

# Cognitive Linguistics and Translation Studies: Translating Conceptual Metaphors in Popular Science Articles

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## *Abstract*

This paper aims at exploring the fruitful interface between Cognitive Linguistics and Translation Studies in the field of Metaphor in Translation. After offering an overview of the relationship between the two disciplines as for metaphor translation, I illustrate the main Cognitive Linguistics issues that may be relevant to the study of coding and recoding conceptual metaphors from a source language-culture to a target language-culture. I then investigate such an interlingual transfer in the domain of popular science discourse, through a small selection of illustrative examples taken from authentic Italian target texts and English source texts. I attempt to demonstrate how prescriptivism can be avoided and the traditional concept of translation 'equivalence' can be reconsidered. The centrality of the translator as a decision-making agent in the translation process is reassessed while taking a cognitive approach to an analysis of translation of metaphorical expressions.

*Keywords:* translation studies, cognitive linguistics, conceptual metaphor.

## **1. Introduction**

Metaphor in Translation (henceforth MiT) has long been a major concern within the discipline of Translation Studies (henceforth TS<sup>1</sup>). However, it has generally been treated from a traditional prescriptive perspective. On the one hand, the key issues have most often been the translatability of metaphor and the translation procedures for rendering a metaphorical expression from a source text (henceforth ST) to a target text (henceforth TT). On the other

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<sup>1</sup> Abbreviations (in particular: TS, ST, TT, CL, SL, TL) are also used in the quotations.

hand, metaphor has primarily been handled as a figure of speech, whose main function is to embellish the text, rather than as a typical pervasive feature of language and thought (Schäffner 2004: 1253-54), as postulated by Cognitive Linguistics (henceforth CL) through Conceptual Metaphor Theory (Lakoff and Johnson 1980). Cognitive approaches to the study of MiT are relatively recent (see, e.g., Schäffner 2004; 2012; Samaniego 2013a; 2013b). Moreover, as Samaniego (2013a: 159) contends, the sparse studies dealing with MiT from a cognitive perspective still “show a prescriptive bias”. This prescriptive trend seems surprising if we consider that a descriptive paradigm has dominated theoretical reflections on translation in the past decades, in both process and product-oriented research.

In this paper I aim to offer a product-oriented metaphor analysis within the framework of descriptive translation studies (henceforth DTS). In doing so, rather than comparing metaphorical expressions in STs with their (non-)corresponding translation in the TTs, I start from the observation of the translational product. Through a small selection of authentic examples taken from popular science articles, working with the language pair English-Italian, I show that, by adopting a cognitive-descriptive approach, metaphorical expressions in the TTs can be seen as translation *solutions* on the basis of a conceptual mapping rather than as translation *problems*. Hence the role of the translator is made prominent, in line with Samaniego Fernández’s (2013a: 172) view that “translators [play] a much more relevant, creative and intelligent role than had traditionally been acknowledged”. But before turning to the specificity of MiT, I briefly describe the connection between CL and TS.

## 2. Cognitive Linguistics and Translation Studies

I do not deny that translation is fundamentally a linguistic activity; however, it is also primarily a decision-making process. In order to explore this decisional act on the part of the translator, theories and methodologies from CL can offer useful insight. As Rojo and Ibarretxe-Antuñano put it:

the central place attributed to cognition in modern TS does not interfere with the fact that language is still the raw material translators work with; therefore, a deeper understanding of language comprehension and

production and of how language fits in with the rest of human cognitive abilities will undoubtedly cast some light on the role language factors play on the translation process. (Rojo and Ibarretxe-Antuñano 2013a: 19)

In other words, not only is translation a textual operation and an act of communication, but it is also the result of a cognitive activity which involves the translator's mental processes. Consequently, the mental activities engaged in the translation process and the competence a translator needs to possess to carry out his/her task become paramount. It goes without saying that, as Hurtado Albir and Alves (2009: 54) point out, "the analysis of the translation process entails a great deal of complexity" since "it is constrained by intrinsic difficulties inherent in studies which aim at tapping into any kind of cognitive processing: it is not amenable to direct observation".

Attempts to describe translation as a cognitive activity within TS comprehend speculative and phenomenological theoretical models as well as empirical-experimental studies, which draw on different disciplines such as cognitive psychology and cognitive sciences (Alves and Hurtado Albir 2009: 28). Those areas of TS that lay emphasis on the translation process and cognitive aspects of translation have experienced unprecedented growth in the past few years with Halverson (2010: 349) speaking in terms of "Cognitive TS" (see also, e.g. Shreve and Angelone 2010a; Halverson 2010; 2013; 2014; Muñoz Martín 2014; Ehrensberger-Dow et al. 2015).

Below, I briefly outline the evolution of the relationship between the two disciplines and see which basic tenets of CL have a significant impact on translation theory and methodology.

### **2.1. From the early 1980s to the mid-1990s**

Up until the 1980s, the study of translation from a cognitive point of view had largely focused on 'interpreting'. Research into the mental processes of written translation started in the 1980s, and saw the rise of the first experiments of the so-called Think-aloud Protocols (TAPs) (Alves and Hurtado Albir 2010: 29). By using this method, drawn from cognitive psychology, the translator was asked to verbalise his/her mental processes in the course of a translation task, or immediately afterwards, and the researcher

usually recorded this for the sake of description. This type of study proved to be problematic, since what the translator expressed as happening during the translation task was not necessarily what really occurred in his/her mind. In addition, TAPs did not grant access to unconscious processes, and could even condition text production (Hurtado Albir and Alves 2009: 69). Nevertheless, despite their limitations, TAPs remained the main source of data collection until the late 1990s (Alves and Hurtado Albir 2010: 29).

This earlier experimental line of enquiry was followed up to the mid-1990s by a series of theoretical works which offered cognitive models of translation, drawing from disciplines such as psycholinguistics and cognitive psychology. Some of the most representative ones are: Bell's (1991) linguistic and psycholinguistic model; Gutt's (1991) relevance-theoretical model; Kiraly's (1995) sociological and psycholinguistic model; Gile's (1995) 'effort' model stemming from cognitive psychology and Wilss' (1996) cognitive-psychological model (see Hurtado Albir and Alves 2009).

## **2.2. From the mid-1990s to the present**

In the intervening years, empirical-experimental research on cognitive aspects of translation continued to develop, moving into a second stage characterised by new ways of investigating translation processes and translation competence (Alves and Hurtado Albir 2010: 31). While early experimental methods had used translation students or even simply language learners as subjects, more categories started to be taken into account, i.e., novices, experts and professionals (Shreve and Angelone 2010b: 5). Moreover, in this second phase, TAPs ceased to be the main instrument for data gathering and emphasis shifted to multi-methodological perspectives, namely 'triangulation' (Hurtado Albir and Alves 2009: 70). TAPs were thus supplemented with various methods of data acquisition, such as video recording, interviews, questionnaires, psycho-physiological measurements, etc. (pp. 69-70).

In the late 1990s, empirical-experimental research gained momentum thanks to the development of technological tools, i.e., computers and software packages (Alves and Hurtado Albir 2010: 32). Perhaps the most famous is Translog (p. 32), a software which records the translator's keyboard activity (keystrokes, deletions,

pauses) and mouse movements while producing a TT (Shreve and Angelone 2010b: 5). Such a tool “allow[s] for the key-logging of the translation process and, therefore, for the online observation of the flow of text production” (Hurtado Albir and Alves 2009: 70).

More recently, cognitive research has progressed to a third phase with the introduction of eyetracking, a tool capable of recording the translator’s eye movements across the ST and the TT on a computer screen (Alves and Hurtado Albir 2010: 33). This technique aims at looking into the translator’s reading process, in search of the cognitive processes involved in the understanding of input (p. 33). The newest empirical-experimental ‘triangular’ methods include integration between eyetracking and keystroke logging (Shreve and Angelone 2010b: 5). Although these methods remain to be standardised, they represent a challenging area in TS. On a more theoretical side, old concepts such as translation competence and translation strategy have been revisited in the light of new insights from cognitive science and neuroscience (p. 1).

What about the future of CL and TS? While House (2013) advocates in favour of a linguistic-cognitive orientation in TS, Rojo and Ibarretxe-Antuñano go so far as to discern “a promising new research framework called Cognitive TS that bridges CL and TS together” (Rojo and Ibarretxe-Antuñano 2013a: 25).

The next sections summarise the basic contributions of CL to TS which can provide useful insights into theoretical, methodological and practical translational issues.

### **2.3. Main issues of a cognitive approach to translation**

CL can usefully inform TS to account for those aspects of translation which are related to communication and language abilities. One of the basic axioms underpinning CL is that “language is an integral part of cognition” and thus any linguistic realisation needs to be explored in relation to mental faculties such as memory, attention and reasoning (Rojo and Ibarretxe-Antuñano 2013a: 11). This tenet can be important in the perspective of a process-oriented study of translation focused on those aspects involved during the translator’s decision-making process.

Another pivotal cognitive principle is that language is “embodied”, i.e. grounded in our physical, social and cultural

experience: in Rojo and Ibarretxe-Antuñano's words, "we create our mental and linguistic categories under the constraints imposed by our bodies, through the culture sieve, and on the basis of our concrete experiences" (p. 11). This concept is fundamental for translation theory, for the interpretation of a given ST cannot merely be based on linguistic structures, but must further take into account thought, language and culture.

In addition, the cognitive idea that language is "usage-based" encourages a product-oriented analysis of translations in which any theoretical postulate has to be based on authentic empirical data rather than on *ad hoc* examples (p. 11). Moreover, the cognitive assumption that one of the human abilities is imagination (p. 12) can be of great help in the study of MiT, which is expanded upon below. Finally, but not less important, given the centrality of the human mind in CL theories, cognitive theories of translation emphasise the central role of the translator in the translation process (p. 12). In the light of these principles, some traditional issues of translation theory can be revisited, such as the notions of 'shift' (Halverson 2013: 46-49), 'context', 'meaning', and 'equivalence' (see Rojo and Ibarretxe-Antuñano 2013b: 7). The focus in the present study is on the notion of 'equivalence'.

Central to any linguistic approach to translation there has always been the thorny issue of equivalence, which in TS has traditionally been associated with prescriptivism. However, working within a CL framework, such a prescriptivist nature is challenged by the fact that equivalence may be pursued at different levels, as argued by Rojo and Ibarretxe-Antuñano: "the search for equivalence would no longer be the search for identifiable linguistic features, but the search for a complex set of links in the translator's mind" (p. 13).

Summing up, the notion of equivalence in TS evolved "from the search for a set of relationships between objectively identifiable [...] linguistic structures and/or contextual features towards dynamic, changing, historically situated conceptualisations of source and target and the balance between them" (Halverson 2013: 44). In a cognitive theory of translation, prescriptive linguistic correspondences are not aimed at, but conceptualisations in the translator's mind contribute to the dynamic creation of a new text (p. 45). A redefinition of the notion of equivalence can also shed light on MiT. But before moving

on to this specific issue, I look into the main ideas and concepts related to metaphor within the discipline of TS.

### **3. Metaphor and Translation**

As Newmark reminds us, “most of the work in TS has commented on metaphor in a more traditional view, i.e. defining metaphor as a linguistic expression which can describe ‘the object more comprehensively, succinctly and forcefully than is possible in literal or physical language’” (1988: 95). Only since the emergence of a cognitive approach, Schäffner continues, has it gradually been grasped that “metaphors are not just decorative elements or one-off rhetorical flourishes, but rather basic resources for thought processes in human society” and that “they are cognitive devices for forming and communicating conceptualisations of reality” (Schäffner 2012: 252).

In the literature, metaphors have traditionally been viewed as translation problems, almost invariably implying a loss, because of the linguistic and cultural constraints involved when trying to transfer a linguistic expression from a source language (henceforth SL) into a target language (henceforth TL). Accordingly, in traditional TS, MiT has most exclusively been discussed from two different perspectives: its translatability and translation procedures to deal with it. As early as 1981, van den Broeck had already pinpointed these two main concerns by stating that translation theory “may content itself with the more modest task of laying bare some of the hidden mechanisms governing the translation of metaphors and their theoretic degree of translatability” (van den Broeck 1981: 73).

#### **3.1. Translatability and Translation procedures**

The issue of the translatability of metaphor has traditionally been associated with the prescriptive notion of ‘equivalence is sameness’. As Schäffner makes clear, “in equivalence-based approaches, the underlying assumption is that a metaphor, once identified, should ideally be transferred intact from SL to TL” (Schäffner 2004: 1256). However, as has been observed repeatedly, cultural differences may prevent such an intact transfer and thus metaphor can become untranslatable.

The most radical view that is most often referred to when discussing metaphor untranslatability is Dagut's (1976, cf. Schäffner 2004: 1256; Samaniego Fernández 2013a: 163-65). Dagut viewed metaphor as a highly culture specific manifestation, whose main function is to shock its readers; from his point of view, such a shock should be transferred intact in the TT; if linguistic and cultural factors prevent this transfer, metaphor is untranslatable (cf. Schäffner 2004: 1256). In Dagut's view, "since a metaphor in SL is, by definition, a new piece of performance, a semantic novelty, it can clearly have no existing equivalence in the TL; what is unique can have no counterpart" (Dagut 1976: 24).

If Dagut's answer to the translatability of metaphor is basically negative, other scholars aimed at offering normative procedures for dealing with what was perceived as a translation problem and "the epitome of all translations" (Newmark 1988: 113). The most quoted and influential list of procedures was put forward by Newmark (1981), who drew a distinction between dead, cliché, stock, recent and original metaphors. As regards 'stock' metaphors, he offered seven procedures as guidelines for handling them, in order of preference: reproducing the same image in the TL, replacing the SL image with a standard TL image, translation by simile, translation by simile plus sense, conversion of metaphor to sense, deletion and translation by same metaphor combined with sense (Newmark 1981: 87-91). Newmark's approach was obviously prescriptive.

From a more descriptive viewpoint, van den Broeck (1981) proposed a scheme of modes of translating metaphors. Rather than offering a set of procedures for rendering a metaphor in a TL, he was more concerned with the description of how metaphors had actually been translated. Van den Broeck (1981: 77), exclusively referring to traditional metaphor, classified three methods of translation: a) translation *sensu stricto* – when the SL 'tenor' and the SL 'vehicle' are transferred into the TL; b) substitution – when the SL 'vehicle' is replaced by a different TL 'vehicle' with a similar 'tenor', and c) paraphrase, which occurs whenever an SL metaphor "is rendered by a non-metaphorical expression in the TL".

From a thoroughly descriptive perspective, Toury (1995: 81ff), to the traditional translation procedures (metaphor into same metaphor, into different metaphor and into non-metaphor), added further possibilities: non-metaphor into metaphor and nothing into



metaphor, thus starting from the TT perspective. This is clearly a view of metaphor as a translation solution rather than as a linguistic problem.

### 3.2. Cognitive approaches

As Schäffner and Shuttleworth remark, most TS studies on MiT so far have been product-oriented, i.e. based on a comparison between ST-TT pairs. Obviously, when “only the translation product [is] available for analysis, we can at best speculate about the cognitive processes that led up to it” without the possibility to “retrace the actual pathways of the translator’s decision-making procedures” (Schäffner and Shuttleworth 2013: 97). New lines of experimental research on the process-oriented side have also developed recently in the field of MiT and promise more and more new insights into the exploration of what happens in the translator’s mind while tackling metaphors (for an overview, see Schäffner and Shuttleworth 2013).

We concur with Samaniego (2013a: 172) that Schäffner’s (2004) article “is one of the first very good attempts at relating a CL theory of metaphor to DTS”. Schäffner, mainly drawing from Lakoff and Johnson’s (1980) theory of conceptual metaphor, offers an insightful illustration of theoretical and practical concerns of MiT. Schäffner shows how, according to a cognitive view, metaphors are means to understand one domain of experience (a *target* domain) in terms of another (*source* domain). The source domain – the more familiar one – is mapped onto the target domain – the ‘new’ one, allowing for knowledge-based inferences and entailments. A distinction has to be made between the terms ‘metaphor’ and ‘metaphorical expression’. Whereas the former is a conceptual category, the latter “refer[s] to an individual linguistic expression that is based on a conceptualisation and thus sanctioned by a mapping” (Schäffner 2004: 1258) – e.g., ARGUMENT IS WAR *vs* ‘Your claims are *indefensible*’ (Lakoff and Johnson 1980: 115).

Establishing conceptualisation becomes fundamental to translation (Schäffner 2004: 1258). Indeed, as Rojo and Ibarretxe-Antuñano (2013b: 22) explain, “what the translator needs to do is to establish which conceptual domains are involved in the metaphorical mapping that appears in the ST, and then find either

the equivalent linguistic means to codify that mapping in the TT or find alternative conceptual domains that are equivalent to those in the ST”. Embracing such a theory, the argument of metaphor untranslatability can clearly be challenged, since “metaphor is no longer a problem for translation; *all conceptual metaphors are translatable* from the source into the TT” (Rojo and Ibarretxe-Antuñano 2013b: 22, emphasis added).

However, Samaniego (2013a: 169) claims that even contemporary works focusing on a cognitive theory of MiT still tend to adhere to a source-oriented approach: in other words, researchers detect ST metaphors in order to find similarities – read: equivalence – in the target version<sup>2</sup>. She observes that “none of them start from the TT and go back to the ST without trying to establish pre-determined equivalences and/or rules on the best way to find mappings and correspondences between the SL and the TL” (p. 169). We argue that a more descriptive approach which proceeds from the TT can prove fruitful and that a search for equivalence can be pursued in terms of ‘conceptual equivalence’.

#### 4. Translating conceptual metaphors in popular science articles

Van den Broeck (1981: 76) assumed that the need for translating a metaphor is linked to its function in the communicative situation it belongs to. With respect to their function, he distinguished between ‘creative’ *vs* ‘decorative’ metaphors, the former typical of literary texts (“authentic poetry, creative prose, and other kinds of creative writing”), the latter mostly “found in a good deal of contemporary prose journalism” (p. 76). In his view, only ‘creative’ ones require careful consideration on the part of the translator; yet “[i]n scientific discourse bold metaphors are very unlikely to occur” (p. 78).

By endorsing a cognitive theory of translation, we hold that metaphors are also ubiquitous and pervasive in popular scientific discourse, which, as the media scholar Nelkin (1987: 12) asserted, shares features of both science and journalism. In science journalism, on the one hand, metaphors are often employed to establish a more concrete relationship between a specialised term and everyday

<sup>2</sup> Samaniego (2013a) offers an example of a DTS approach to MiT with respect to newspaper translation (English-Spanish).

language; on the other hand, they help engender the reader's curiosity and call attention throughout the text (Manfredi 2014: 152).

By way of illustration, I offer a few practical examples from a selection of Italian TTs<sup>3</sup> – taken from a monthly popular science magazine (*Le Scienze*) and from the 'Science' section of a weekly consumer magazine (*Internazionale*) – and the English STs they are published in (respectively, the monthly *Scientific American* and *New Scientist*, along with the weekly magazine *The Economist*, in the 'Science and Technology' section).

#### 4.1. Aim and Methodology

In this paper we aim to show the advantages of a cognitive approach to MiT on the basis of a few authentic examples. Since our goal is a qualitative description of how metaphors can be analysed according to a conceptual theory of metaphor, no specialised corpus has been created for this purpose and no statistical analysis is offered.

In taking a DTS approach, I make no distinctions between categories of 'conventional' or 'private' metaphors as proposed by van den Broeck (1981: 75)<sup>4</sup>, but I consider any kind of metaphorical expression found in popular science articles as evidence of the fact that *we live by metaphors*. Starting from the assumption that a descriptive theory of MiT needs to describe actual renderings rather than prescribing how metaphors should be translated, I select a few illustrative metaphorical expressions in different TTs and compare them to the metaphorical expressions in the STs they derive from. I then identify the conceptual mapping that can underlie such instantiations and consequently I seek to establish whether a 'conceptual equivalence' can be said to be at work. I then undertake an examination of metaphorical expressions avoiding *a priori* criteria and value judgements.

<sup>3</sup> Examples are taken from popular science articles which are part of a current project concerning the translation of popular science discourse by the author of this paper.

<sup>4</sup> From the point of view of translation, van den Broeck (1981: 74-77), proposed a distinction between 'categories', 'uses' and 'functions' of metaphor. With respect to their 'category', he offered a taxonomy of 'lexicalized', 'conventional' and 'private' metaphors (p. 75), whereas in terms of their 'function', he distinguished between 'creative' and 'decorative' metaphors (p. 76).

This methodology offers the chance to analyse MiT in general-abstract terms as well as instantiated-concrete realisations, in both TL and SL. Moreover, this product-oriented approach makes it possible to take into account even ‘stronger’ metaphorical instantiations in the TTs with respect to the metaphorical expressions in the STs. The major role played by translators in the translation process is thus highlighted. Indeed, the examples are from TTs translated by ‘authoritative’ translators, i.e., professionals who regularly translate for these Italian magazines and who are recognisable either through their initials at the end of the articles or their full names in the impressum. As mentioned, this study is essentially grounded on TS and incorporates CL issues relevant to the investigation of MiT.

In the following section, I offer an empirical investigation to illustrate our theoretical and methodological approach in practice.

#### 4.2. From Theory to Practice

The basic premise underlying this study is that, from a cognitive point of view, every metaphorical expression is an instantiation of a particular mapping and that different metaphorical expressions could be manifestations of the same conceptual metaphor. As Samaniego Fernández puts it: “not all individual manifestations of a conceptual metaphor in an ST are accounted for in the TT using the same metaphorical expression” (Samaniego 2013a: 172). Let us consider a first example:

1) TT: La sorprendente scoperta fu che tre quarti degli animali erano infettati da almeno un batterio antibiotico resistente, e il 27 per cento da batteri resistenti a cinque o più antibiotici. La maggior parte dei batteri rilevati vive anche negli esseri umani. **La maglia nera** andò a una foca della Groenlandia, infettata da batteri resistenti a 13 dei 16 farmaci testati. (Solomon 2013b: 92, emphasis added)

1) ST: Surprisingly, three out of four animals had at least one antibiotic-resistant bacterium, and 27 percent had bacteria resistant to five or more antibiotics. Most of the bacteria found also live in humans. **The booby prize** went to a harp seal; it harbored bacteria that were resistant to 13 of the 16 drugs tested. (Solomon 2013a: 76, emphasis added)

The TT and the ST it derives from concern the field of ecology and biodiversity conservation; the TT appeared in the Italian popular

science magazine *Le Scienze*, which is the official translated version of *Scientific American*. The texts deal with emerging diseases in the animals inhabiting the oceans, caused by the pathogens of land animals which threaten their lives. In the excerpt above, the science writer is describing antibiotic-resistant bacteria which harmed a harp seal. In both TT and ST, the fact that organisms are infected by bacteria is commented on in concrete terms, as if being harmed were like being given an undesired object. In the TT, the ‘undesirable possession’ is concretely instantiated through *la maglia nera* (‘black shirt’), which used to be the shirt granted to the racer who arrived last in a cycling competition and nowadays is a widely used metaphor to convey the worst on a scale. We can thus say that the metaphorical expression is culture-bound (cf. Kövecses 2005), since embedded in the Italian target context and its *Giro d’Italia*. The ST features a different kind of metaphorical expression, which is ‘booby prize’, i.e., a consolation prize typical of the Anglo-Saxon world and defined as “a prize awarded in ridicule or fun to the player with the lowest score” (OED online) (often in the form of a wooden spoon). We thus notice different instantiations in the TT and the ST to convey a similar situation. However, the conceptual metaphor mapping both instances seems to be, following Lakoff’s Master Metaphor List, BEING HARMED IS BEING GIVEN AN UNDESIRABLE POSSESSION. I posit that, despite the different linguistic instantiations, and the fact that the TT conveys a more negative meaning, at an abstract level the conceptual metaphor is the same, so the two texts could be considered “conceptually equivalent”.

Let us see another example, taken from the Italian magazine *Internazionale* and translated from *New Scientist*:

2) TT: Oltre a gettare nuova luce sulla componente genetica dei tumori, il caso della Cappadocia **ha fatto scattare l’allarme** sui pericoli dell’erionite. Le ricerche condotte sugli animali dimostrano che è più pericolosa dell’amianto. (Wilson 2013b: 46, emphasis added)

2) ST: As well as helping to shed light on the genetics of cancer, the Cappadocians’ plight also **raised the red flag** about the danger of erionite. Animal research suggests that, if anything, erionite is more likely to cause cancer than asbestos. (Wilson 2013a: 37, emphasis added)

In this extract, taken from an article dealing with the mysterious

cancer risk in the Cappadocian region of Turkey, the Italian TT features the metaphor of an alarm as a warning signal against the danger caused by the mineral erionite. The ST features a more metaphorical expression<sup>5</sup> from the mapping INDICATING DANGER IS STARTING AN ALARM. What is interesting to notice is that, at the abstract and conceptual level, the warning seems more relevant than the instrument for it, which is expressed through two different instantiations in the ST ('red flag') and the TT ('alarm'). Thus, also in this case, we could say that ST and TT make use of different metaphorical expressions which can be analysed under the same conceptual metaphor.

By employing a cognitive theory of metaphor it may happen that apparently divergent conceptual metaphors in a TT and an ST, at a more general level, can be considered similar. The following example, taken from the stand-first of an article (from *Le Scienze-Scientific American*) in the domain of 'hard sciences', seems illustrative:

3) TT: I neutrini, i **membri** più strani **della famiglia** delle particelle, potrebbero indicare la via verso zone inesplorate. (Hirsch *et al.* 2013b: 62, emphasis added)

3) ST: Neutrinos, the strangest **beasts** in the particle **zoo**, may soon open the way to unexplored realms. (Hirsch *et al.* 2013a: 41, emphasis added)

In the TT, neutrinos – a specialised term in the field of particle physics – are instantiated as people, in particular members of a family, and the conceptual metaphor could be described as NEUTRINOS ARE PEOPLE. In the ST, the conceptual metaphor seems to be NEUTRINOS ARE ANIMALS (in a zoo). If we considered the translation of the ST into the TT according to a more traditional notion of 'equivalence', we would see a significant change in metaphorical instantiations (animals *vs* people), or at least some weakening. However, at a more abstract level, we may even detect a similar conceptual metaphor: NEUTRINOS ARE ORGANISMS, EITHER PEOPLE OR ANIMALS.

<sup>5</sup> As I did elsewhere with lexical and grammatical metaphors (see Manfredi 2014), I do not base my analysis on a simple dichotomy between 'non-metaphorical' and 'metaphorical'. Rather, I consider metaphoricity along "a continuum whose poles are 'least metaphorical' and 'most metaphorical'" (Halliday and Matthiessen 1999: 235).

As a final illustration, here is an instance of a conceptual metaphor and linguistic expression that may have been shared in the TL and SL, but the translator preferred to ignore standard correspondences and opted for a more creative translation:

4) TT: La terza parte del progetto, quella informatica, dovrebbe essere fattibile. Basta **premere l'acceleratore** nella direzione in cui si va di già. (“Geografia cerebrale”, 2013: 94, emphasis added)

4) ST: The third part of the project, the computer side, should be doable. That is just a question of **pushing harder** in a direction things are, in any case, going. (“Hard cell”, 2013: 70, emphasis added)

This excerpt is taken from an article in the field of neuroscience which appeared in *Internazionale* and was translated from *The Economist*. What we can see in the TT is the instantiation of a ‘movement’ metaphor. In both texts, different entailments have been made explicit: an instrument in the Italian TT and manner plus action in the English ST. A more direct translation of the metaphorical expression ‘pushing’ could have been *spingere (nella direzione)*. But the translator decided to opt for the more concrete instantiation of ‘press on the accelerator’, conveying a more familiar car trip. This last example seems to confirm the central role of the translator in the act of translation and decision-making process: “translators are, after all, sharp text creators” (Samaniego 2013a: 192).

## 5. In closing

The primary objective of this paper has been to show the past and most recent intersections between CL and TS in relation to MiT. In particular, we aimed to demonstrate that a descriptive approach to MiT in the light of a cognitive theory of metaphor can help reflect on traditional TS notions, like that of ‘equivalence’, and offer new perspectives of analysis. Through a cognitive lens, as Samaniego also suggests, “metaphor is not a case of untranslatability, but a challenging phenomenon in terms of un-packing SL information and re-packing it in the TL and culture” (Samaniego Fernández 2013a: 173). The potential benefits of a cognitive view of metaphor within the framework of DTS can be summarised as follows:

- a) firstly, a cognitive perspective can help researchers get away from the surface structure of metaphorical expressions in TT-ST pairs and engage with deeper reflections on conceptual issues;
- b) secondly, without the prejudice of a prescriptive approach and of pre-established criteria of 'equivalence', a cognitive point of view makes it possible to account for traditionally 'non-equivalent' metaphorical expressions in the light of more abstract processes and reasoning;
- c) thirdly, emphasis on solutions rather than on translational problems highlights the role of imagination in the human translator's decision-making process.

Clearly, a far-ranging DTS approach would require the analysis and description of homogeneous and large corpora in order to identify regularities of translators' behaviour and arrive at more systematic results, as well as attempt generalisations about translation choices, but this was beyond the scope of the present paper. Furthermore, the product-oriented analysis of more data would benefit from a process-oriented research in order to give credibility to speculations based on observation. Nevertheless, even with the small extent of this study, I hope to have demonstrated that a combination of TS and CL can offer an extremely useful tool for investigating a widespread phenomenon like that of MiT and to consider "the cognizing translator as the [privileged] locus of the situated event" (Halverson 2013: 65).

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