expressions were used in Spanish to realize the same conceptual mappings) pointing to a correspondence in terms of how the two languages conceive of cancer and immunotherapy and how both languages have similar highly conventional idiomatic realizations. By contrast, the translation of MEs based on the Liquid and Journey domains gave rise to the paraphrase of the ME or its translation using a different metaphor (section 5.5.1). In these cases, the high culture-specificity of these metaphors in English can be argued to account for the unavailability of a corresponding conceptual metaphor in Spanish and thus, lead to the use of a metaphorical expression based on a different conceptual domain.

Once again, analysis went beyond a descriptive formal classification of translation solutions. As the identification of the local and global effects brought about by the Spanish solutions was the ultimate goal of this study (as stated in question number 4), attention was paid to the effects produced by such solutions. To this end, insights from previous research studies that explicitly embrace a cognitive approach were incorporated, most notably Schäffner's (2014) micro and macro level distinction and her concern over the contrastive effects produced by translation solutions. Four major observations, which are discussed below, were made in this respect.

6.1.1 Micro level effects: reinforcement and shining-through

One crucial realization was that the classification of the translation solutions deployed needs to be supplemented with the identification of the effects brought about by

said solutions. We expected to detect differences when a translation solution other than simple retention was used. However, contrary to our expectations, some effects were also observed when retention was applied (section 5.4). That is, even if the ME employed in the Spanish translation realized the conceptual metaphor used in English, and thus was classified as an instance of a "Metaphor into same metaphor" translation procedure, the particular ME chosen brought about what we identified as metaphor reinforcement and source-language shining-through effects. Similarly to what was observed by Schäffner (2014), our findings show that even when a conceptual metaphor is retained at a macro-level, the specific textual manifestations at the micro-level may not be exactly the same and may produce at least two different effects. First, the target ME chosen can end up reinforcing or enlivening the source metaphor. This was observed in Example 19, where "struggle" (applied to scientists' work aimed at understanding drugs effects) was translated using a rather novel ME (namely, *combatir*) when it could have been more idiomatically rendered into Spanish as *esforzarse*. This was also observed in Example 20 where the analysis revealed a mechanicist framing was at play in the description of a new treatment as one that prevents tumors from "shutting the immune system down". The source ME "shut down" was translated into Spanish as *apagar* (*anticuerpos monoclonales que previenen que el tumor apague el sistema inmune*) even if *desactivar* could have been a better idiomatic rendition. Second, these rather novel expressions used in the Spanish translations are mostly atypical collocations modelled on the source language and this brings about the so-called shining-though effect. Even if the MEs chosen at the micro-level are in keeping with the macro-level mechanicist framing, the MEs offered stand out as literal translations that have an impact on the idiomaticity or native-like quality of the resulting translation.

6.1.2 Micro level effects: semantic loss

Although in keeping with the macro-level metaphor, the MEs used in the Spanish corpus were found to vary in terms of richness and level of specificity. Image rich MEs were found to be often replaced by non-specific MEs. This non-specificity was linked to Spanish use of a) a ME still belonging to the same general domain but comparatively less image rich and b) a ME based on a different domain than the one used in English. First, non-specificity was observed when the ME used in the Spanish rendition did not draw upon the source specific metaphorical subdomain but rather upon a more general domain. This was illustrated in Example 23 where the specific automobile ME "jump-start" (part

of the extended metaphor that draws a parallel between the workings of the immune system and a car's operation) was translated into Spanish by means of the use of the verb *activar*, that is, a ME that is still based on a general mechanicist domain but fails to draw on the specific automobile subdomain. Second, as Example 24 illustrates, some translation solutions involve the use of a ME with a similar meaning to that conveyed by the English ME but a different source domain. While in keeping with the general inchoative meaning, the Spanish rendition of the ME "get going" as *despertarse* draws upon a personification of the immune system but loses the more specific, and more discursively coherent, mechanicist conceptualization conveyed by the English ME. A few cases involving a more significant semantic loss were also identified. As the analysis of "lurking" translated as "wandering" (*deambulando)* in Example 25 has demonstrated, metaphors perform a crucial ideational function and translation solutions may significantly alter their connotations and discursive effects. Presenting cancer cells wandering instead of lurking fails to build the threat-ridden scenario consistent with the particular confrontational framing at stake.

6.1.3 Effects of paraphrase

The effects of paraphrase as a translation solution were also examined. Deciding to simply drop the metaphor and substitute it with non-metaphorical material is arguably "constrained by the available options offered by the target language, that is, by the forms and contents of its specific lexical structure" (Prandi, 2010, p. 319). However, we observed that translators resorted to this strategy (Section 5.5.3) even when equivalent metaphorical alternatives were readily available and there was no major incompatibility of grammar and lexis. Irrespective of the motives behind this decision, our focus is on the effects and paraphrase always involved some meaning loss as MEs were replaced by blander one-dimensional renditions. In addition, paraphrasing can be associated with the tendency to explicitation that distinguishes translated texts. As Jensen (2005) puts it, "when paraphrasing a metaphor, it is the translator, not the target reader, who disambiguates the text by selecting one right interpretation of the metaphor" (p. 198).

6.1.4 Macro level effects: cohesion and coherence

The fine-grained contrastive analysis performed has revealed that metaphors must not be considered as an individual linguistic phenomenon. That is, translators need to be

fully aware of their major textual functioning in a text. As it has been repeatedly noted in this work, MEs do not occur in isolated, unconnected and sporadic form but rather in a patterned way. We have observed their recurrence, their emergence as clusters and their elaborate use in an extended fashion in the corpus. Likewise, highly predominant metaphor types (namely, Violence and Mechanicist metaphors) were found to crop up in leads (section 4.1.4), thus their role as powerful rhetorical devices that set up a particular framing for the interpretation of the subsequent text is particularly noticeable.

In all the cases, what comes to the foreground is metaphor's major contribution to textual connectedness (Krennmayr, 2011, p. 150). Metaphors create and sustain cohesion across sentences and paragraphs (Charteris-Black, 2004, p. 212) and, ultimately, help to establish overall discourse coherence. The texts that make up our corpus are instances of written planned discourse produced by well-known science journalists. In addition, these articles have been published in authoritative news media outlets (as described in 3.2.2). Thus, the MEs present in the English source texts and the metaphor patterns observed are likely to be the result of careful planning, writing and editing. However, the analysis of metaphor translation solutions suggests Spanish translators often fail to fully grasp, or successfully reproduce, the cohesive force of source MEs. This results in their translating an English ME by means of a less coherent Spanish ME, their simply dropping the metaphor or their translating its meaning via a paraphrase. Although this only rarely causes major meaning distortions and the general idea is still conveyed by means of less-rich, non-specific, non-discursively coherent MEs, this study attempts to demonstrate how such solutions bring about a host of other significant effects which also need to be accounted for. Metaphorically put, a woolen sweater with dropped or twisted knit stitches can still keep you warm in winter, but the knitting mistakes are by no means less visible and the sweater is always a bit more prone to the risk of unweaving.

6.2 Implications of the study

This study has greatly capitalized on discourse analysis in an attempt to promote its further application to the field of translation studies. The descriptive qualitative analysis of the main metaphor patterns in the English corpus has shown that metaphor serves textual, discursive, rhetorical and cognitive functions in scientific popularization articles. The results of the present study carry two major implications that will be addressed below.

From a practical perspective, translators, whom we hold should be first and foremost advanced linguists, are expected to recognize MEs present in non-literary texts and grasp their essential multifunctionality. This highlights the crucial need to perform a thorough cognitive-discursive analysis of metaphors in preparation for translation. For instance, only a preliminary analysis of MEs can enable translators to recognize what may seem to be isolated, unconnected and fairly arbitrary MEs scattered over stretches of text as MEs actually functioning in networks and performing major textual functions. In addition, this preliminary analysis will better equip translators with a deep understanding of the linguistic-conceptual duality of metaphor and thus pave the way for the adequate recreation in the target language of the effects produced by the source MEs. This, we claim, should be the very first step before any translation work can take place. For the students in our translation training program, this points to the need to pay more (possibly explicit and systematic) attention to the actual application of the linguistic skills acquired in their training program to the concrete problem of metaphor translation.

This leads to a second theoretical implication. By focusing on the translation of MEs in a non-literary genre, this work not only contributes to the examination of metaphor translation solutions beyond literature but also provides some evidence against the view that holds that the translation of metaphor in technical or scientific texts does not constitute a problem. This study has revealed that translating a metaphor not only calls for linguistic and cultural competence in the two languages involved but also for advanced discursive-textual competence. Translators should be able to identify metaphorical cross-domains mappings, interpret the functions of metaphors in the text and find appropriate conceptual and linguistic equivalents in the target language that yield the same local and global effects. The analysis of translation solutions reveals that minor differences play an important role in metaphor translation, even when metaphors are apparently translated into exactly the same metaphors. As described in this study, diverse translation shifts occur, from minor shifts in richness and level of specificity to more significant shifts that entail crucial semantic losses. If we hold that solving a problem demands that it be first acknowledged as such, this study points to the concrete need to introduce metaphor translation as a potential challenge in the non-literary fields of technical and scientific translation.

6.3 Limitations

This study has two major limitations. As discussed in 4.3 above, we encountered some problems when it came to the identification of the conceptual domains evoked by some MEs in the corpus. We acknowledge the potentially subjective factors involved in this step of the analysis and attempt to somehow compensate for such weakness by honestly and explicitly stating all the methodological procedures that were followed.

One additional limitation of this study derives from the relatively small size of the corpus. Even if some unusual contrasts between the conceptualization of cancer in English and Spanish were observed, e.g. the comparatively more frequent use of animal-based metaphors in English than in Spanish and the fact that these MEs are largely lost in the Spanish translation, the small size of the corpus prevented us from further exploring this finding. Being this a qualitative study, all observations made pertain to the specific corpus under analysis and cannot be generalized. Even if frequencies are calculated and compared, they only assist in the description of the results and allow us to postulate some tendencies that further studies, employing the same or a comparable methodology and a larger corpus, may support or reject.

Additionally, largely owing to the lack of free-of-charge parallel texts, five out of the six texts included in the corpus were drawn from the same source (namely, the NYT). A larger and more diverse corpus, including popularization articles from other media outlets, may cast a different light on how cancer and immunotherapy are framed in science popularization.

6.4 Future lines of research and suggestions for practical application

This research takes heed of Shuttleworth's call (2019) to consider the textual patterning of metaphor in relation to metaphor translation. Thus, it has identified and examined four of the eight types of patterns summarized by Dorst (2016, p. 179-184); namely, metaphor recurrence, extension, clustering and signaling. However, there remains a lot to be explored. For example, when examining metaphor patterns, we observed that metaphors seem to be particularly used in the headlines and narrative leads of scientific popularization articles. By headlines, we refer not only to the main headline of the article but also to some optional elements that, in the journalistic jargon, are known as over-lines (or upper decks) and subheads (or lower decks). Other elements that call for special attention in relation to metaphors are call-outs and leads. Since the limited size of

the corpus under analysis did not permit further elaborating on this observation, we suggest more research is needed in this respect.

Moreover, punning seems to occur in informationally prominent places. There is a potentially interesting use of MEs simultaneously evoking metaphorical and non-metaphorical meanings in the headline of one of the articles. Translating this literal/metaphorical interplay poses particular challenges that also deserve special attention.

Finally, a key practical application area emerges from the implications of this study. We argue translation trainees may benefit from explicit, systematic metaphor translation practice aimed at honing their metaphor translation skills. In the very local context of the translation training program taught at the School of Languages, Universidad Nacional de Córdoba, such practice may be quite easily incorporated in the course of Scientific Translation and it may build upon the metaphorical awareness students have already acquired in previous courses including Linguistics II, Contrastive Grammar and, more particularly, Linguistics I. When students start their Scientific Translation course in fifth year, they have already gained an advanced knowledge of the semantic, pragmatic and cognitive functioning of metaphors in texts and during this year-long course they focus on the genre scientific popularization article when transitioning from lay-oriented to expert-oriented scientific genres. Although students are encouraged to thoroughly characterize the genre following the model of textual analysis proposed by Gamero Pérez (2001), metaphors are mentioned just in passing and they are presented as on a par with other rhetorical elements. This results in a lack of proper consideration of metaphors' dual linguistic-conceptual nature and an absence of specific tasks addressing the difficulties involved in their translation. We feel the implementation of a variety of translation tasks, ranging from pre-translation or contrastive guided analysis tasks, tasks involving translation error detection and correction, to actual direct translation tasks, could make a significant contribution to the development of a comprehensive metaphor translation competence among our translation trainees. This represents a feasible practical application in the short term as the corpus included in this study, made up of authentic and pedagogically useful texts with various translation problems, can be capitalized on for the design of a set of progressively complex tasks aimed at channeling their knowledge to the actual decision-making and problem-solving process involved in all metaphor translation.

6.5 Concluding remarks

This study upholds metaphor translation poses a problem beyond literature. Even when metaphor translation in scientific popularization texts has not been largely studied, particularly in the English into Spanish language combination, this study shows that metaphors are not only abundant in this genre but challenging for scientific translators. Metaphors cannot be always directly imported into Spanish and they cannot be simply dropped without such decisions producing local and global effects. In this sense, this study opens up new potential avenues for the exploration of metaphor in scientific translation. We look forward to this research's leading to more theoretically-sound and methodologically-comparable studies that will focus on the different effects and multiple dimensions at which metaphors operate in the same genre or in other little explored technical and scientific genres.

This research study has allowed me to fruitfully merge my professional and practically-oriented life as a technical-scientific translator with my academic and more theoretically-grounded activities and research interests as a linguist. In carrying out this research for the MA degree in English with an orientation in Applied Linguistics, I have been able to capitalize on these two previously independent facets of my life and put forward a study of metaphor translation solutions that may have concrete applications for both translation trainees and professional translators in our local context and the broader area of English into Spanish translation practice. Completing this work has certainly enhanced my research skills and kindled my interest in the fascinating area of metaphor and translation.

I am adamant about the edge a professional translator can gain out of a comprehensive academic background in linguistics and I have attempted to demonstrate in this research how translation studies can benefit from a multidisciplinary theoretical and methodological approach that brings together insights from the field of discourse analysis and cognitive linguistics. I hope this research serves to promote future fertile debates on the gains and losses involved in the different ways of dealing with metaphor in translation and to encourage the hands-on application of these findings in the field of professional translation practice as well as in translation training courses.

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APPENDIX I

English corpus

T1. Cancer Immunotherapy: The Cutting Edge Gets Sharper. October 1, 2015, Scientific American.

T2. Harnessing the Immune System to Fight Cancer, July 30th, 2016, The New York Times

T3. Doctors Said Immunotherapy Would Not Cure Her Cancer. They Were Wrong. February 19, 2018, The New York Times.

T4. Lung Cancer Patients Live Longer With Immune Therapy. April 16, 2018. The New York Times.

T5. Desperation Oncology': When Patients Are Dying, Some Cancer Doctors Turn to Immunotherapy. April 26, 2018, The New York Times.

T6. A Promising Cancer Treatment Made Patients Worse, Not Better. June 5, 2018, The New York Times.

Spanish corpus

T1. Inmunoterapia para el cáncer: el tratamiento de vanguardia se vuelve más preciso. 15 de octubre de 2015, Scientific American.

T2. Una esperanza contra el cáncer en nuestro propio organismo, 3 de agosto de 2016, The New York Times

T3. Cuatro remisiones inesperadas apuntan a nuevos tratamientos contra el cáncer, February 21, 2018, The New York Times

T4. La inmunoterapia puede extender la vida de pacientes con cáncer de pulmón, April 23, 2018, The New York Times

T5. ‘Oncología desesperada’: inmunoterapia como último recurso, May 2, 2018. The New York Times.

T6. Un revés para la inmunoterapia: hace que algunos pacientes con cáncer empeoren, June 7, 2018. The New York Times.

Text #1	English	Spanish
URL	https://www.scientificamerican.com/article/cancer-immunotherapy-the-cutting-edge-gets-sharper/	https://www.scientificamerican.com/espanol/noticias/inmunoterapia-para-el-cancer-el-tratamiento-de-vanguardia-se-vuelve-mas-preciso/
Section	MEDICINE	SALUD
Headline	**Cancer Immunotherapy: The Cutting Edge Gets Sharper**	**Inmunoterapia para el cáncer: el tratamiento de vanguardia se vuelve más preciso**
Over-line	Scientists try to understand why some patients get better and others don't	Los científicos intentan entender por qué algunos pacientes mejoran con la terapia y otros no.
Byline	Christine Gorman	
Date	Oct 1 2015	15 de octubre de 2015
Lead	Artificially boosting the body's immune response against cancer is the most exciting advance in the treatment of tumors in the past couple of years.	Impulsar artificialmente la respuesta inmunitaria del cuerpo contra el cáncer es el avance más emocionante en el tratamiento de tumores en el último par de años.
	But as the jam-packed sessions at a recent scientific conference in New York City made clear, a lot of questions remain to be answered before anyone can declare victory in the war on cancer.	Pero aún hay muchas preguntas sin respuesta antes de que alguien pueda cantar victoria en la guerra contra el cáncer, según dejaron en claro multitudinarias sesiones durante una reciente conferencia científica realizada en Nueva York.
	Among them: What is the best way to kick the immune system into action? Will immunotherapy work for all sorts of people with all kinds of cancer or just for a lucky few? Is there a way to make the treatments less dangerous or expensive?	Entre estas preguntas figuran: ¿cuál es la mejor manera de poner en acción el sistema inmune?, ¿la inmunoterapia funcionará para todo tipo de personas con todos los tipos de cáncer o solo para unos pocos afortunados?, ¿hay una manera de hacer que los tratamientos sean menos peligrosos o menos caros?
	It was standing room only for many of the presentations at the first International Cancer Immunotherapy Conference, which took place from September 16 to 19.* Speaker after speaker started their talks by disclosing financial ties to a variety of companies ranging from pharmaceutical giants to their own start-ups. The audience consisted primarily of scientists and physicians. But sprinkled among the 1,400 attendees, in addition to the usual smattering of journalists, were a number of industry scouts and finance people seeking to glean the next big investment opportunity or joint project possibility.	Solo había espacio para estar de pie en muchas de las presentaciones durante la primera Conferencia Internacional de Inmunoterapia del Cáncer, que tuvo lugar del 16 al 19 de setiembre*. Orador tras orador comenzaron sus charlas revelando vínculos financieros con una variedad de empresas que iban desde gigantes farmacéuticos a sus propios start-ups. La audiencia estaba compuesta fundamentalmente por científicos y médicos. Pero salpicados entre los 1.400 asistentes, además del habitual puñado de periodistas, había una cantidad de exploradores de la industria y financistas que buscan conseguir la siguiente gran oportunidad de inversión o la posibilidad proyectos conjuntos.
	Jill O'Donnell-Tormey, chief executive officer of the Cancer Research Institute, proclaimed 2015 "a truly special year for cancer immunotherapy." The U.S. Food and Drug Administration	Jill O'Donnell-Tormey, directora ejecutiva del Instituto de Investigación del Cáncer, proclamó que 2015 es “un año verdaderamente especial para la inmunoterapia del cáncer”. La Administración de

	approved two new immunotherapy drugs, she noted, "more than half of the current cancer clinical trials include some form of immunotherapy," several groups are working on possible combination therapies and oncologists around the world are recognizing "a paradigm shift in cancer." But as exciting as these advances are, she continued, "we know that we are only at the beginning" in terms of being able to understand or broadly use them.	Alimentos y Fármacos de EE. UU. (FDA, por sus siglas en inglés) aprobó dos nuevos medicamentos de inmunoterapia, señaló, “más de la mitad de los actuales ensayos clínicos sobre cáncer incluyen alguna forma de inmunoterapia”, varios grupos están trabajando en posibles terapias combinadas y los oncólogos de todo el mundo están reconociendo “un cambio de paradigma en el cáncer”. Pero si bien estos avances son emocionantes, continuó, “sabemos que estamos solo al principio” en términos de ser capaces de usarlos o entenderlos ampliamente.
Subtitle	**Reality check**	**Verificar la realidad**
	The first thing you need to know about the researchers studying immunotherapy for cancer is that every one of them seemingly has a few patients who have responded extraordinarily well. Steven Rosenberg of the National Cancer Institute no doubt takes the prize in this category. In 1984, he treated a woman named Linda Taylor who had metastatic melanoma (an aggressive type of skin cancer with a survival rate of less than 10 percent after ten years). Taylor was the 81st patient to undergo the debilitating therapy and the first to respond successfully. Within a few months her tumors melted away and she remains alive and healthy today.	Lo primero que usted necesita saber acerca de los investigadores que estudian inmunoterapias para el cáncer es que cada uno de ellos al parecer tiene algunos pacientes que han respondido extraordinariamente bien. Steven Rosenberg, del Instituto Nacional del Cáncer, sin duda, se lleva el premio en esta categoría. En 1984 trató a una mujer llamada Linda Taylor, que tenía melanoma metastásico (un tipo agresivo de cáncer de piel con una tasa de supervivencia menor al 10 por ciento al cabo de diez años). Taylor fue el paciente número 81 que se sometió a la terapia debilitante y la primera en responder satisfactoriamente. Unos meses después sus tumores se desvanecieron y ella sigue viva y sana.
	Rosenberg—the keynote speaker at the conference—reports that his latest regimen is not as hard on patients and results in 20 percent of them experiencing "a complete and durable remission." That's about par for a lot of the immune therapies now being studied.	Rosenberg —el orador principal en la conferencia— informó que su último régimen no es tan duro para los pacientes y resultó que 20 por ciento de ellos experimentó “una remisión completa y duradera”. Esos resultados son de esperarse para muchas de las terapias que se estudian ahora.
	The second thing you need to know is that there is a reason why the body works so hard to suppress its immune reactions most of the time. The immune system has such powerful weapons in its arsenal that it can kill you faster than whatever ails you. And some of the things that doctors do to prepare the body for immune treatment are just as toxic as chemotherapy and radiation. (Indeed, for complex reasons, some immunotherapies require a dose of chemotherapy or radiation as a first step.)	Lo segundo que usted necesita saber es que hay una razón por la cual el cuerpo trabaja tan duro para suprimir sus reacciones inmunes la mayoría del tiempo. El sistema inmune tiene armas tan poderosas en su arsenal que puede matarlo más rápido que lo que sea que le aqueje. Además, algunas de las cosas que los médicos hacen para preparar al organismo para el tratamiento inmunológico son tan tóxicas como la quimioterapia y la radiación. (De hecho, por razones complejas, algunas inmunoterapias requieren una dosis de quimioterapia o radiación como primer paso).

	As Rosenberg says, "We have had some treatment-related deaths. That's been true in the field as well as in our own experience."	Como dice Rosenberg: “hemos tenido algunas muertes relacionadas con el tratamiento. Eso ha sido cierto en el campo, así como en nuestra propia experiencia”.
	With those sobering caveats in mind, however, there is no mistaking the growing optimism among many cancer researchers. They are starting to figure out when it's more important to take the brakes off the body's immune responses, when to step on the accelerator to get a sluggish reaction into high gear—and when they can safely do both. As investigators study different combinations of treatments and dosages, they can see improvements in response rates and believe they are getting a better handle on some of the most severe side effects	Sin embargo, con esas advertencias aleccionadoras en mente, no hay duda del creciente optimismo entre muchos investigadores del cáncer. Están empezando a entender cuándo es más importante eliminar el freno a la respuesta inmune del organismo, cuándo pisar el acelerador para que una reacción lenta se transforme en una a toda marcha –y cuándo se pueden hacer ambas cosas de manera segura–. Al tiempo que los investigadores estudian diferentes combinaciones de tratamientos y dosis, pueden ver mejoras en las tasas de respuesta y creer que están teniendo un mejor manejo de algunos de los efectos secundarios más graves.
Subtitle	**Hot and cold tumors**	**Tumores cálidos y fríos**
	Investigators have developed several different methods for tweaking a patient's immune system so that it recognizes and attacks dangerous tumors more effectively than it otherwise would.	Los investigadores han desarrollado varios métodos para ajustar el sistema inmunológico del paciente para que reconozca y ataque a los tumores peligrosos con más eficacia de lo que en circunstancias normales haría.
	Some of these therapies feature so-called monoclonal antibodies that interfere with cancer cells' ability to fool the immune system into ignoring them. Known as checkpoint blockade, these treatments so far appear to work best in melanoma and smoking-induced lung cancer.	Algunas de estas terapias cuentan con los llamados anticuerpos monoclonales que interfieren con la capacidad de las células cancerosas para engañar al sistema inmunológico y hacer que las ignore. Conocidos como “bloqueo de puestos de control”, estos tratamientos hasta ahora parecen funcionar mejor en el melanoma y el cáncer de pulmón causado por el tabaco.
	There are good biological reasons for that observation. Melanoma and smoker's lung cancer both occur as a result of environmental exposure—the former from the sun’s ultraviolet rays, the latter from carcinogens in tobacco smoke. As a result, lots of mutations occur in the DNA of affected cells. These mutations in turn lead to the production of many aberrant proteins, which are usually recognized by the immune system as potentially dangerous, and any cells that contain them are quickly marked for destruction.	Hay buenas razones biológicas para esta observación. Tanto el melanoma como el cáncer de pulmón del fumador se producen como resultado de la exposición ambiental: el primero a los rayos ultravioletas del sol, y el segundo a los carcinomas presentes en el humo del tabaco. Como resultado, muchas de las mutaciones ocurren en el ADN de las células afectadas. A su vez, estas mutaciones llevan a la producción de muchas proteínas aberrantes, que generalmente son reconocidas por el sistema inmune como potencialmente peligrosas, y cualquier célula que las contenga rápidamente es marcada para su destrucción.
	Researchers refer to these malignancies as "hot" tumors because they sport a lot of deviant proteins that the immune system is likely to notice. They need a long time to figure out how	Los investigadores se refieren a estas malignidades como tumores “calientes”, porque ostentan una gran cantidad de proteínas anormales que probablemente sean detectadas por el sistema inmune. Necesitan

	to shield themselves from the immune system—which is part of the reason hotit typically takes decades for melanomas and lung cancers to grow big enough to threaten someone's life.	mucho tiempo para encontrar la manera de esconderse del sistema inmunológico, lo que es parte de la razón por la que generalmente le toma décadas a los melanomas y a los cánceres de pulmón ser lo suficientemente grandes como para poner en peligro la vida de alguien.
	In these cases the immune system has already dispatched lots of immune cells to the tumor; it's just that the cancer manages to turn the defenders off whenever they arrive. Checkpoint blockade reawakens the immune cells that have already found their way inside the tumor to start killing the malignant cells in the immediate vicinity and anywhere else they may be found in the body.	En estos casos el sistema inmune ya ha enviado un montón de células inmunitarias hacia el tumor; pero el cáncer se las arregla para desactivar a los defensores cada vez que llegan. El bloqueo de puestos de control vuelve a despertar a las células inmunes que ya han hallado su camino dentro del tumor para matar a las células malignas en las inmediaciones y en cualquier otro lugar del cuerpo que puedan encontrarlas.
	Intriguingly, combining checkpoint blockade drugs results in fewer extreme side effects for patients with melanoma than for those with lung cancer. "This is something that is very recently being recognized—maybe in the past two years," says Jedd Wolchok, an oncologist at Memorial Sloan Kettering Cancer Center in New York City. "The same doses of the same medicine may not be tolerated equally in patients who have different cancers. We may have to use less medicine in patients with lung cancer. [Immunotherapy] is not one size fits all."	Curiosamente, el combinar fármacos de bloqueo de puestos de control resulta en menos efectos secundarios extremos para los pacientes con melanoma que para aquellos con cáncer de pulmón. “Esto es algo que se ha vuelto evidente hace muy poco tiempo, tal vez en los últimos dos años”, dice Jedd Wolchok, oncólogo en el Centro Oncológico Memorial Sloan Kettering en Nueva York. “La misma dosis de la misma medicina puede no ser tolerada por igual en los pacientes que tienen diferentes tipos de cáncer. Puede que tengamos que usar menos medicamentos en pacientes con cáncer de pulmón. [La inmunoterapia] no es una medida estándar para todos”.
	In any event, many kinds of cancer (such as prostate, ovarian and pancreatic) are caused by just a handful of genetic mutations. They do not create the wide range of malfunctioning proteins that would usually attract the immune system's attention.	En cualquier caso, muchos tipos de cáncer (como el de próstata, el de ovario y el de páncreas) son causados por un puñado de mutaciones genéticas. Ellas no generan la amplia gama de proteínas defectuosas que normalmente atraen la atención del sistema inmunológico.
	As a result, these tumors are not typically filled with lots of slumbering immune cells waiting to be reawakened; checkpoint blockade, therefore, usually doesn't work on them. They are, in the parlance of cancer immunologists, "cold" tumors.	Como resultado, estos tumores no se llenan típicamente con un montón de células inmunes perezosas que esperan ser despertadas; el bloqueo de puesto de control, por lo tanto, no suele trabajar sobre ellas. Son, en la jerga de los inmunólogos del cáncer, tumores “fríos”.
	And yet, several investigators reported on efforts to turn such cold tumors hot so they could then be targeted with immunotherapy. Padmanee Sharma, an immunologist at The University of Texas M. D. Anderson Cancer Center, for example, described a study in which men with apparently aggressive prostate cancer	Y, sin embargo, varios investigadores informaron sobre esfuerzos de transformar a los tumores fríos en calientes, de modo que puedan ser atacados por la inmunoterapia. Por ejemplo, Padmanee Sharma, inmunóloga del Centro Anderson para el Cáncer, describió un estudio en el que los hombres con un cáncer de próstata aparentemente agresivo

	were given hormone treatment prior to surgery in order to first kill a few of their cancer cells before their tumor is removed. Once these cells die, the various proteins and other compounds that are usually found inside them spill into the body. Somehow, this makes it easier for the immune system to pay attention and it starts sending immune cells to tackle whatever microscopic bits of tumor might be left elsewhere in the body after the operation.	recibieron primero tratamiento hormonal antes de la cirugía para matar a algunas células cancerosas antes de extraer el tumor. Una vez que estas células mueren, las diferentes proteínas y otros compuestos que usualmente se encuentran en su interior se derraman dentro del organismo. De algún modo, esto facilita que el sistema inmune preste atención y empiece a enviar células inmunológicas para combatir cualquier rastro microscópico del tumor que pueda haber quedado dentro del organismo luego de la cirugía.
	Unfortunately, as Sharma told the audience, their subsequent response to immune-boosting drugs was short-lived. She and her colleagues are pursuing several different ideas, however, to make it last longer.	Desafortunadamente, como Sharma le contó a la audiencia, la respuesta subsecuente a las drogas que impulsan el sistema inmune, tuvo una vida corta. No obstante, ella y sus colegas analizan diferentes ideas para hacer que dure más.
Subtitle	**Finding the right balance**	**Encontrar el balance correcto**
	Indeed, the idea that you don't have to kill all the cancer cells in a tumor to get the immune system going sparked a lot of interest at the conference. Ira Mellman, Genentech's vice president of cancer immunology, wondered aloud whether "chemotherapy may in fact be, to some extent, immunotherapy." By killing a few cells, it may prime the immune system to respond better to later treatments. In some cases the release of cancer proteins jump-starts the immune response. In others a chemotherapy drug such as gemcitabine actually releases the brakes by temporarily eliminating the cells whose normal job is to tamp down the immune system.	De hecho, la idea de que no hay que matar todas las células cancerosas en un tumor para que el sistema inmunológico se despierte causó gran interés en la conferencia. Ira Mellman, vicepresidente de inmunología del cáncer de Genentech, se preguntó en voz alta si "la quimioterapia puede ser, en cierta medida, una inmunoterapia". Matar a unas pocas células puede preparar al sistema inmune para responder mejor a los tratamientos posteriores. En algunos casos la liberación de proteínas del cáncer activa la respuesta inmune. En otros, un fármaco de quimioterapia como la gemcitabina en realidad acciona los frenos al eliminar temporalmente las células cuya función normal es aplacar el sistema inmunológico.
	Stanford University oncologist Ron Levy has taken this concept one step further by using low-dose radiation treatment to kill a few malignant cells in 15 patients with non-Hodgkin's lymphoma who had several visible tumors. Then he injected an experimental immunostimkilulatory compound directly into a single lesion in each of these patients. By doing so, he found he could lower the amount of drug he needed to trigger a reaction. Acting on a single tumor—which doesn't require as much medicine as trying to reach all the tumors in the body—was sufficient to trigger a general immune response.	Ron Levy, oncólogo de la Universidad de Stanford, ha llevado este concepto un paso más allá usando un tratamiento de radiación de baja dosis para matar a unas pocas células malignas en 15 pacientes con linfoma no Hodgkin que tenían varios tumores visibles. Luego, a cada paciente les inyectó un compuesto inmunoestimulador experimental directamente en una lesión. Al hacerlo encontró que podía disminuir la dosis de droga que necesitaba para disparar la reacción. Atacar a un solo tumor —lo que no requiere tantos fármacos como tratar de alcanzar a todos los tumores del cuerpo— fue suficiente para accionar una respuesta inmune generalizada.

	Most of the patients in Levy's study exhibited some kind of response; even tumors that had not been treated started to shrink in a few people. Generally speaking, it took six months to two years to see the changes. One 38-year-old man experienced a complete response, meaning all observable signs of the cancer disappeared throughout the body—an outcome that lasted more than a year. (A "complete response" is not necessarily the same thing as a cure because undetectable amounts of cancer might still be lurking somewhere in the body.)	La mayoría de los pacientes en el estudio de Levy mostró algún tipo de respuesta; incluso, en algunas personas, los tumores que no habían sido tratados comenzaron a reducirse. En términos generales, llevó desde seis meses a dos años poder ver los cambios. Un hombre de 38 años experimentó una respuesta completa, lo que significa que todos los signos observables del cáncer desaparecieron de su organismo, un resultado que duró más de un año. (Una “respuesta completa” no es necesariamente lo mismo que una cura, porque hay cantidades indetectables de cáncer que aún pueden estar deambulando en algún lugar del cuerpo).
	"We're trying to make this response more common and more durable," Levy said. His next step is to try to combine this method for stimulating the immune system with monoclonal antibodies that prevent tumors from shutting the immune system down (given at 1/20th of the usual dose).	“Estamos tratando de hacer que esta respuesta sea más común y duradera”, dijo Levy. Su próximo paso es tratar de combinar este método para estimular el sistema inmune con anticuerpos monoclonales que previenen que el tumor apague el sistema inmune (administrando 1/20 de la dosis usual).
	"We hope to eliminate toxicity by going local and lowering the effective dose," he told meeting participants. Although Levy has started treating at least one person with this newer combo approach, he was not yet ready to share results.	“Esperamos eliminar la toxicidad yendo a lo local y bajando la dosis efectiva”, dijo a los participantes de la reunión. Aunque Levy ha empezado a tratar al menos a una persona con este nuevo enfoque combinado, todavía no estaba listo para compartir los resultados.
	Investigators presented several other promising immunotherapies at the conference but no roundup would be complete without mentioning the so-called CAR T cells, many of which have received orphan drug or "breakthrough status" by the FDA in the past 18 months.	Los investigadores presentaron varias inmunoterapias prometedoras en la conferencia pero ningún resumen estaría completo sin mencionar a las llamadas células CAR T, muchas de las cuales han sido identificadas por la FDA con el estatus de droga huérfana o “adelanto” (“breakthrough status”) en los últimos 18 meses.
	CAR T cells are immune cells that have been genetically engineered to target tumors in a much more powerful way than normal immune cells can. To date, clinical trials conducted at Memorial Sloan Kettering, the Fred Hutchinson Cancer Research Center and the University of Pennsylvania Perelman School of Medicine have demonstrated remission rates of about 90 percent in several advanced cancers of the blood and lymph systems (again, not necessarily the same as a cure but still astounding).	Las células CAR T son células inmunológicas que han sido genéticamente diseñadas para atacar tumores de un modo mucho más poderoso de lo que pueden hacerlo las células inmunitarias comunes. A la fecha, los ensayos clínicos desarrollados en el Memorial Sloan Kettering, el Centro de Investigación del Cáncer Fred Hutchinson y la Escuela de Medicina de la Universidad de Pennsylvania han mostrado tasas de remisión de cerca de 90 por ciento en varios cánceres de sangre avanzados, y en sistemas linfáticos (nuevamente, no es necesariamente lo mismo que una cura pero aún es sobresaliente).
	"There are 300 kinds of cancer at least and they're each going to have different issues,"	“Al menos existen 300 tipos de cáncer y cada uno tendrá diferentes particularidades”, dice Carl June de

	says Carl June of the University of Pennsylvania. But, he adds, "I think we have enough tools that we can plot a course." Stay tuned	la Universidad de Pennsylvania. Pero, agregó: “creo que tenemos suficientes herramientas para planificar el rumbo”. Manténgase atento.
	**Four professional associations combined forces to conduct the meeting: the Cancer Research Institute, the Association for Cancer Immunotherapy (CIMT), the European Academy of Tumor Immunology and the American Association for Cancer Research.*	** Cuatro asociaciones profesionales combinaron fuerzas para llevar a cabo la reunión: el Instituto de Investigación del Cáncer, la Asociación para la inmunoterapia del cáncer (CIMT, por sus siglas en inglés), la Academia Europea de Inmunología tumoral y la Asociación de Estados Unidos para la Investigación del Cáncer.*

Text #2	**English**	**Spanish**
URL	https://www.nytimes.com/2016/07/31/health/harnessing-the-immune-system-to-fight-cancer.html?ref=nyt-es&mcid=nyt-es&subid=article	https://www.nytimes.com/es/2016/08/03/una-esperanza-contra-el-cancer-en-nuestro-propio-organismo/?rref=collection%2Fsectioncollection%2Findex
Caption	Steve Cara in an examination room at Memorial Sloan Kettering Cancer Center. Mr. Cara learned two years ago that he had advanced lung cancer, but immunotherapy drugs called checkpoint inhibitors have helped wipe out the disease.	Steve Cara en el Centro Oncológico Memorial Sloan Kettering. Hace dos años Cara fue diagnosticado con un cáncer de pulmón avanzado, pero con inmunoterapia ha logrado deshacerse de la enfermedad.
Section	HEALTH	NOTICIAS |CIENCIA
Byline	DENISE GRADY	
Date	JULY 30, 2016	3 de agosto de 2016
Headline	**Harnessing the Immune System to Fight Cancer**	**Una esperanza contra el cáncer en nuestro propio organismo**
Subhead	New drugs and methods of altering a patient's own immune cells are helping some cancer patients — but not all — even when standard treatments fail.	Algunas personas con cáncer están curándose con inmunoterapia, que en lugar de atacar directamente las células malignas trata de provocar que las propias defensas del paciente combatan la enfermedad.
Lead	Steve Cara expected to sail through the routine medical tests required to increase his life insurance in October 2014. But the results were devastating. He had lung cancer, at age 53. It had begun to spread, and doctors told him it was inoperable.	En octubre de 2014, Steve Cara esperaba pasar sin ningún problema los exámenes médicos de rutina requeridos para extender su seguro de vida. Sin embargo, los resultados fueron devastadores: a sus 53 años tenía cáncer de pulmón. Había comenzado a esparcirse y los doctores le dijeron que no era operable.
	A few years ago, they would have suggested chemotherapy. Instead, his oncologist, Dr. Matthew D. Hellmann of Memorial Sloan Kettering Cancer Center in New York, recommended an experimental treatment: immunotherapy.	Hace unos cuantos años le habrían sugerido quimioterapia. Sin embargo, su oncólogo, el Dr. Matthew D. Hellmann del Memorial Sloan Kettering Cancer Center de Nueva York, le recomendó un tratamiento experimental: inmunoterapia.
	Rather than attacking the cancer directly, as chemo does, immunotherapy tries to rally the patient's own immune system to fight the disease.	En lugar de atacar directamente al cáncer, como lo hace la quimioterapia, la inmunoterapia trata de provocar que el sistema inmunitario del propio paciente combata la enfermedad.
	Uncertain, Mr. Cara sought a second opinion. A doctor at another major hospital read his scans and pathology report, then asked what Dr. Hellmann had advised. When the doctor heard the answer, Mr. Cara recalled, "he closed up the	Cara no estaba seguro y buscó una segunda opinión. Un doctor de otro hospital importante observó sus estudios y revisó su informe de patología, y luego le preguntó qué había aconsejado Hellmann. Cuando este doctor escuchó

	folder, handed it back to me and said, ‘Run back there as fast as you can.’”	la respuesta, recuerda Cara, “cerró el folder, me lo regresó y me dijo: ‘Regrese ahí tan pronto como pueda’”.
	Many others are racing down the same path. Harnessing the immune system to fight cancer, long a medical dream, is becoming a reality. Remarkable stories of tumors melting away and terminal illnesses going into remissions that last years — backed by solid data — have led to an explosion of interest and billions of dollars of investments in the rapidly growing field of immunotherapy. Pharmaceutical companies, philanthropists and the federal government’s “cancer moonshot” program are pouring money into developing treatments. Medical conferences on the topic are packed.	Muchos otros están tomando ese mismo camino. El sacar provecho del sistema inmunitario para combatir el cáncer, ese antiguo sueño de la medicina, se está convirtiendo en realidad. Varias historias notables de tumores que desaparecen y enfermedades terminales en remisión durante años, respaldadas por datos sólidos, han llevado a un interés enorme y a inversiones de miles de millones de dólares en la inmunoterapia, un campo que crece con rapidez. Las compañías farmacéuticas, los filántropos y el programa contra el cáncer del gobierno de Estados Unidos están poniendo mucho dinero en el desarrollo de estos tratamientos. Las conferencias médicas sobre el tema se llenan.
	“This is a fundamental change in the way that we think about cancer therapy,” said Dr. Jedd Wolchok, chief of melanoma and immunotherapeutics services at Memorial Sloan Kettering.	“Se trata de un cambio esencial en la manera en la que concebimos la terapia contra el cáncer”, dijo el Dr. Jedd Wolchok, jefe de atención a melanomas e inmunoterapia en el Memorial Sloan Kettering.
	Hundreds of clinical trials involving immunotherapy, alone or combined with other treatments, are underway for nearly every type of cancer. “People are asking, waiting, pleading to get into these trials,” said Dr. Arlene Siefker-Radtke, an oncologist at the University of Texas M.D. Anderson Cancer Center in Houston, who specializes in bladder cancer.	Cientos de estudios clínicos sobre la inmunoterapia, como tratamiento único o combinado y para todos los tipos de cáncer, están en curso. “Las personas piden, esperan, ruegan por participar en estos estudios”, dijo la Dra. Arlene Siefker-Radtke, una oncóloga del MD Anderson Cancer Center de la Universidad de Texas, en Houston, especializada en cáncer de vejiga.
	The immune system — a network of cells, tissues and biochemicals that they secrete — defends the body against viruses, bacteria and other invaders. But cancer often finds ways to hide from the immune system or block its ability to fight.	El sistema inmunitario (una red de células y tejidos, más las sustancias bioquímicas que estos secretan) defiende al cuerpo de virus, bacterias y otros invasores. Sin embargo, a menudo el cáncer encuentra la manera de esconderse del sistema inmunitario, o bien de bloquear su capacidad de combatirlo.
	Immunotherapy tries to help the immune system recognize cancer as a threat, and attack it.	La inmunoterapia trata de ayudar al sistema inmunitario a reconocer el cáncer como una amenaza y entonces atacarlo.
	The drugs free immune cells to fight cancer by blocking a mechanism — called a checkpoint — that cancer uses to shut down the immune system.	Un tipo de inmunoterapia muy usado emplea medicamentos que liberan células inmunitarias para combatir el cáncer mediante el bloqueo de un mecanismo, llamado punto de control, que el cáncer usa para que el sistema inmunitario deje de funcionar

	These drugs, called checkpoint inhibitors, have been approved by the Food and Drug Administration to treat advanced melanoma, Hodgkin's lymphoma and cancers of the lung, kidney and bladder. More drugs in this class are in the pipeline.	La Administración de Alimentos y Medicamentos de Estados Unidos (FDA, por su sigla en inglés) ya aprobó estos medicamentos –llamados inhibidores de puntos del control inmunitarios– para el tratamiento del melanoma avanzado, del linfoma de Hodgkin y del cáncer de pulmón, riñón y vejiga. Hay más medicamentos de este tipo que se están perfeccionando.
	Patients are clamoring for checkpoint drugs, including one, Keytruda, known to many as "that Jimmy Carter drug" which, combined with surgery and radiation, has left the former president with no sign of recurrence even though melanoma had spread to his liver and brain.	Los pacientes claman por los inhibidores de puntos de control, incluyendo uno, Keytruda, que muchos conocen como "la medicina de Jimmy Carter" y que, en combinación con cirugía y radioterapia, ha borrado cualquier signo de recurrencia en el expresidente, a pesar de que su melanoma se había extendido a su hígado y cerebro.
	Checkpoint inhibitors have become an important option for people like Mr. Cara, with advanced lung cancer.	Los inhibidores de puntos de control inmunitarios se han convertido en una opción importante para gente como Cara, con cáncer pulmonar avanzado.
	"We can say in all honesty to patients, that while we can't tell them we can cure metastatic lung cancer right now, we can tell them there's real hope that they can live for years, and for a lot of patients many years, which really is a complete game-changer," said Dr. John V. Heymach, a lung cancer specialist and chairman of thoracic/head and neck medical oncology at M.D. Anderson.	"Podemos decir con toda honestidad a los pacientes que, si bien es cierto que no podemos asegurar que curamos el cáncer pulmonar metastásico en este momento, sí podemos afirmar que hay una esperanza real de que puedan vivir años, y varios pacientes incluso pueden vivir muchos años, lo que en verdad está cambiando las reglas del juego", dijo el Dr. John V. Heymach, especialista en cáncer pulmonar y jefe de oncología médica de tórax, cabeza y cuello en el MD Anderson.
	Yet for all the promise and excitement, the fact is that so far, immunotherapy has worked in only a minority of patients, and researchers are struggling to find out why. They know they have their hands on an extraordinarily powerful tool, but they cannot fully understand or control it yet.	No obstante todas las promesas y la emoción, el hecho es que la inmunoterapia solo ha funcionado en una minoría de pacientes, y los investigadores están luchando por descubrir por qué es así. Saben que tienen en sus manos una herramienta extraordinariamente poderosa, pero todavía no pueden entenderla ni controlarla del todo.
Subtitle	**One Patient's Story**	**La historia de un paciente**
	Mr. Cara, an apparel industry executive from Bridgewater, N.J., had non-small-cell lung cancer, the most common form of the disease. The diagnosis shattered what had been an idyllic life: a happy marriage, sons in college, a successful career, a beautiful home, regular vacations, plenty of golf.	Steve Cara, un ejecutivo de la industria textil en Bridgewater, Nueva Jersey, tenía cáncer pulmonar de células no pequeñas, la forma más común de esta enfermedad. El diagnóstico hizo añicos lo que había sido una vida perfecta: un matrimonio feliz, hijos en la universidad, una carrera profesional exitosa, una hermosa casa, vacaciones, mucho golf.
	In December 2014, he began treatment with two checkpoint inhibitors. They cost about $150,000	En diciembre de 2014 comenzó el tratamiento con dos inhibidores de puntos de control inmunitarios. Cuesta aproximadamente 150.000 dólares al año,

	a year, but as a study subject he did not have to pay.	pero como era sujeto en un estudio no tenía que pagar.
	These medicines work on killer T-cells, white blood cells that are often described as the soldiers of the immune system. T-cells are so fierce that they have built-in brakes — the so-called checkpoints — to shut them down and keep them from attacking normal tissue, which could result in autoimmune disorders like Crohn's disease, lupus or rheumatoid arthritis. One checkpoint stops T-cells from multiplying; another weakens them and shortens their life span.	Estos medicamentos actúan sobre las células T asesinas, glóbulos blancos que a menudo se describen como los soldados del sistema inmune. Las células T son tan feroces que tienen frenos inherentes (los puntos de control) que las detienen y les impiden atacar al tejido normal, lo cual puede llevar a trastornos autoinmunes como la enfermedad de Crohn, el lupus o la artritis reumatoide. Un punto de control frena la multiplicación de las células T; otro las debilita y acorta su periodo de vida.
	As the name suggests, checkpoint inhibitors block the checkpoints, so cancer cannot use them to turn off the immune system.	Como su nombre sugiere, los inhibidores de puntos de control inmunitarios bloquean los puntos de control, por lo que el cáncer no puede usarlos para hacer que el sistema inmunitario no funcione.
	Mr. Cara took drugs to inhibit both types of checkpoints. Every two weeks, he had intravenous infusions of Yervoy and Opdivo, both made by Bristol-Myers Squibb. He had no problems at first, just a bit of fatigue the day after the infusion. He rarely missed work.	Cara tomó medicamentos para inhibir ambos tipos de puntos de control. Cada dos semanas recibía infusiones intravenosas de Yervoy y Opdivo, ambos fabricados por la empresa Bristol-Myers Squibb. Al principio no tuvo problemas, solo un poco de cansancio el día posterior a recibir la infusión. Rara vez se ausentó del trabajo.
	But turning the wrath of the immune system against cancer can be a risky endeavor: Sometimes the patient's own body gets caught in the crossfire. About two months into the treatment, Mr. Cara broke out in a rash all over his arms, back and chest. It became so severe that he had to go off the drugs. A steroid cream cleared it up and he was able to resume treatment — but with only one drug, Opdivo. Doctors stopped the other in hopes of minimizing the side effects.	Sin embargo, dirigir la rabia del sistema inmunitario en contra del cáncer puede traer muchos riesgos. En ocasiones el cuerpo del paciente queda atrapado en el fuego cruzado. Aproximadamente a los dos meses de tratamiento, a Cara le apareció urticaria en los brazos, espalda y pecho. Fue tan grave que tuvo que interrumpir el tratamiento. Una pomada con esteroides alivió la urticaria y pudo retomar el tratamiento, pero con uno solo de los medicamentos, Opdivo. Los doctores suspendieron el otro con la esperanza de minimizar los efectos adversos.
	Checkpoint inhibitors can take months to begin working, and sometimes cause inflammation that, on scans early in treatment, can make it look like the tumor is growing. But Mr. Cara's first scans, in March 2015, were stunning. His tumor had shrunk by a third.	Los inhibidores de puntos de control pueden tardar meses en comenzar a actuar, y en ocasiones provocan una inflamación que, en las imágenes por resonancia magnética al principio del tratamiento, puede dar la impresión de que el tumor está creciendo. Sin embargo, las primeras imágenes de Cara, obtenidas en marzo de 2015, eran sorprendentes: su tumor se había encogido a un tercio de su tamaño.

	By August, more than half of the tumor had vanished. The rash came back, however, and worsened. Steroids worked again, but in October a far more alarming side effect set in: breathing trouble.	Para agosto, poco más del 50 por ciento del tumor había desaparecido, pero la urticaria regreso e incluso empeoró. Los esteroides la quitaron de nuevo, pero en octubre apareció un efecto adverso mucho más alarmante: problemas para respirar.
	Doctors diagnosed pneumonitis, a lung inflammation caused by an attack from the immune system — a known risk of checkpoint drugs. Continuing the treatment posed too attackgreat a danger.	Los doctores diagnosticaron neumonitis, una inflamación de los pulmones provocada por un ataque del sistema inmunitario: un efecto conocido de los inhibidores de puntos de control. Continuar con el tratamiento significaba un gran riesgo.
	Mr. Cara stopped the infusions, but the months of treatment seemed to have transformed his cancer to stage 2 from stage 4, meaning that it was now operable. This spring surgeons removed about a third of his right lung, and discovered that the cancer was actually gone.	Cara dejó de recibir las infusiones, pero los meses de tratamiento al parecer habían hecho que su cáncer pasara de etapa 4 a etapa 2, lo que significaba que ya era operable. Esta primavera los cirujanos hicieron la resección de aproximadamente un tercio de su pulmón derecho, y descubrieron que el cáncer había desaparecido.
	“No cancer was seen in any of the tissue they took out,” Dr. Hellmann said. “‘One hundred percent treatment effect,’” he read from the pathology report. “It was pretty cool.”	“No observaron nada de cáncer en el tejido que extrajeron”, dijo Hellmann. “El efecto del tratamiento fue del 100 por ciento”, leyó en el informe de patología. “Fue increíble”.
	As of now, he needs no further treatment, but he will be monitored regularly. He is back to work, and golf. “He’s had the best possible response,” Dr. Hellmann said. “I hope that remains permanent. Only time will tell, and I think he’s conscious of that.”	Por el momento no necesita más tratamiento, pero lo revisarán con regularidad. Regresó al trabajo y al golf. “Ha tenido la mejor respuesta posible”, dijo Hellmann. “Espero que sea permanente. Solo el tiempo lo dirá, y creo que él está consciente de ello”.
Subtitle	**Drugs Help Some, but Not Others**	**Ayuda para unos, pero no para todos**
	When checkpoint inhibitors work, they can really work, producing long remissions that start to look like cures and that persist even after treatment stops. Twenty percent to 40 percent of patients, sometimes more, have good responses. But for many patients, the drugs do not work at all. For others, they work for a while and then stop.	Cuando los inhibidores de puntos de control funcionan, realmente lo hacen, y resultan en remisiones duraderas que comienzan a parecer curas y permanecen incluso después de que el tratamiento se suspende. Entre 20 y 40 por ciento de los pacientes —en ocasiones incluso más— responde al tratamiento. Sin embargo, en muchos pacientes los medicamentos no funcionan para nada. En otros, funcionan durante un tiempo y luego ya no.
	The vexing question, and the focus of research, is, why?	La pregunta foco de mucha investigación es por qué
Caption	Another of Dr. Hellmann’s lung-cancer patients, Joanne Sabol, 65, had to quit a checkpoint	Joanne Sabol, de 65 años, tuvo que dejar de recibir los inhibidores de puntos de control debido a una

	inhibitor because of severe colitis. Patients like her are in uncharted territory.	colitis grave. Los pacientes como ella representan un territorio inexplorado.
	One theory is that additional checkpoints, not yet discovered, may play a role. The hunt is on to find them, and then make new drugs to act on them.	Una teoría es que algunos puntos de control adicionales, todavía no identificados, podrían desempeñar algún papel. Hay que encontrarlos y desarrollar medicamentos que actúen sobre ellos.
	Despite the gaps in knowledge, checkpoint inhibitors are coming into widespread use and are being tried in advanced types of cancer for which standard chemotherapy offers little hope.	A pesar de los vacíos en su conocimiento, los inhibidores de puntos de control se están usando ampliamente y se están probando en tipos de cáncer avanzado para los que la quimioterapia estándar ofrece pocas esperanzas.
	While the drugs initially were given only to people with advanced disease, especially those who had little to lose because chemotherapy had stopped working, Dr. Heymach of M.D. Anderson predicted that soon some patients — including some with earlier stages of lung cancer — will receive checkpoint inhibitors as their first treatment.	Aunque en un principio los medicamentos solo se administraban a personas con enfermedad avanzada, en especial a quienes tenían poco que perder pues la quimioterapia ya no les funcionaba, el doctor Heymach, del MD Anderson, predijo que pronto algunos pacientes, incluyendo algunos con cáncer pulmonar en etapas tempranas, recibirían inhibidores de puntos de control como primer tratamiento.
	But the potential for dangerous side effects cannot be overemphasized, doctors say. A 2010 article in a medical journal reported that a few melanoma patients had died from adverse effects of Yervoy.	Sin embargo, los médicos afirman que el potencial de efectos adversos peligrosos no puede ser subestimado. Un artículo publicado en 2010 en una revista médica informó que unos pocos pacientes con melanoma habían muerto por los efectos adversos del Yervoy.
	In addition to causing lung inflammation, checkpoint inhibitors can lead to rheumatoid arthritis and colitis, a severe inflammation of the intestine — the result of an attack by the revved-up immune system that over-the-counter remedies cannot treat.	Además de causar inflamación de los pulmones, los inhibidores de puntos de control inmunitarios pueden causar artritis reumatoide y colitis, una inflamación grave del intestino, resultado de un ataque del sistema inmunitario alterado que los medicamentos sin receta no pueden tratar.
	Patients need steroids like prednisone to quell these attacks. Fortunately — and mysteriously, Dr. Wolchok said — the steroids can halt the gut trouble without stopping the immune fight against the cancer. But if patients delay telling doctors about diarrhea, Dr. Wolchok warned, “they could die” from colitis.	Los pacientes requieren esteroides, como la prednisona, para suprimir estos ataques. Afortunadamente (y también misteriosamente, dijo Wolchok), los esteroides pueden detener el problema en el intestino sin hacer que el sistema inmunitario deje de combatir el cáncer. No obstante, si los pacientes se tardan en decirle a los doctores que tienen diarrea, “pueden morir” por la colitis.
	Checkpoint inhibitors can also slow down vital glands — pituitary, adrenal or thyroid — creating a permanent need for hormone treatment. Mr. Cara, for instance, now needs thyroid medication, almost certainly as a result of his treatment. Doctors have reported that a patient with a kidney transplant rejected it after taking a	Los inhibidores de los puntos de control también pueden hacer más lentas a las glándulas vitales (la pituitaria, la suprarrenal y la tiroides), creando una necesidad permanente de tratamiento hormonal. Cara, por ejemplo, ahora necesita medicamentos para la tiroides, casi seguro debido a su tratamiento. Los doctores han reportado que un paciente con un

	checkpoint inhibitor to treat cancer, apparently because the drug spurred his immune system to attack the organ.	trasplante de riñón lo rechazó después de haber tomado inhibidores de puntos de control para tratar un cáncer, al parecer porque el medicamento incitó al sistema inmunitario a atacar ese órgano.
	Another of Dr. Hellmann's lung-cancer patients, Joanne Sabol, 65, had to quit a checkpoint inhibitor because of severe colitis. But she had taken it for about two years, and it shrank a large abdominal tumor by 78 percent. Patients like her are in uncharted territory, and doctors are trying to decide whether to operate to remove what is left of her tumor.	Otro de los pacientes de Hellmann con cáncer pulmonar, Joanne Sabol, de 65 años, tuvo que dejar de recibir los inhibidores de puntos de control debido a una colitis grave. Los había tomado durante cerca de dos años y le redujeron un tumor abdominal en un 78 por ciento. Los pacientes como ella representan un territorio inexplorado y los doctores están tratando de decidir si operarla para extirpar lo que queda del tumor.
	"I have aggressive cancer, but I'm not giving in to it," Ms. Sabol said. "It's going to be a big battle with me."	"Mi cáncer es muy agresivo, pero no me voy a rendir", dijo Sabol. "Va a tener una buena batalla conmigo".

Text#3	**English**	**Spanish**
URL	https://nyti.ms/2C9uuv4	https://nyti.ms/2BHCcLJ
Section	Health	Salud
Headline	**Doctors Said Immunotherapy Would Not Cure Her Cancer. They Were Wrong.**	**Cuatro remisiones inesperadas apuntan a nuevos tratamientos contra el cáncer**
Byline	Gina Kolata	
Date	Feb. 19, 2018	21 de febrero de 2018
Lead	No one expected the four young women to live much longer. They had an extremely rare, aggressive and fatal form of ovarian cancer. There was no standard treatment.	Nadie esperaba que las cuatro mujeres vivieran por mucho tiempo más. Padecían de un tipo de cáncer ovárico sumamente inusual, agresivo y mortal. No existía un tratamiento estándar.
	The women, strangers to one another living in different countries, asked their doctors to try new immunotherapy drugs that had revolutionized treatment of cancer. At first, they were told the drugs were out of the question — they would not work against ovarian cancer.	Las mujeres, desconocidas entre sí y habitantes de distintos países, pidieron a sus médicos probar nuevos medicamentos de inmunoterapia que han revolucionado el tratamiento contra el cáncer. Les respondieron que los medicamentos estaban fuera de discusión y que no iban a funcionar contra el cáncer de ovario.
	Now it looks as if the doctors were wrong. The women managed to get immunotherapy, and their cancers went into remission. They returned to work; their lives returned to normalcy.	Parece que los médicos se equivocaron: las mujeres se las arreglaron para tener acceso a la inmunoterapia y el cáncer entró en remisión. Regresaron a su trabajo; su vida volvió a la normalidad.
	The tale has befuddled scientists, who are struggling to understand why the drugs worked when they should not have. If researchers can figure out what happened here, they may open the door to new treatments for a wide variety of other cancers thought not to respond to immunotherapy.	La historia ha dejado perplejos a los científicos, quienes batallan por comprender por qué los medicamentos funcionaron cuando se supone que no deberían haberlo hecho. Si los investigadores logran determinar qué sucedió, podrían abrir la puerta a nuevos tratamientos para una amplia variedad de tipos de cáncer que se creía que no respondían a inmunoterapia.
	“What we are seeing here is that we have not yet learned the whole story of what it takes for tumors to be recognized by the immune system,” said Dr. Jedd Wolchok, chief of the melanoma and immunotherapeutics service at Memorial Sloan Kettering Cancer Center in New York.	“Lo que vemos en este caso es que aún no hemos aprendido todo respecto a lo que se necesita para que el sistema inmunitario reconozca los tumores”, afirmó Jedd Wolchok, jefe de Inmunoterapia y Atención al Melanoma del Centro Oncológico Memorial Sloan Kettering en Nueva York.
	“We need to study the people who have a biology that goes against the conventional generalizations.”	“Necesitamos estudiar a las personas que tienen una biología que contraviene las generalizaciones convencionales”.
	Four women hardly constitutes a clinical trial. Still, “it is the exceptions that give you the best	Un grupo de cuatro mujeres difícilmente es suficiente para un ensayo clínico. Sin embargo, “las excepciones

	insights," said Dr. Drew Pardoll, who directs the Bloomberg-Kimmel Institute for Cancer Immunotherapy at Johns Hopkins Medicine in Baltimore.	son las que ofrecen un mejor entendimiento", dijo Drew Pardoll, quien dirige el Instituto Bloomberg-Kimmel para la Inmunoterapia contra el Cáncer en el Hospital Johns Hopkins en Baltimore.
	The cancer that struck the young women was hypercalcemic small cell ovarian cancer, which typically occurs in a woman's teens or 20s. It is so rare that most oncologists never see a single patient with it.	El carcinoma que atacó a las jóvenes era cáncer de ovario de célula pequeña hipercalcémico, que por lo general se presenta en adolescentes o jóvenes de veintitantos años. Es tan poco común que la mayoría de los oncólogos jamás llegan a atender a alguna paciente que lo padezca.
	But Dr. Douglas Levine, director of gynecologic oncology at New York University Langone Medical Center, specialized in this disease. A few years ago, he discovered that the cancer was driven by a single gene mutation. The finding was of little use to patients — there was no drug on the horizon that could help.	Pero Douglas Levine, director de Oncología Ginecológica del Centro Médico de la Universidad Langone de Nueva York, se especializó en este padecimiento. Hace unos años, descubrió que el cáncer era estimulado por la mutación de un solo gen. El descubrimiento tuvo poca utilidad para las pacientes, pues no había ningún medicamento en el horizonte que pudiera ayudar.
	Women with this form of ovarian cancer were sharing news and tips online in a closed Yahoo group. Dr. Levine asked to become part of the group and began joining the discussions. There he discovered patients who had persuaded doctors to give them an immunotherapy drug, even though there was no reason to think it would work.	Las mujeres con este tipo de cáncer ovárico compartían noticias y consejos en línea dentro de un grupo cerrado en Yahoo. Levine solicitó formar parte del grupo y comenzó a participar en las conversaciones. Ahí descubrió a pacientes que habían persuadido a los médicos para proporcionarles medicamento de inmunoterapia, aunque no había razón para creer que funcionaría.
	The women reported that their tumors shrank immediately.	Y las mujeres reportaron que sus tumores se redujeron de inmediato.
	The idea behind immunotherapy is to dismantle a molecular shield that some tumors use to avoid an attack by the body's white blood cells.	La premisa detrás de la inmunoterapia es desmantelar el escudo molecular que utilizan algunos tumores para evitar un ataque de los glóbulos blancos del cuerpo.
	The immune system sees these tumors as foreign — they are fueled by hundreds of genetic mutations, which drive their growth and are recognized by the body. But when white blood cells swarm in to attack the cancer cells, they bounce back, rebuffed.	El sistema inmunitario considera a estos tumores como cuerpos extraños: están alimentados por cientos de mutaciones genéticas que rigen su crecimiento y son reconocidas por el cuerpo. Pero cuando los glóbulos blancos atacan en manada a las células cancerosas son rechazados.
	Immunotherapy drugs pierce that protective shield, allowing the immune system to recognize and demolish tumor cells. But the new drugs do not work against many common cancers.	Los medicamentos de inmunoterapia perforan ese escudo protector, lo que permite al sistema inmunitario reconocer las células cancerosas y destruirlas. Sin embargo, los nuevos medicamentos no funcionan para la mayoría de los tipos de cáncer más comunes.
	Those cancers are supported by fewer genetic mutations, and experts believe that the tumor cells just do not look threatening	Estos son sustentados por menos mutaciones genéticas y los expertos creen que el cuerpo no considera las células tumorales suficientemente

	enough to the body to spur a response. So the immune system leaves them alone.	amenazantes para lanzar una respuesta. De este modo, el sistema inmunitario deja de molestarlas.
	Lung cancer, a genetic type of colorectal cancer and melanoma have huge numbers of mutations, and immunotherapy drugs often are successful in treating them. Cancers of the prostate, pancreas, breast, ovaries — and most other tumors — carry few mutations.	El cáncer de pulmón, un tipo de cáncer colorrectal y el melanoma presentan una gran cantidad de mutaciones, y los medicamentos de inmunoterapia a menudo tienen éxito tratándolas. Mientras que el cáncer de próstata, de páncreas, de mama, de ovarios (y muchos otros tumores) implican pocas mutaciones.
	“These are the cancers that rarely respond,” Dr. Pardoll said.	“Estos tipos de cáncer son los que responden solo en muy pocas ocasiones”, dijo Pardoll.
	The idea that the drugs might work against something like hypercalcemic ovarian cancer, which is fueled by just one genetic mutation, just made no sense.	La idea de que los medicamentos puedan funcionar en contra de algo como el cáncer ovárico hipercalcémico, que es estimulado por una sola mutación genética, no era lógica.
	“For the vast majority of cancers, there is an amazingly clean correlation between response to therapy and mean mutational load,” Dr. Pardoll said.	“En la gran mayoría de los tipos de cáncer hay una correlación asombrosamente clara entre la respuesta a la terapia y una carga mutacional significativa”, continuó Pardoll.
	But there were a few oddball exceptions. An unusual skin cancer called Merkel cell carcinoma responded to immunotherapy, scientists found. It is caused by a virus, and researchers suggested the infection itself draws the attention of the immune system.	Pero había unas cuantas excepciones. Los científicos descubrieron que sí respondió a la inmunoterapia un tipo poco común de cáncer de piel, llamado carcinoma de células de Merkel. Este es causado por un virus; los investigadores sugieren que la infección en sí atrae la atención del sistema inmunitario.
	Mesothelioma also responded, perhaps because the asbestos that caused it also inflames the immune system. And some kidney cancers responded to immunotherapy treatment; no one knows why.	El mesotelioma también respondió, tal vez porque el asbesto que lo ocasiona también inflama el sistema inmunitario. Asimismo, algunos tipos de cáncer de riñón respondieron al tratamiento de inmunoterapia; nadie sabe por qué.
	And then came a handful of women with a rare ovarian cancer. Oriana Sousa, 28, a psychologist in Marinha Grande, Portugal, was one of them.	Luego apareció el grupo de mujeres con un tipo de cáncer ovárico inusual. Oriana Sousa, de 28 años, una psicóloga residente de Marinha Grande, Portugal, fue una de ellas.
	She found out she had cancer in December 2011. She knew something was wrong — for several months she had been feeling tired, constipated and endlessly thirsty. She began vomiting and had abdominal cramps. But her doctors told her she was fine and not to worry.	Descubrió que tenía cáncer en diciembre de 2011. Sabía que algo andaba mal, pues durante meses padeció cansancio, estreñimiento y una sed insaciable. Comenzó a vomitar y a tener cólicos abdominales, pero sus médicos le decían que estaba bien y no tenía nada de qué preocuparse.
	Finally, her aunt, a nurse, suggested she see a different doctor, who performed a CT scan of her abdomen. It revealed a huge mass. The doctor operated to find out what it was. Two	Finalmente, su tía, una enfermera, le sugirió consultar a otro médico, quien realizó una tomografía computada de su abdomen. Esta reveló una enorme masa. El médico la intervino quirúrgicamente para saber qué

	days later, he gave her the bad news: Cancer, and a really terrible form of it.	era. Dos días después, le dio la mala noticia: cáncer, agresivo.
	For the next four years, Ms. Sousa's doctors tried to control the cancer, giving her rounds of chemotherapy, radiotherapy and surgery. But every time, new tumors emerged.	Durante los siguientes cuatro años, los médicos de Sousa intentaron controlar el cáncer con ciclos de quimioterapia, radioterapia y cirugía. Pero los tumores siempre volvían a aparecer.
	"I suffered a lot, and I felt I had no life," she said.	"Sufrí bastante y sentí que ya no tenía una vida", dijo.
	Things are different now. In 2015, she finally persuaded a doctor to give her an immunotherapy drug, nivolumab. Immediately, her tumors shrank and continued shrinking as she continued with the drug — so much that her doctors now say she has no evidence of disease.	Ahora las cosas son distintas. En 2015, por fin convenció a un médico de proporcionarle un medicamento de inmunoterapia: nivolumab. Sus tumores se redujeron de inmediato y siguieron encogiéndose a medida que continuaba tomando el medicamento. Disminuyeron tanto que sus médicos aseguran que ya no hay rastro de la enfermedad.
	"Generally after work, I go to the gym and do classes and work out," she said. "People who don't know what I have been through, they can't imagine I am an oncology patient."	"Por lo general, al salir del trabajo voy al gimnasio a tomar clases y a ejercitarme", comentó. "Quienes no saben lo que he tenido que soportar, no se imaginan que soy una paciente oncológica".
	What saved her? Dr. Eliezer M. Van Allen, a cancer researcher at Dana-Farber Cancer Institute, has come across one clue.	¿Qué fue lo que la salvó? Eliezer M. Van Allen, investigador de oncología en el Dana-Farber Cancer Institute, tiene una pista.
	He found that a gene mutated in kidney cancer was sort of a master regulator of other genes, controlling which were turned on and when. But the regulated genes were normal and did not produce proteins that the immune system might recognize as abnormal.	Descubrió que un gen que mutó en el cáncer de riñón era una especie de regulador maestro de otros genes, controlando qué genes se activaban y en qué momento. Pero los genes regulados eran normales y no producían proteínas que el sistema inmunitario pudiera reconocer como anormales.
	Nonetheless, patients responding to immunotherapy were the ones with the master gene mutation. "We saw this result and weren't sure what to make of it," he said.	No obstante, los pacientes que respondieron a la inmunoterapia fueron aquellos con la mutación del gen maestro. "Obtuvimos este resultado y no estuvimos seguros de cómo debíamos interpretarlo", afirmó.
	Dr. Levine and his colleagues found the same phenomenon in patients with hypercalcemic ovarian cancers. One explanation, he and Dr. Van Allen said, is that the immune system may recognize that cells in which genes are erratically turning on and off are dangerous and should be destroyed.	Levine y sus colegas descubrieron el mismo fenómeno en pacientes con cáncer ovárico hipercalcémico, como Sousa. De acuerdo con él y con Van Allen, una explicación es que el sistema inmunitario podría reconocer que las células en las que los genes se activan y desactivan erráticamente son peligrosas y deben ser destruidas.
	"That is strictly hypothesis," Dr. Levine cautioned.	"Pero se trata estrictamente de una hipótesis", advirtió Levine.
	One thing is clear, though: When pathologists examine these tumors, they find white blood cells in them — as if the immune system were	Aun así, una cosa está clara: cuando los patólogos analizan uno de estos tumores, encuentran glóbulos blancos en su interior, como si el sistema inmunitario

	trying to attack. And that finding has led both Dr. Pardoll and Dr. Padmanee Sharma of M.D. Anderson Cancer Center in Houston to plan new clinical trials.	intentara atacar. Este descubrimiento ha llevado a que Pardoll y Padmanee Sharma, del Centro Oncológico M. D. Anderson en Houston, planeen nuevos ensayos clínicos.
	They know that immunotherapy fails most patients, even those with cancers that are most likely to respond. So they have set out to create a test to determine who might respond to immunotherapy and then treat those patients — regardless of their cancer type.	Saben que la inmunoterapia no funciona en la mayoría de los pacientes, incluso en aquellos con tipos de cáncer que es probable que respondan. Así que se han propuesto crear un estudio para determinar quiénes podrían responder a la inmunoterapia y luego tratarlos sin importar qué tipo de cáncer padezcan.
	Dr. Sharma's study, funded by the Parker Institute, is getting ready to enroll patients. The researchers will look at pathology slides of patients' tumors to see if white blood cells are worming their way into the cancers. If so, the patients will get an immunotherapy drug to help activate their white blood cells to attack the tumor.	El estudio de la doctora Sharma, financiado por el Instituto Parker, se está preparando para inscribir a los pacientes. Los investigadores analizarán muestras patológicas de los tumores de los pacientes para identificar si los glóbulos blancos se están abriendo paso. De ser así, se administrará a los pacientes el medicamento de la inmunoterapia para ayudar a movilizar a los glóbulos blancos hacia el núcleo del tumor y ayudarlos a atacar.
	"The trial is written for all comers," Dr. Sharma said. "If we have learned anything, it is that it is not the tumor type we are treating — it is the immune system."	"El ensayo está diseñado para todo aquel que se presente", dijo Sharma. "Si algo hemos aprendido es que no se trata del tipo de tumor que combatimos, sino del sistema inmunitario".
	At Johns Hopkins, Dr. Pardoll and his colleagues are planning a similar trial. They will be looking for tumors — it does not matter what type — that have a protein, PD-L1, on the surface that repels the immune system. Any patient whose tumor fits that description will get an immunotherapy drug.	En el hospital Johns Hopkins, Pardoll y sus colegas planifican un ensayo similar. Buscarán tumores (sin importar el tipo) que contengan en la superficie una proteína, la PD-L1, que repele el sistema inmunitario. El medicamento de inmunoterapia se le administrará a cualquier paciente cuyo tumor cumpla con dicha descripción.
	It's a shot in the dark. But sometimes such a shot finds the mark, as Ms. Sousa will tell you.	Son palos de ciego, pero en ocasiones estos son los que dan en el clavo, como Sousa puede confirmar.
	"Incredible things happen, and against all the odds," she said.	"Suceden cosas increíbles y contra toda probabilidad", dijo ella.

Text#4	**English**	**Spanish**
URL	https://www.nytimes.com/2018/04/16/health/lung-cancer-immunotherapy.html	https://www.nytimes.com/es/2018/04/23/inmunoterapia-cancer-de-pulmon/
	A colored magnetic resonance imaging scan of a cancerous tumor in the lung, in orange, upper right. A study suggests "that chemotherapy alone is no longer a standard of care," its lead author said.	Una imagen de resonancia magnética a color muestra tumores cancerígenos en un pulmón (de color naranja, del lado derecho).
Section	Health	Noticias>Ciencia
Byline	Denise Grady	
Date	April 16, 2018	23 de abril de 2018
Headline	**Lung Cancer Patients Live Longer With Immune Therapy**	**La inmunoterapia puede extender la vida de pacientes con cáncer de pulmón**
Lead	Odds of survival can greatly improve for people with the most common type of lung cancer if they are given a new drug that activates the immune system along with chemotherapy, a major new study has shown.	Las probabilidades de supervivencia pueden mejorar de manera significativa para las personas que tienen el tipo más común de cáncer pulmonar si, junto con la quimioterapia usual, reciben también un medicamento que activa el sistema inmunitario, según un nuevo estudio.
	The findings, medical experts say, should change the way doctors treat lung cancer: Patients with this form of the disease should receive immunotherapy as early as possible.	Los expertos en oncología indican que estos hallazgos deberían cambiar la práctica médica de inmediato: los pacientes con este tipo de cáncer pulmonar deben recibir un medicamento que active el sistema inmunitario, a lo que también se le llama inmunoterapia, tan pronto como se les diagnostique.
	"What it suggests is that chemotherapy alone is no longer a standard of care," said Dr. Leena Gandhi, a leader of the study and director of the Thoracic Medical Oncology Program at the Perlmutter Cancer Center at New York University Langone Health.	"Lo que sugiere es que la quimioterapia sola ya no es el estándar de cuidado", dijo la doctora Leena Gandhi, quien encabezó el estudio publicado en The New England Journal of Medicine y es directora del Programa de Oncología Médica Torácica en el Centro Perimutter para el Cáncer de la Escuela de Medicina Langone Health, en la Universidad de Nueva York.
	Immunotherapy has been making steady gains against a number of cancers. Four such drugs, called checkpoint inhibitors, which unleash the patient's own immune system to kill malignant cells, have been approved so far.	Los hallazgos representan un paso adelante para la inmunoterapia. Cuatro medicamentos de inmunoterapia contra el cáncer, conocidos como inhibidores de puntos de control, ya han sido aprobados. Los medicamentos impulsan al propio sistema inmunitario del paciente a eliminar las células malignas.
	They cost more than $100,000 a year, can have serious side effects and help only some patients, generally fewer than half. But when	Estos medicamentos cuestan más de 100.000 dólares al año, pueden tener efectos secundarios graves y solo ayudan a algunos pacientes, por lo general a menos

	the drugs work, responses can be long-lasting, and researchers are rushing to find ways to combine treatments to improve their effects and to determine which formulation is best for each patient.	de la mitad. Sin embargo, cuando funcionan, la respuesta puede ser duradera, y los investigadores están enfocados en encontrar maneras de combinar los tratamientos para mejorar sus efectos.
	“I’ve been treating lung cancer for 25 years now, and I’ve never seen such a big paradigm shift as we’re seeing with immunotherapy,” said Dr. Roy Herbst, Chief of Medical Oncology at the Yale Cancer Center. He was not involved in the pembrolizumab study.	“He tratado el cáncer pulmonar desde hace veinticinco años y nunca he visto un cambio de paradigma como el que estamos viendo con la inmunoterapia”, dijo Roy Herbst, jefe de Medicina Oncológica en el Centro para el Cáncer de Yale y quien no participó en el estudio de Gandhi.
	Lung cancer is the leading cause of cancer death globally, causing 1.7 million deaths a year.	El cáncer pulmonar es la causa principal de muerte por cáncer en el mundo; al año fallecen 1,7 millones de personas.
	Patients in the study had an advanced stage of non-squamous non-small-cell lung cancer. The immune-activating drug was a checkpoint inhibitor called pembrolizumab, or Keytruda, made by Merck, which paid for the study. The chemotherapy was a drug called pemetrexed, plus either carboplatin or cisplatin.	Los pacientes del estudio estaban en una etapa avanzada de cáncer pulmonar de células escamosas no pequeñas. El medicamento activador del sistema inmunitario fue un inhibidor de puntos de control llamado pembrolizumab o Keytruda, fabricado por Merck, que pagó el estudio; la quimioterapia consistió en un medicamento llamado pemetrexed, más carboplatino o cisplatino.
	Dr. Gandhi said chemotherapy alone had only a “modest benefit,” and could add only a few months of life, with most patients surviving about a year or less. The combination treatment is a significant improvement, she said. It is already approved as a first-line treatment for this disease, so it should be covered by health insurers.	Gandhi dijo que la terapia por sí sola, sin la quimioterapia, tiene un “beneficio modesto”, pues únicamente podía añadir unos cuantos meses de vida; los pacientes en promedio sobrevivieron cerca de un año o menos. Pero la médica explicó que el tratamiento combinado ofrece una mejoría importante.
	“If you want to see long-term survival, you’ve got to give immunotherapy as soon as possible,” Dr. Herbst said. “Chemotherapy has limitations. Immunotherapy has the ability to cure. I lead the Yale lung team. We have patients on these immunotherapies alive more than eight years.”	“Si quieres una sobrevivencia a largo plazo, tienes que comenzar la inmunoterapia tan pronto como sea posible”, dijo Herbst, quien dijo que el equipo de Yale ha visto casos en los que se puede extender la vida de pacientes hasta por ocho años. “La quimioterapia tiene limitaciones y la inmunoterapia tiene la capacidad de curar”.
	Dr. Herbst offered several theories about why chemotherapy and immunotherapy could work well together. He said that tumor cells were like bags of hidden proteins that, if exposed, the immune system could use as targets to find and attack cancer. By killing some tumor cells, chemotherappoy could pop open the bags, release the contents and help immune cells — unleashed by the checkpoint drugs — to identify their prey. It is also possible, he said, that chemotherapy may kill	Herbst ofreció varias teorías sobre por qué la quimioterapia y la inmunoterapia pueden funcionar bien juntas. Dijo que las células tumorales son como bolsas de proteínas escondidas que, si se exponen, pueden ser usadas como objetivos por el sistema inmunitario para encontrar y atacar al cáncer. Al matar algunas células tumorales, la quimioterapia podría abrir las bolsas, liberar su contenido y ayudar a las células inmunitarias —desencadenadas por los medicamentos inhibidores de puntos de control— a identificar a su presa. El médico indicó que también es

	some immune cells that interfere with the cancer-killing action of other parts of the immune system.	posible que la quimioterapia mate algunas células inmunitarias que interfieren con la acción de matar células cancerosas de otras partes del sistema inmunitario.
	Dr. Gandhi's study included 616 patients with advanced lung cancer, ages 34 to 84, from medical centers in 16 countries. They were picked at random to receive either chemotherapy plus immunotherapy, or chemotherapy plus a placebo, with two thirds receiving the combination that included immunotherapy.	El estudio de Gandhi incluyó a 616 pacientes con cáncer de pulmón avanzado, cuyas edades oscilaban entre los 34 y los 84 años, de centros médicos en dieciséis países. Los escogieron aleatoriamente para recibir ya fuera quimioterapia más inmunoterapia o quimioterapia más un placebo; dos tercios recibían la combinación que incluía la inmunoterapia.
	After a median follow-up of 10.5 months, those in the immunotherapy group were half as likely to die. The median overall survival was 11.3 months in those who did not receive immunotherapy, whereas survival in the immunotherapy group was longer and the median has not yet been reached.	Después de una mediana de seguimiento de 10,5 meses, la probabilidad de muerte de los pacientes del grupo de inmunoterapia se había reducido a la mitad. La mediana de la supervivencia general fue de 11,3 meses para quienes no recibieron la inmunoterapia, mientras que en el grupo de inmunoterapia fue más larga.
	But patients in the immunotherapy group had more kidney problems, more immune-related adverse events and were more likely to stop treatment because of side effects.	Sin embargo, los pacientes del grupo que recibió inmunoterapia tuvieron más problemas renales, más eventos adversos relacionados con la inmunidad y fue más probable que abandonaran el tratamiento debido a los efectos secundarios.
	The estimated survival at 12 months was 69.2 percent in the group that received immunotherapy, and 49.4 percent in those who did not.	La supervivencia estimada de doce meses fue del 69,2 por ciento en el grupo que recibió inmunoterapia y del 49,4 por ciento en quienes recibieron solamente quimioterapia.
	"I think we were all surprised at the magnitude of benefit and how clear the difference was at an early analysis, and that we could tell there was an overall survival difference," Dr. Gandhi said.	"Creo que todos estamos sorprendidos de la magnitud del beneficio y de lo clara que fue la diferencia en el análisis inicial, así como de que podamos decir que hubo una diferencia general en cuanto a la supervivencia", dijo Gandhi.
	"It represents a sea change in the way we think about treating lung cancer," she said. "All of it is better than what we've been using for years. Going forward, it will only get better."	"Representa un cambio enorme en la manera en la que concebimos el tratamiento del cáncer de pulmón", añadió. "Todo esto es mejor que lo que hemos estado usando durante años. En el futuro, solo puede mejorar".

Text#5	**English**	**Spanish**
URL	https://www.nytimes.com/2018/04/26/health/doctors-cancer-immunotherapy.html	https://www.nytimes.com/es/2018/05/02/oncologia-inmunoterapia-cancer/
Over-line	Dr. Oliver Sartor in his office at Tulane Medical Center in New Orleans. He and other cancer experts offer dying patients the chance to try experimental immunotherapy drugs	Oliver Sartor en su oficina en el Centro Médico Tulane, en Nueva Orleans. Él y otros oncólogos ofrecen a los pacientes terminales la oportunidad de probar medicamentos experimentales de inmunoterapia.
Section	Ciencia	Noticias>Ciencia
Byline	Gina Kolata	
Date	April 26, 2018	2 de mayo de 2018
Headline	**‘Desperation Oncology’: When Patients Are Dying, Some Cancer Doctors Turn to Immunotherapy**	**‘Oncología desesperada’: inmunoterapia como último recurso**
Lead	Dr. Oliver Sartor has a provocative question for patients who are running out of time. Most are dying of prostate cancer. They have tried every standard treatment, to no avail. New immunotherapy drugs, which can work miracles against a few types of cancer, are not known to work for this kind.	Oliver Sartor suele hacerle una pregunta retadora a los pacientes que ya no tienen mucho tiempo. La mayoría de ellos están muriendo de cáncer de próstata y han probado todos los tratamientos estándar. Los nuevos medicamentos de inmunoterapia, que pueden lograr milagros en el tratamiento de algunos tipos de cáncer, no son conocidos por funcionar en esos casos.
	Still, Dr. Sartor, assistant dean for oncology at Tulane Medical School, asks a diplomatic version of this: Do you want to try an immunotherapy drug before you die?	Sin embargo, Sartor, vicerrector de Oncología en la Escuela de Medicina Tulane, le plantea a los pacientes si quieren intentar la inmunoterapia antes de morir.
	The chance such a drug will help is vanishingly small — but not zero. “Under rules of desperation oncology, you engage in a different kind of oncology than the rational guideline thought,” Dr. Sartor said.	La probabilidad de que ese medicamento les ayude es remotamente pequeña, pero no nula. “En las reglas de la oncología desesperada, recurres a un tipo de oncología distinto del que se basa en lineamientos racionales”, dijo Sartor.
	The promise of immunotherapy has drawn cancer specialists into a conundrum. When the drugs work, a cancer may seem to melt away overnight. But little is known about which patients might benefit, and from which drugs.	La promesa de la inmunoterapia ha llevado a los oncólogos a un dilema. Cuando estos medicamentos funcionan, parece que el cáncer se disuelve de un día para otro. Sin embargo, se sabe poco sobre cuáles son los pacientes que podrían beneficiarse y con qué medicamentos.
	Some oncologists choose not to mention immunotherapy to dying patients, arguing that scientists first must gather rigorous evidence about the benefits and pitfalls, and that treating patients experimentally outside a clinical trial is perilous business.	Algunos oncólogos eligen no mencionar la inmunoterapia a sus pacientesdesahuciados, pues argumentan que los científicos primero deben recopilar evidencia rigurosa sobre los beneficios y los inconvenientes, y que tratar a los pacientes de

		manera experimental fuera de un estudio clínico es arriesgado.
	But others, like Dr. Sartor, are offering the drugs to some terminal patients as a roll of the dice. If the patient is dying and there's a remote chance the drug will help, then why not?	Otros, como Sartor, ofrecen los medicamentos a los pacientes terminales apelando a la suerte. Si un paciente está muriendo y hay una posibilidad remota de que un medicamento lo ayude, ¿por qué no intentarlo?
	"Immunotherapy is a particularly nuanced problem," said Dr. Paul Helft, an ethicist and oncologist at Indiana University School of Medicine.	"La inmunoterapia es un problema con muchas aristas", dijo Paul Helft, especialista en Ética y Oncología de la Escuela de Medicina de la Universidad de Indiana.
	Cancer doctors are well aware of the pitfalls of treating patients before all the evidence is in. Many still shudder at the fiasco that unfolded in the 1980s and 1990s, when doctors started giving women with breast cancer extremely high doses of chemotherapy and radiation on the theory that more must be better. The doctors did not systematically collect data; instead, they reported patient anecdotes claiming success.	Los oncólogos están muy conscientes de los riesgos de dar cierto tratamiento a los pacientes antes de contar con toda la evidencia. Muchos aún se estremecen por el fiasco ocurrido en las décadas de los ochenta y los noventa, cuando los médicos comenzaron a dar a las mujeres con cáncer de mama dosis extremadamente altas de quimio y radioterapia, según la teoría de que más sería mejor. Los médicos no recolectaron datos de manera sistemática; en cambio, informaban anecdóticamente sobre sus pacientes y declaraban tener éxito.
	Then a clinical trial found that this treatment was much worse than the conventional one — the cancers remained just as deadly when treated with high doses, and the regimen itself killed or maimed women.	Luego un estudio clínico descubrió que este tratamiento era mucho peor que el convencional: el cáncer seguía siendo igual de mortal cuando se trataba con dosis altas, pero el tratamiento mismo mataba o minaba a las mujeres.
	But immunotherapy is like no cancer treatment ever seen. It can work no matter what kind of tumor a person has. All that matters is that the immune system be trained to see the tumor as a foreign invader.	No obstante, la inmunoterapia no es como ningún otro tratamiento contra el cáncer. Puede funcionar sin importar el tipo de tumor que tenga una persona. Todo lo que importa es que el sistema inmunitario pueda ser entrenado para considerar a un tumor como un invasor.
	Fran Villere's husband tried an immunotherapy drug after conventional treatment failed to cure his bladder cancer. It didn't work, and he died in 2016.	El esposo de Fran Villere, George, probó un medicamento de inmunoterapia después de que los tratamientos convencionales fracasaron contra su cáncer de vejiga. No funcionó y George murió en 2016.
	Tumors have mutations that stud them with bizarre proteins. The white blood cells of the immune system try to attack but are repelled by a molecular shield created by the tumors. The new drugs allow white blood cells to pierce that shield and destroy the tumors.	Los tumores tienen mutaciones que los salpican de proteínas extrañas. Los leucocitos del sistema inmunitario tratan de atacar, pero los repele un escudo molecular creado por los tumores. Los nuevos medicamentos permiten que los leucocitos perforen ese escudo y destruyan los tumores.

	Last week brought a yet another example of the surprising power of this approach. Lung cancer patients who normally would receive only chemotherapy lived longer when immunotherapy was added, researchers reported in a clinical trial.	La semana pasada se presentó otro ejemplo del sorprendente poder de este enfoque. Los pacientes con cáncer pulmonar que normalmente solo habrían recibido quimioterapia vivieron por más tiempo cuando se añadió a su tratamiento la inmunoterapia, según informaron investigadores que realizaron un estudio clínico.
	But the drugs are exorbitantly expensive. One that Dr. Sartor often uses costs $9,000 per dose if used once every three weeks, and $7,000 if used once every two weeks. Often, he and other doctors persuade a patient's insurer to pay. If that fails, sometimes the maker will provide the drug free of charge.	Sin embargo, estos medicamentos son exorbitantemente costosos. Uno que Sartor usa con frecuencia cuesta 9000 dólares la dosis, si se emplea una vez cada tres semanas, y 7000 dólares si se usa una vez cada dos semanas. A menudo, él y otros doctores convencen a la aseguradora de un paciente de pagar. Si no lo logran, a veces el fabricante proporciona el medicamento gratis.
	Immunotherapy drugs can have severe side effects that can even lead to death. Once the immune system is activated, it may attack normal tissues as well as tumors. The result can be holes in the intestines, liver failure, nerve damage that can cause paralysis, serious rashes and eye problems, and problems with the pituitary, adrenal or thyroid glands. Side effects can arise during treatment or after the treatment is finished.	Los medicamentos de inmunoterapia pueden tener efectos colaterales graves que incluso pueden conducir a la muerte. Una vez que se activa el sistema inmunitario, este puede atacar a los tejidos normales igual que lo hace con los tumores: puede haber perforaciones en los intestinos, deterioro hepático, daño nervioso causante de parálisis, urticaria severa y problemas oculares, así como problemas en las glándulas pituitaria, suprarrenal o tiroides. Los efectos colaterales pueden surgir durante el tratamiento o cuando este ha concluido.
	For most patients, though, there are no side effects or only minor ones. That makes giving an immunotherapy drug to a dying patient different from trying a harsh experimental chemotherapy or a treatment like intense radiation.	Aun así, la mayoría de los pacientes no presentan efectos adversos o tienen solo algunos leves. Eso implica que dar un medicamento de inmunoterapia a un paciente moribundo es distinto a probar una quimioterapia experimental extrema o un tratamiento como la radiación intensa.
	The problem is deciding ahead of time if an immunotherapy drug will help. Doctors check biomarkers, chemical signals like proteins that arise when the immune system is trying to attack. But they are not very reliable.	El problema está en decidir con anticipación si un medicamento de inmunoterapia va a funcionar. Los doctores revisan los biomarcadores, señales químicas como las proteínas que surgen cuando el sistema inmunitario está intentando atacar, pero no son muy confiables.
	"A positive biomarker does not guarantee that a patient will benefit, and a negative biomarker does not mean a patient will not benefit," said Dr. Richard Schilsky, senior vice president and chief medical officer of the American Society of Clinical Oncology. "You don't have a solid biology to go on."	"Un biomarcador positivo no garantiza que el paciente vaya a beneficiarse y un biomarcador negativo no significa que un paciente no vaya a hacerlo", dijo Richard Schilsky, vicepresidente sénior y director médico de la Sociedad Estadounidense de Oncología Clínica. "No contamos con una biología sólida como punto de partida".

	Fran Villere shows pictures of her husband. “The drug didn’t do a damn thing,”	Fran Villere muestra fotos de su marido. "El medicamento no le hizo nada", dijo.
	Dr. Daniel Petrylak, a prostate cancer specialist at Yale, said his inclination was to offer immunotherapy only to those rare patients whose tumors have a genetic marker indicating the immune system is trying to attack — already an approved indication for prostate cancer, he noted. But this strategy gives him a rationale for trying the drugs on patients with other cancers.	Daniel Petrylak, especialista en cáncer de próstata de la Universidad Yale, dijo que él se inclina por ofrecer la inmunoterapia solo a aquellos pacientes inusuales cuyos tumores tienen un marcador genético que anuncia que el sistema inmunitario está tratando de atacar, una indicación ya aprobada para el cáncer de próstata, señaló. Sin embargo, esta estrategia le da un fundamento para probar tales medicamentos en pacientes con otros tipos de cáncer.
	With the possibility of a dramatic and prolonged response, he said in an interview, “how can you ethically deny this to patients?”	Si existe la posibilidad de una respuesta drástica y prolongada, dijo en una entrevista, “¿con qué ética podrías negársela a los pacientes?”.
	Dr. Sartor reviews patient notes with Dr. Brian Lewis and Mary Livaudais, a nurse. Whether to offer immunotherapy to dying patients poses an ethical quandary for many cancer doctors.	Sartor revisa notas de los pacientes con Brian Lewis, un médico, y Mary Livaudais, una enfermera. La conveniencia de ofrecer inmunoterapia a pacientes terminales genera un dilema ético para muchos doctores.
	One of the first patients Dr. Sartor treated with immunotherapy was George Villere, a retired investment adviser who lived in New Orleans.	Uno de los primeros pacientes a los que Sartor trató con inmunoterapia fue George Villere, un asesor de inversiones retirado que vivía en Nueva Orleans.
	Mr. Villere had bladder cancer and had tried chemotherapy. It didn’t work, so Dr. Sartor told Mr. Villere that he had run out of conventional options and asked if he wanted to try immunotherapy. At the time, the drugs had not been approved for bladder cancer.	Villere tenía cáncer de vejiga y había recibido quimioterapia. No había funcionado, así que Sartor le dijo que ya no le quedaban opciones convencionales y le preguntó si querría intentar con la inmunoterapia. En ese entonces, esos medicamentos no habían sido aprobados para el cáncer de vejiga.
	Mr. Villere and his wife, Fran Villere, thought it over, asking themselves whether they would regret it if they did not try. “I thought we would,” Mrs. Villere recalled in an interview.	Villere y su esposa, Fran, lo pensaron; se preguntaban si se arrepentirían si no lo intentaban. “Pensé que sí lo haríamos”, recordó Fran Villere en una entrevista.
	Their insurance agreed to pay, and Mr. Villere took the drug for several months. Nonetheless, he died on November 15, 2016, at age 72.	Su aseguradora estuvo de acuerdo en pagar y George Villere tomó el medicamento durante varios meses. A pesar de ello, murió el 15 de noviembre de 2016, a los 72 años.
	“He had no side effects,” Mrs. Villere said. “But the drug didn’t do a damn thing.”	“No presentó efectos colaterales”, dijo Fran. “Pero el medicamento no le hizo nada”.
	Then there is Clark Gordin, 67, who lives in Ocean Springs, Miss. He had metastatic	Por otro lado está Clark Gordin, de 67 años, de Misisipi. Tenía cáncer de próstata metastásico:

	prostate cancer, “a bad deck of cards,” he said in an interview.	“Muy malas cartas para jugar”, dijo en una entrevista.
	Dr. Sartor tried conventional treatments, but they didn’t work for Mr. Gordin. Finally, the doctor suggested immunotherapy.	Sartor lo trató con terapias convencionales, pero no funcionaron; el doctor le sugirió la inmunoterapia.
	Mr. Gordin’s insurer refused. But then the lab that had analyzed his tumor discovered it had made a mistake.	La aseguradora de Gordin se negó a pagar, pero luego el laboratorio que había analizado su tumor se dio cuenta de que se había equivocado.
	There was a chance Mr. Gordin might respond to immunotherapy, because he had a rare mutation. So his insurer agreed to pay.	Había posibilidades de que Gordin respondiera a la inmunoterapia, puesto que tenía una mutación extraña. Entonces su aseguradora aceptó pagar.
	Immediately after taking the drugs, Mr. Gordin’s PSA level — an indicator of the cancer’s presence — went down to nearly zero.	Inmediatamente después de tomar los medicamentos, el nivel de PSA —un indicador de la presencia de cáncer— bajó a casi cero.
	“Makes my heart nearly stop every time I think about it,” Dr. Sartor said. “Life sometimes hangs on a thin thread.”	“Hace que casi se me pare el corazón cada vez que lo pienso”, dijo Sartor. “A veces, la vida pende de un hilo delgado”.

Text #6	**English**	**Spanish**
URL	https://www.nytimes.com/2018/06/05/health/immunotherapy-lymphoma.html?ref=nyt-es&mcid=nyt-es&subid=article	https://www.nytimes.com/es/2018/06/07/cancer-inmunoterapia-linfoma/?rref=collection%2Fsectioncollection%2Fnyt-es&action=click&contentCollectio%E2%80%A6
Caption	A white blood cell infected with the virus that causes adult T-cell leukemia-lymphoma, a rare blood cancer. An immunotherapy drug, nivolumab, seemed to make patients sicker, not better.	Un leucocito infectado con el virus que causa leucemia/linfoma de células T en adultos, un tipo raro de leucemia. Un medicamento de inmunoterapia, el nivolumab, parece haber causado que los pacientes empeoraran en lugar de mejorar.
Section	Health	Noticias - Salud
Byline	Denise Grady	
Date	June 5, 2018	June 7, 2018
Headline	**A Promising Cancer Treatment Made Patients Worse, Not Better**	**Un revés para la inmunoterapia: hace que algunos pacientes con cáncer empeoren**
Lead	Drugs that activate the immune system to fight cancer have brought remarkable recoveries to many people in recent years.	Los medicamentos que activan el sistema inmunitario para combatir el cáncer han provocado la notable recuperación de muchas personas en los últimos años.
	But one of those drugs seems to have had the opposite effect on three patients with an uncommon blood cancer who were taking part in a study. After a single treatment, their disease quickly became much worse, doctors reported in a letter to The New England Journal of Medicine.	Sin embargo, uno de estos medicamentos parece haber tenido el efecto contrario en tres pacientes con un tipo raro de cáncer en la sangre, los cuales participaban en un estudio. Después de una dosis única del tratamiento, la enfermedad de estos pacientes empeoró rápidamente, según informaron los doctores en una carta enviada a The New England Journal of Medicine.
	The cases are a sobering reminder that immunotherapy is still in its early days, and can unleash powerful forces that are not fully understood. Patients and doctors are eager to try the treatments when other options have run out, even for cancers in which they haven't yet been tested. Sometimes those hail-Mary efforts work. But they can backfire.	Estos casos son un solemne recordatorio de que la inmunoterapia aún es algo muy reciente, que puede desatar fuerzas poderosas que todavía no son comprendidas del todo. Tanto pacientes como doctores suelen mostrarse ansiosos por intentar estos tratamientos cuando ya han agotado otras opciones, incluso para tipos de cáncer en los que aún no han sido probados. A veces recurrir a este último recurso funciona, pero también puede ser contraproducente.
	The patients, treated last year at different hospitals, had adult T-cell leukemia-lymphoma, which is caused by a virus. The drug was	Los pacientes, que recibieron el tratamiento en distintos hospitales el año pasado, tenían leucemia/linfoma de células T del adulto

	nivolumab, or Opdivo, which belongs to a class called checkpoint inhibitors. The drugs cost more than $100,000 a year. Nivolumab, made by Bristol-Myers Squibb, has been approved to treat eight types of cancer, but not this type of lymphoma.	(LLCTA), un tipo de cáncer causado por un virus. El medicamento fue nivolumab, u Opdivo, que pertenece a una clase de fármacos llamados inhibidores del punto de control. Estos medicamentos cuestan más de 100.000 dólares al año. Nivolumab, fabricado por Bristol-Myers Squibb, ha sido aprobado para el tratamiento de ocho tipos de cáncer, pero no para este tipo de linfoma.
	The virus linked to the lymphoma — HTLV-1 — infects millions of people around the world, with the highest known prevalence in Japan, Africa, South America, the Caribbean and parts of Australia. But only 5 percent or fewer of those infected develop adult T-cell leukemia lymphoma; the reason is not known. The virus can be transmitted through sex, breast-feeding, needlesharing, transfusions and transplants.	El virus asociado con el linfoma, HTLV-1, infecta a millones de personas en todo el mundo; se presenta con mayor prevalencia en Japón, África, América del Sur, el Caribe y partes de Australia. Sin embargo, solo el cinco por ciento o menos de los infectados desarrollan LLCTA, por una razón que se desconoce. El virus puede transmitirse por vía sexual, lactancia, agujas compartidas, transfusiones y trasplantes.
	The patients described in the journal were the first three in a nationwide clinical trial meant to test the drug in 20 people with the lymphoma. But after the third got worse instead of better, researchers shut down the study, which was funded by the National Cancer Institute. They wrote to the journal to alert other doctors to the potential risk of giving the drug, a form of immunotherapy, to patients with that type of lymphoma.	Los pacientes descritos en la revista fueron los primeros tres en un estudio clínico que abarcaba todo Estados Unidos, cuyo objetivo era poner a prueba el medicamento en veinte personas con el linfoma. No obstante, después de que el tercero empeoró en lugar de mejorar, los investigadores cancelaron el estudio, que era financiado por el Instituto Nacional del Cáncer de ese país. Escribieron a la revista para alertar a otros doctores sobre el riesgo potencial de administrar este fármaco a pacientes con ese tipo de linfoma.
	“I don’t think we should use nivolumab in this disease at all, considering our experience,” said Dr. Murali Janakiram, an author of the letter, who treated a patient at Montefiore Medical Center in the Bronx, N.Y. “That’s why we wanted to get this publication out. With other T-cell lymphomas, we should be cautious that this could potentially happen, but continue with the clinical trials.”	“No creo que debamos usar nivolumab para esta enfermedad en lo absoluto, considerando nuestra experiencia”, señaló Murali Janakiram, autor de la carta, quien trató a un paciente en el Centro Médico Montefiore en el Bronx, Nueva York. “Por eso queríamos publicarlo. Debemos estar advertidos de que esto podría pasar con otros linfomas de células T, pero también continuar con los estudios clínicos”.
	This type of lymphoma has four subtypes, including two that are often fatal less than a year after being diagnosed. People with the other two can survive longer.	Este tipo de linfoma tiene cuatro subtipos, incluyendo dos que a menudo provocan la muerte antes de que se cumpla un año del diagnóstico. La gente con los otros dos tipos puede sobrevivir más tiempo.
	The first patient, who joined the study in February 2017 and was treated at the National Institutes of Health, had an indolent form called “smoldering,”	La primera paciente, que se unió al estudio en febrero de 2017 y recibía tratamiento en los Institutos Nacionales de Salud, presentaba una

	and had survived, with various treatments, for more than 20 years, according to Dr. Thomas A. Waldmann, a physician and scientist there.	forma indolente o “latente”, y había sobrevivido con distintos tratamientos durante más de veinte años, de acuerdo con Thomas A. Waldmann, un médico y científico que trabaja ahí.
	“She lived through the time from where she had infants to where she had kids in college,” Dr. Waldmann said.	“Había sobrevivido desde que sus hijos eran bebés hasta que ya eran universitarios”, dijo Waldmann.
	But she had painful skin lesions and other signs that the disease was worsening. The doctors had run out of treatment options.	Sin embargo, más recientemente había desarrollado lesiones cutáneas y presentaba otros signos de un empeoramiento de la enfermedad. Los doctores ya no tenían otras opciones de tratamiento.
	Trying a checkpoint inhibitor seemed to make sense. The cancerous cells in this type of lymphoma have a lot of mutations, and the drugs had been found to work best in that situation.	Intentar con un inhibidor de punto de control parecía lógico. Las células cancerosas en este tipo de linfoma tienen muchas mutaciones y se ha encontrado que estos medicamentos funcionan mejor en esa situación.
	“We thought this approach in this patient would be beneficial,” Dr. Waldmann said. “What we observed was just the opposite. All the aspects of smoldering were replaced by the characteristics of the very aggressive, acute T-cell malignancy.”	“Pensamos que este enfoque sería benéfico para esta paciente”, dijo Waldmann, de los Institutos Nacionales de Salud. “Observamos justo lo contrario. Todos los aspectos latentes fueron remplazados por las características de una neoplasia muy agresiva y aguda de las células T”.
	Less than a week after one nivolumab infusion, the patient’s skin lesions turned swollen and warm. Her spleen became massively enlarged and painful, and there was a 63-fold increase in her levels of DNA from the cancer-causing virus.	Menos de una semana después de una infusión de nivolumab, las lesiones cutáneas de la paciente se inflamaron y aumentaron su temperatura. Su bazo creció en gran medida y comenzó a dolerle, y los niveles del virus causante del cáncer en su ADN se multiplicaron por 63.
	Doctors used radiation treatments to shrink the patient’s spleen and skin lesions. They did not know if the nivolumab was to blame, but they gave her no more of it. She seemed to return to the condition she’d been in before receiving the drug, with worsening disease. She died a few months later.	Los doctores usaron radioterapias para disminuir el tamaño del bazo de la paciente y las lesiones cutáneas. No sabían si el nivolumab lo había provocado, pero ya no le administraron más. Al parecer había regresado al estado en que se encontraba antes de recibir el fármaco, pero con una enfermedad que empeoraba. Murió a los pocos meses.
	At the time, Dr. Waldmann suspected that the drug might have made the disease progress. Checkpoint inhibitors work by activating white blood cells called T-cells, a part of the immune system that should attack tumors. But in patients	En ese momento, Waldmann sospechó que el medicamento podría haber provocado la progresión de la enfermedad. Los inhibidores de punto de control trabajan activando leucocitos llamados células T, que pertenecen al sistema inmunitario y deberían atacar a los tumores. No obstante, en los pacientes con este

	with this type of lymphoma, the drugs might mobilize diseased T-cells as well as healthy ones.	tipo de linfoma, los fármacos podrían movilizar a células T tanto enfermas como sanas.
	Still, the researchers could not be sure if the patient's decline had just been an unfortunate coincidence.	Aun así, los investigadores no podían saber con seguridad si el declive de la paciente había sido solo una desafortunada coincidencia.
	Then, a few months later, something similar happened at Ohio State University. Just days after being treated, a patient with smoldering disease developed flulike symptoms, and within a few weeks, "the leukemia had just massively progressed into the bones and bone marrow and everywhere," said Dr. Jonathan E. Brammer, an oncologist there.	Unos meses más tarde, sucedió algo similar en la Universidad Estatal de Ohio. Solo unos días después de recibir el tratamiento, una paciente con enfermedad latente desarrolló síntomas parecidos a los de la gripe y, en unas cuantas semanas, "la leucemia había progresado masivamente hacia los huesos, la médula ósea y todos lados", dijo Jonathan Brammer, un oncólogo que trabaja ahí.
	She had to be taken off the study and treated with chemotherapy. Dr. Brammer said he did not know how she is now, because she had traveled to Ohio State for the study, and then went back home and continued treatment with local doctors.	Se le tuvo que retirar del estudio clínico y tratar con quimioterapia. Brammer dijo que no sabe cómo está ahora, porque el paciente había viajado a la Universidad Estatal de Ohio por el estudio, pero luego había regresado a casa y continuado el tratamiento con doctores locales.
	"In science, when you administer a drug, you expect one outcome, but until you actually do it you don't know what the outcome is going to be," Dr. Brammer said.	"En la ciencia, cuando se administra un fármaco se espera cierto resultado, pero no se puede saber qué sucederá, sino hasta después de haberlo administrado", dijo Brammer.
	The third patient, treated at Montefiore last November, had an acute form of the disease and had already been through several types of chemotherapy. The disease becomes very resistant to chemo, so the nivolumab study seemed like a better option than more chemo, Dr. Janakiram said.	El tercer paciente, tratado en el Centro Médico Montefiore en Nueva York en noviembre pasado, tenía una forma aguda de la enfermedad y ya había pasado por varios tipos de quimioterapia. La enfermedad se vuelve muy resistente a la quimio, así que el estudio clínico del nivolumab parecía una mejor opción que más quimioterapia, dijo uno de los médicos que redactó la carta, Janakiram.
	"We gave him the first dose, and within 15 days, by the time he was ready to receive the next dose, his disease was just taking off," Dr. Janakiram said. "It was even more aggressive."	"Le dimos la primera dosis, y a los quince días, cuando estaba listo para recibir la siguiente dosis, su enfermedad se había disparado", señaló Janakiram. "Era todavía más agresiva".
	The patient was switched back to chemo, and stabilized. He had gone to Montefiore to join the study, and then went back to his original doctors. Dr. Janakiram said he did not know how the patient ultimately fared.	Se regresó al paciente al tratamiento con quimioterapia y este se estabilizó. Había acudido a Montefiore para participar en el estudio clínico, pero luego volvió con sus médicos originales. Janakiram dijo que no sabía cómo le había ido finalmente al paciente.

	Researchers at the three centers, along with Dr. Ratner, compared notes and decided to call off the study.	Los investigadores de los tres centros, junto con Ratner, compararon sus notas y decidieron cancelar el estudio clínico.
	“This is a disease that can worsen at any point of time,” Dr. Janakiram said. “But then it’s just so soon after the drug that we cannot rule out that it’s the drug causing the problem.”	“Se trata de una enfermedad que puede empeorar en cualquier momento”, dijo Janakiram. “Pero sucedió tan pronto después de la administración del medicamento que no podemos descartar que haya sido este el que causó el problema”.
	Dr. Jedd D. Wolchok, an immunotherapy expert at Memorial Sloan Kettering Cancer Center who was not involved in the study, said the information was important, and he agreed that patients with any type of T-cell lymphoma — and there are many — should be carefully monitored if given a checkpoint inhibitor.	Jedd D. Wolchok, un experto en inmunoterapia del Memorial Sloan Kettering Cancer Center que no participó en el estudio, dijo que la información era importante, y estuvo de acuerdo en que los pacientes con cualquier tipo de linfoma de células T — y hay muchos— deben monitorearse cuidadosamente cuando se les administra un inhibidor de punto de control.
	“This is a time of very rapid learning,” he said.	“Estamos en una época de aprendizaje expedito”, dijo.

APPENDIX II

MIP Summary for raters

El MIP (2007)

El MIP (Metaphor Identification Procedure) es un método propuesto por el Pragglejaz Group, que lleva este singular nombre por las iniciales de sus integrantes (ver abajo), y se publicó en la revista Metaphor and Symbol en el año 2007.

Fuente que vale la pena consultar: https://slideplayer.com/slide/13033374/

Ventajas

El MIP permite trabajar con una definición precisa y explicita de lo que constituye lenguaje metafórico. Por ende, la identificación de las expresiones metafóricas no queda librado a la discrecionalidad, introspección ni definición particular y unilateral del investigador individual sino que se rige por un procedimiento que goza de una amplia aceptación y que permite hacer intersubjetivamente válido el análisis y la identificación de las metáforas.

Pasos del MIP

El MIP propone seguir cuatro pasos para clasificar a una palabra como metafórica o no.

1. El primer paso consiste en la lectura del texto-discurso de forma íntegra a fin de lograr una comprensión general.

2. En el segundo paso, se identifican las unidades léxicas (**OJO** la unidad de análisis es la UL y puede incluir a más de una palabra, p. ej., nombres propios y verbos preposicionales como "let alone").

3a. En el tercer paso, se determina el significado contextual de cada unidad léxica (es decir su significado en el contexto dado). Esto consiste en examinar cómo se aplica la palabra o unidad a una entidad, una relación o un atributo evocado por el texto.

3b. Luego, se determina si cada unidad léxica tiene un significado más literal y básico en otros contextos. Los significados básicos tienden a ser más concretos, más fáciles de imaginar o percibir con los sentidos, suelen estar relacionados con acciones corporales, suelen ser más precisos e históricamente más antiguos. En este paso los autores empelan al diccionario (recomiendan usar uno basado en corpus, p. ej. en inglés el Macmillan) .

3c. Si la unidad tiene un significado más básico en otros contextos que en el contexto dado, se debe decidir si el significado contextual contrasta con el significado básico, pero puede comprenderse en relación con él.

4. Si este fuera el caso, se marca la unidad léxica como metafórica (2007, p.3, mi traducción).

Ejemplo de aplicación del MIP

Ejemplo del MIP aplicado a la primera oración de un artículo del The Independent (internet edition) del 21 de agosto de 2003.

For years, Sonia Gandhi has struggled to convince Indians that she is fit to wear the mantle of the political dynasty into which she married, let alone to become premier.

1. Una lectura comprensiva revela que este texto trata de la política india contemporánea y del controvertido papel de Sonia Gandhi como política. La primera oración se centra en las dificultades que enfrenta Sonia Gandhi para ser aceptada como líder política y posible Primer Ministra.

2. Se identifican las UL (separadas por barras)

For/ years/, Sonia Gandhi/ has/ struggled/ to/ convince/ Indians/ that/ she/ is/ fit/ to/ wear/ the/ mantle/ of/ the/ political/ dynasty/ into/ which/ she/ married/, let alone/ to/ become/ premier/.

3. Se consideran todas las UL. En cada caso se determina a. significado contextual, b. significado más básico, c. Si existe uno más básico, determinar si el significado contextual contrasta con el significado básico pero puede comprenderse en relación con él.

Ejemplo del MIP aplicado a 2 UL

1. Caso /Years/

a. significado contextual: en este contexto, years designa a una largo período de tiempo que abarca varios años calendario.

b. significado básico: período cíclico de tiempo en el que la tierra completa una vuelta alrededor del sol, consiste en 365 o 366 días

Entrada en Macmillan online dictionary:

1

[COUNTABLE] a period of 365 days, or 366 in a **leap year**, divided into 12 months

c. contextual versus básico. El contextual está relacionado estrechamente al significado básico y no se comprende por un contraste con el básico.

d. ¿Está entonces la UL "years" empleada metafóricamente? **NO**

2. Caso /struggled/

a. significado contextual: en este contexto, "struggle" indica esfuerzo, dificultad e imposibilidad de lograr una meta que sería cambiar la visión y las actitudes negativas de las personas (que no la aceptan a Sonia Gandhi)

b. significado básico: usar la fuerza física contra algo o alguien

c. contextual versus básico. El contextual contrasta con el significado básico y puede comprenderse comparándolo con aquel: podemos comprender un esfuerzo, una dificultad y un conflicto abstractos en términos de un esfuerzo, una dificultad y un conflicto físicos.

d. ¿Está entonces la UL "struggled" empleada metafóricamente? **SÍ**

Para más ejemplos aplicados: https://slideplayer.com/slide/13033374/

Acá hay un resumen en inglés de lo mismo:

Here is a short summary of MIP. For details refer to the Pragglejaz Group publication:

1. Read the text to get a general understanding of the meaning
2. Determine the lexical units

3a. Establish the contextual meaning of the unit

3b. Determine if it has a more basic meaning → more concrete, body-related, more precise, historically older; not necessarily the most frequent meaning!

Does the contextual meaning contrast with the basic meaning but can it be understood in comparison with it?

4. If yes, mark the unit as metaphorical.

Fuente: http://www.vismet.org/metcor/documentation/MIPVU.html

Del MIP al MIPVU

Gerard Steen y otros investigadores (Lettie Dorst, Berenike Herrmann, Anna Kaal y Tina Krennmayr) de la Universidad de Amsterdam refinaron el MIP y lo rebautizaron como MIPVU (porque es el MIP desarrollado en la VU University Amsterdam). El protocolo completo del MIPVU se publicó en un libro de 2010 (A method for linguistic metaphor identification. From MIP to MIPVU) y se lo aplicó a un corpus (textos académicos, conversaciones, ficción y noticias) disponible de forma gratuita en internet (en idioma inglés).

El MIPVU, una versión ampliada y refinada del MIP, se describe como protocolo de identificación de metáforas que reúne algunas de las siguientes características:

- es un procedimiento sistemático y transparente para identificar la metáforas lingüísticas (es decir, las expresiones metafóricas)

- no identifica la metáfora conceptual

- identifica las unidades que tienen el potencial de realizarse como metáforas en la mente de las personas

- permite una validez intersubjetiva entre los codificadores (en su aplicación, participaron 4 diferentes codificadores)

- es un procedimiento sistemático y transparente para identificar la metáforas lingüísticas (i.e expresiones metafóricas) (trabajaron en línea revisando lo que hacían los demás y anotando/discutiendo los desacuerdos en cuanto a la anotación de algo como metafórico o no)

Si bien se basa en el MIP, el MIPVU supone algunos ajustes, 2 de los más interesantes (y que Semino, 2018 incorpora en sus análisis) son:

- También se incluye a los símiles (que se denominan "metaphor signals") y a la personificación dentro del lenguaje metafórico. Se hace una clasificación de las metáforas en directas, indirectas e implícitas. Se puede consultar en Internet toda la explicación detallada: http://www.vismet.org/metcor/documentation/relation_to_metaphor.html

- La historia de una palabra solo se considera en casos excepcionales (para determinar un significado más básico). En el MIP, los significados más básicos se consideraban como históricamente más antiguos (en el MIPVU, deciden no darle importancia a este criterio: los significados básicos de la unidades léxicas no deben ser necesariamente más antiguos que sus significados contextuales) .