

An Analysis on the Construction and Translation of Metaphor in Biology

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Abstract :

This research paper is intended to shed new light on metaphor that has been perceived for a long time as a device of ornament and embellishment mainly used in expressive texts. More recently, metaphors have found fertile ground in scientific texts in which they are employed to explain abstract ideas and processes and give an account of scientific phenomena and experiences. For this reason, we thought it convenient to devote this research to the analysis of metaphors in scientific discourse to see how they operate and conceptualize ideas and if their function and connotations can be maintained in the target text or their translation implies some specific adjustments on the source text. To this end, special reference will be made to Newmark's taxonomy and strategies in addition to Shuttleworth's analysis of scientific metaphor ; some samples from the scientific journal *Scientific American* will also be presented.

Key words : Scientific metaphor, translation strategies, Newmark, *Scientific American*.

1. Introduction

Due to the various functions that a metaphor may have in verbal interactions, it has become an integral part of daily conversation and even pervaded scientific discourse in which it is applied to clarify abstract ideas and describe new concepts and experiences. Therefore, one may distinguish between conventional metaphors that have become part of the language and unconventional metaphors that express the authors' point of view and world vision. Accordingly, the aim of this study is to reveal how scientific metaphors are constructed, interpreted, communicated and translated, and if the translator may keep the same properties of the SL

metaphor in the TL without altering the intended meaning and the function of the text, especially under cross-linguistic and cross-cultural differences.

2. Metaphors in Scientific Discourse

To survive in time and evolve, language is bound to create new structures and concepts to refer to new experiences and realities, this can be achieved through neologisms and the use of metaphorical language. Metaphors, then, are pervasive in all types of discourse, in expressive texts to create some poetic and emotive effect and in specialized texts to explain abstract concepts and processes.

Therefore, metaphors help reinforce meaning and add new properties to a different concept, Sadock (1993 : 44) says in this regard :

« One of the ways of creating new language structures by means of existing ones is a metaphorical use of the language. New experience is frequently expressed via metaphor which help us to comprehend it »

In the same vein, STAMBUK (1998 : 2) adds :

« Our conceptual system and, consequently, our language system are largely made of metaphors based on physical and cultural experience of a given community. »

Metaphors imply describing something in terms of something else (Newmark, 1988 ; Shuttleworth, 2016). Indeed, it is widely believed (in the Arab and Western traditions) that this relation is based on similarity, and more specifically on the « similarity between the features of two sememes » (Eco in Richard Trim, 2017 : 17), like when we talk about the different waves of the Covid pandemic in which we compare the spread and effect of the disease to a wave.

Metaphors can also be constructed through disparate and incoherent elements, especially in the case of novel and creative ones, like when the Algerian novelist Ahlam Mosteghanemi says :

"...فأشعلت سيجارة عصبية ورحت أطارد دخان الكلمات التي أحرقتني منذ سنوات دون أن أطفئ حرائقها
مرة فوق صفحة" (ذاكرة الجسد)

(I lit a cigarette nervously and started chasing the smokes of the words that have been burning me for years without extinguishing their fires once on paper)

In this extended metaphor, the narrator compares words to fire that consumes his body, and has therefore created some kind of similarity between dissimilar signs. In this regard, Paul Ricoeur (1997) considers that a metaphor is where difference and similarity meet.

Shuttleworth (2017 : 29) defines metaphor as follows :

« *Metaphor is one of a bewildering constellation of related processes that involve some kind of transfer of meaning (some of the others being simile, analogy, synecdoche, metonymy, idiom, parable, irony, indirect speech act, euphemism, model and conceptual blend— to say nothing of translation, of course).* »

However, he did not mention the type of transfer it implies, if it is similarity or incongruity, and it is worth noting that a metaphor can materialize in a single word, a phrase, and idiom or a proverb, and it may be uncovered by referring to the context and making inferences.

On the other hand, although it is commonly believed that the language of science tends to be monoreferential, precise, objective and neutral, many suggest that it is through metaphor that science communicates knowledge, SHUTTLEWORTH (2017 : 09) says in this regard :

« *metaphor does not simply exist in scientific texts but is the main mechanism that enables science to work at all* »

Regardless of its ornamental dimension and expressive function, metaphor is believed to generate new meanings through simile and helps understand abstract concepts and experiences, they help communicate new experiences, knowledge

and world visions by connecting signs with different semantic fields, one may also have recourse to metaphorical expressions for conciseness and clarity, as a given concept may generate a wide range of meanings. According to Newmark (1988 : 104), it has two main functions : cognitive and aesthetic, and these two are usually indissociable, as a metaphor is supposed to please and urge the receiver to make an interpretative and cognitive effort to unveil it. In the same context, Olohan (2016) has defined three main specificities of scientific research writing : the move, metadiscourse and grammatical metaphor.

According to Shuttleworth (2017), English coins new terms through latin and greek and according to him if one studies the etymology of the scientific discourse terminology, they might find that most of them used to be dead metaphors, some of which are of latin and Greek roots. And according to Casselman (1998) these terms represent more than 90% of the English Scientific vocabulary.

Theorists distinguish between different types of metaphors depending on various principles such as the degree of explicitation/implicitation, the degree of simplicity and complexity (Shuttleworth, 2017). Lakoff, advocator of the conceptual metaphor theory who uses the term « mapping » to refer to metaphor, has identified four types in this regard :

- 1- Complex schema mappings
- 2- Image-schema mappings
- 3- One-shot, rich-image mappings
- 4- Aristotle's metaphor

But generally speaking, western scholars distinguish mostly between conventional and unconventional or creative metaphors, dead and live metaphors. Prandi (in Trim, 2016 : 26) defines conventional metaphors as follows :

« Les métaphores conventionnelles sont des structures conceptuelles cohérentes qui appartiennent à un patrimoine partagé de concepts,

prêts à se manifester dans l'expression quotidienne comme tout concept cohérent. »

In conventional metaphors, the signified is more or less coherent with the original meaning and « makes more sense ». This is probably due to the overuse of the metaphor in daily conversation to the extent that it lost its emotive function. Yet, in creative metaphors, the signified is more complex and less coherent. Accordingly, Prandi (op.cit) considers that coherent metaphors have to be translated by coherent corresponding metaphors in the TL. Conflictual metaphors are then translated literally, provided that the receiver of the translation makes the same inferences as the receiver of the source text. In fact, applying this method is likely to result in misunderstanding and nonsense, as the receiver of the translation may not possess the same shared knowledge as the receiver of the ST. Moreover, the SL metaphor and TL one may give rise to different connotations and associations.

According to KNUDSEN (2005 : 374) a novel or innovative metaphor may be « *expanded conceptually* » giving rise to numerous other metaphors. Conventional metaphors are pre-stored in memory and require less cognitive effort, due to their frequent use. As for novel metaphors, inference strategies have to be applied to decipher the intended meaning. Also, the reader may refer to the linguistic context to understand the similarity or incongruity in the metaphor, KNUDSEN (idem : 376) says in this regard :

« Since novel metaphors are in nature open to interpretation, the writer might want to push the reader in the right direction by incorporating some kind of ostensive stimulus; that is by adding textual markers attracting attention and focus to the intended meaning. »

However, the clues offered by the text and linguistic and structural analyses may not be sufficient to interpret novel metaphors properly, this knowledge has

to be supplemented by world knowledge and reasoning strategies, i.e an act of hermeneutics has to be carried out.

Regarding the omission of metaphors or translating them by sense, Steen (in Trim, 2016 : 32) says in this regard « *if many metaphors do not function metaphorically, why would it be important to translate them as metaphors ?* »

Therefore, the challenges posed by metaphors lie in the ability to identify and interpret them properly, especially novel ones that materialize the authors' world view. The intricacy and complexity lie as well in their translation, since their intended meaning can be dynamic, highly subjective and sometimes culture-specific. In addition, languages may not share the same metaphorical models, and concepts applied metaphorically in one language may not give rise to the same associations in another language.

3. Translating scientific metaphors

During the first years of Translation Studies, metaphor received less attention in the discipline of Translation Studies, this may be due to the fact that it was considered as a secondary issue. First attempts have been made by Newmark, Dagut, Nida and then it has witnessed a breakthrough with Gutt, Toury, and Snell-Hornby among others, considering the seminal and numerous publications tackling the issue.

Newmark (1988) has developed a set of strategies that can help render metaphors depending on their types as follows : - reproducing the same image when it does exist in the TL, - replacing the image in SL with a standard TL image which complies with the target culture, - translating the metaphor by a simile, - translating the metaphor by simile with an explanatory note, - rendering the metaphor by sense, - modification of the metaphor, - and omission.

Stock metaphors, for instance, can be reduced to sense or translated by simile or literally when they are culture-specific like « il marche à pas de tortue » (p : 110), « he is as slow as a tortoise ».

According to him (idem), novel or creative metaphors are usually translated literally, since they represent the author's world vision. In the same vein, Kloepper (in Snell-Hornby, 1995-57) says “*the bolder and more creative the metaphor, the easier it is to repeat it in other languages* ». This means that literal translation is possible, because he thinks that (idem) languages all over the world share some similarities, as mankind possess the same reasoning patterns. However, this may be hard to achieve given cross-linguistic and cross-cultural differences. Moreover, some items can be perceived figuratively in some languages, but they may be interpreted differently in others. Most scholars suggested the same procedures as Newmark : reproducing the original image, translating the metaphor by simile, rendering the sense of the metaphor.

In the same vein, Irene Kristeva (in Richard TRIM, 2017 : 13) demonstrated that any deviation from the SL norms when rendering metaphors may result in a stylistic loss as follows ‘*any denial, deviation or distortion of the metaphorical transfer is a symptom of the qualitative impoverishment (Berman) of the target text in comparison to the source text.* ». This qualitative impoverishment materializes according to Kristeva (idem : 21) in extreme transformation through addition, commentaries, etc and by default transformations that appear in omissions and simplifications. This latter is likely to result in the loss of the text's emotive function.

Accordingly, the translation has to keep the strangeness and otherness of the source text/language in the target language/text. However, considering linguistic cleavage, differences in shared knowledge and perceptions, this may fall short of producing the same stylistic effect and rendering the intended meaning.

The translation becomes more challenging when a single metaphor is extended all over the text, when there is a network of metaphors around one metaphor. Also, a metaphor may be translated according to the text type, a creative metaphor in an expressive text, for instance, can be translated literally to enrich the target domain and add a colourful flavour, but in a specialized text this may fall short of rendering the intended meaning, because one cannot keep the same network, this why translating the extended scientific metaphor by its sense may be more appropriate.

4. *Scientific American* as a case study

Scientific American is a popular scientific journal that is not highly specialized, it is translated monthly in many countries and has 14 international versions, among which we can mention its arabic version مجلة العلوم, it publishes the most recent works already published in highly technical journals, we have selected it as a corpus since it has gained momentum in America as it uses a simplified accessible style. We focused attention on the articles tackling the Covid pandemic given the wide range of metaphors employed, as the virus was personified.

It appeared from some of the articles we consulted that conventional metaphors are pervasive such as: omicron surge that is rendered by موجة which is a different metaphor; there is also the recurrent sentence « the new variant hit us » that cannot be rendered literally and was translated by (انتشر، تفشى). We have also noticed the use of the recent metaphor « viral load » which refers to the amount of virus present in the body and it is translated literally by الجمل/الجمولة, الفيروسية, we can also mention other conventional metaphors as : reach the peak, immune system respond differently, omicron outbreak, etc. Novel metaphors were also widely employed as cycle threshold.

Conclusion

Our theoretical and practical analysis demonstrated that in scientific texts, especially popular ones, lexicalized and conventional metaphors tend to be pervasive compared to novel metaphors that may characterize highly scientific texts. Also, an analysis of the widely used equivalents of some SL metaphors on Covid pandemic reveal that different strategies can be applied as : literal translation and when this may result in misunderstanding, their sense is rendered.

Also, in spite of seminal works carried out on metaphor and its translation, there is still little research about the construction, interpretation and translation of metaphors in a scientific discourse.

Last, the translation of a metaphor may depend on its type, function or relevance in the text, it depends also on the degree of similarity and overlap between SL and TL and the principle of adequacy, i.e the situation/context in which the metaphor is going to be used.

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