Metaphor identification in a terminological dictionary

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Abstract

This paper aims at demonstrating that metaphor is not simply a literary device, but an integral part of everyday language. The Theory of Conceptual Metaphor suggests that our conceptual system is fundamentally metaphorical. Concepts arise from our everyday interaction with the world and semantic structure reflects the conceptual structure. Metaphor, therefore, is pervasive in everyday life, not just in language but in thought and action. Based on these assumptions, we analyzed a terminological dictionary on environmental law in order to find metaphorically used lexical items. Then, for every such item we tried to determine its most literal meaning in another context. In order to do so, we applied the method for identifying metaphor developed by the Pragglejaz Group (2007). The results confirm the pervasiveness of metaphor and indicate how polysemy is motivated. Moreover, there seems to be no clear boundaries between literal and figurative language.

Keywords: cognitive semantics, conceptual metaphor, primary metaphor, terminology, terminological dictionary.

Resumen

Identificación de metáforas en un diccionario terminológico

El presente artículo pretende demostrar que el fenómeno de la metáfora no es simplemente un recurso literario sino que también forma parte integral del lenguaje diario. La Teoría da la Metáfora Conceptual sugiere que nuestro sistema conceptual es en gran parte metafórico. Los conceptos se forman a partir de nuestras interacciones diarias con el mundo que nos rodea y las estructuras semánticas reflejan la estructura conceptual. La metáfora, por lo

tanto, es dominante en nuestro quehacer cotidiano, no solamente en el lenguaje sino también en el pensamiento y en la acción. Partiendo de estos supuestos, analizamos un diccionario terminológico sobre legislación medioambiental con el objetivo de encontrar elementos léxicos utilizados metafóricamente. Así, intentamos determinar el sentido más literal de cada uno de esos elementos en otros contextos. Los procedimientos que aplicamos para la identificación de metáforas fueron los desarrollados por Pragglejaz Group (2007). Los resultados confirman la presencia dominante de metáforas y explican las causas que motivan la polisemia. Asimismo, parece que no existen fronteras definidas entre el lenguaje literal y el figurado.

Palabras clave: semántica cognitiva, metáfora conceptual, metáfora primaria, terminología, diccionario terminológico.

1. Introduction

Metaphors have been the subject of academic debate for at least 2,000 years and were seen, for most of this time, as an ornamental feature of language. Today, such a perspective is considered to be a classical view of metaphors, according to which metaphors are only a kind of addition to ordinary language, used as stylistic devices to enhance language effects. In recent decades, the phenomenon of the metaphor has increasingly gained attention, especially in the works of linguists and philosophers, and has been a focus of interest for researchers in lexical studies and its related disciplines. Among these disciplines, Terminology has emerged as a prescriptive discipline as opposed to a descriptive consideration of language, and has only gradually moved towards becoming a part of general linguistics.

At first, the idea that specialized and technical texts could admit polysemous terms or definitions was rather unwelcome. Objectivity and precision were considered to be essential elements of technical and scientific languages in order to attain informational accuracy. Figurative, vague or ambiguous language, therefore, could not be accepted in such environments.

According to Temmerman (2000), the objectivist beliefs of traditional terminological approaches see metaphors as an undesirable element pertaining to figurative language that, as such, should be replaced by a literal equivalent. However, the author proposes the need for a new approach in Terminology that takes into account the recently developed studies of metaphor in specialized languages. One of her postulates is that metaphor plays a central role in lexicalization processes.

A consensus has emerged that research in the field of Terminology must broaden its scope to incorporate linguistic diversity in all of its aspects, including the figurative one (Weissenhoffer, 1995; Cabré, 1998; Temmerman, 2000; Finatto, 2001). Nevertheless, research focusing on metaphors is still rare in Terminology (Temmerman, 2000; Fuertes-Olivera and Pizarro-Sánchez, 2002; Dias, 2004; Huang, 2005) and we have no knowledge of any study focusing specifically on the Primary Metaphor Theory within this area of research.

This paper aims to investigate the occurrence of primary metaphors in terms and definitions in a terminological dictionary on environmental law: the *Dicionário de Direito Ambiental* (Krieger et al., 2008) –hereafter DDA. From a descriptive and textual perspective in Terminology, an interface is proposed between the Conceptual Metaphor Theory (which comprises the Primary Metaphor Theory) and the Sociocognitive Theory of Terminology.[1]

2. Theoretical foundations

The Conceptual Metaphor Theory –developed by Lakoff and Johnson (1980) to deal with metaphors– is an experientialist approach and is based on two central ideas. First, metaphor is not a matter of language itself, but it plays a central role in the way we conceptualize the world, because the human mind operates with concepts that connect metaphorically with other concepts of a similar structure (Lakoff & Johnson, 1980; Gibbs, 1999). Second, reasoning has an embodied experiential basis. This approach treats metaphor as a systematic correspondence or mapping between two conceptual domains: the source domain, typically more concrete, structured or accessible to the senses, which serves as a source of inferences; and the target domain, typically more abstract, less structured, to which inferences are applied. Accordingly, for instance, people have coherently organized knowledge about the conceptual domain SIZE, upon which they rely to understand the conceptual domain IMPORTANCE. This is the mapping found in the conceptual metaphor IMPORTANCE IS SIZE. In this metaphor, SIZE is the source domain and IMPORTANCE is the target domain.

Conceptual metaphors are instantiated by means of linguistic expressions known as linguistic metaphors. One uses expressions such as "The Internet was one of the greatest inventions of the last century" when referring

metaphorically to an important event. Image schemas –which are relatively abstract conceptual representations originating directly from our daily interaction with the environment and from observation of the world in which we live– can provide the concrete basis for these metaphorical mappings (Johnson, 1987). Because they are the first concepts to emerge in the human mind and because they are related to sensory perceptual experience, such schemas are not rich in details, rather, they are abstract concepts which originate from repetitive instances of embodied experience (Johnson, 1987). According to Lakoff and Johnson (1980), such experience gives rise to the conceptual structure: the cognitive system that represents and organizes experience in such a way that it can serve as a basis for linguistic expression. Consequently, it could be said that semantic structure reflects conceptual structure, which has its origins in embodied experience. Image schemas are not restricted to a single sense. Although in everyday language the term "image" is restricted to visual perception, in cognitive linguistics its application includes all kinds of sensory perceptual experience (Johnson, 1987). Some image schemas are: CONTAINER, PART-WHOLE, CENTER-PERIPHERY, LINKAGE, SOURCE-PATH-GOAL, BALANCE.

In line with the experientialist approach, Grady (1997) developed the Theory of Primary Metaphors, which postulates that some conceptual metaphors emerge from correlations between different dimensions of basic recurrent and co-occurring embodied experiences. An example of a primary metaphor is the conceptual metaphor DIFFICULTY IS HEAVINESS. When carrying a heavy object, people experience some degree of difficulty and physical discomfort –independently of their culture. The heavier the object is, the more difficult this experience will be. Hence, HEAVINESS and DIFFICULTY are two recurrent and co-occurring experiential domains that exemplify a conceptual mapping between a source domain (HEAVINESS) and a target domain (DIFFICULTY). Therefore, primary metaphorical mappings emerge from basic co-occurring physical cognitive experiences and are potentially universal. That is to say, given the universal embodied experiences on which they are based, it is expected that these metaphors might occur in distinct languages and cultures worldwide, in different linguistic environments.

Considering the nature of the object –a technical scientific dictionary on environmental law– the present research draws from a terminological theory based on postulates of cognitive semantics: the Sociocognitive Theory of

Terminology. This approach, developed by Rita Temmerman (2000), upholds that part of scientific and technical knowledge is understood through our sensory perception, as a result of the interaction between language, the mind, the human body and the world.

One of the tenets of the sociocognitive theory of terminology, which is in line with the experientialist approach, is in opposition to the idea that there is an absolute and unconditional truth that can be described through denotative and literal aspects, from a synchronic perspective of language. Temmerman (2000) believes that language cannot be reduced to a conscious and literal level, and that diachronic analyses are often essential to understanding the meaning of a term at a certain moment in a given discipline.

Contrasting with the principles of the General Theory of Terminology, the Sociocognitive Theory of Terminology proposes that, in relation to the units of understanding, both univocity and polysemy, as well as synonymy, can be functional, and that figurative expressions are part of terminological descriptions.

Adopting a mixed approach to terminological metaphors, Fuertes-Olivera and Pizarro-Sánchez (2002) propose that metaphors in specialized contexts can have both a conceptual and an aesthetic role. The aesthetic role refers to the surprise and/or delight effects the metaphor eventually cause on the users. In our research, however, due to the very nature of primary metaphors (i.e., unavoidable and pervasive in our daily life), this kind of impact does not seem to apply.

3. Material and Methods

The *Dicionário de Direito Ambiental* (Krieger et al., 2008) was chosen due to the fact that it is a technical scientific dictionary written in Brazilian Portuguese[2]. The analysis of the dictionary was carried out through manual inspection of its entries, definitions and observations. Founded in the Conceptual Metaphor Theory (Lakoff & Johnson, 1980), this study deals with the identification and description of linguistic and conceptual primary metaphors encountered in the afore-mentioned dictionary.

The search for metaphorical occurrences in the dictionary was undertaken individually by each member of the research group and the instances

selected were later discussed collectively. However, due to the vagueness and the open-ended character of metaphors, to subjectivity in determining what is really metaphorical and to a lack of established parameters that could apply to the identification of metaphors (conceptual and linguistic) group decisions often became much more complex. For this reason the research also involved the elaboration and systematic application of criteria that favored a clearer and more objective identification of the metaphorical instantiations in the dictionary.

Initially, the analysis of metaphorical instantiations in the dictionary was based on the Metaphor Identification Procedure, MIP (Pragglejaz Group, 2007). This procedure systematizes a series of methods which reflect, to a certain extent, the metaphor identification process that had been carried out by the research group. Hence, metaphor identification involved:

1. Reading all the terms, definitions and observations in the dictionary.

2. Identifying potentially metaphorical lexical items.

3. (a) Determining their contextual meaning.

   (b) Searching for a more basic meaning of the lexical item.

   (c) Comparing the basic and the contextual meanings of the items and determining the extent to which they contrast.

4. Identifying potentially metaphorical lexical items.

For the purposes of this research, more basic meanings were the ones conforming to the criteria suggested by the Pragglejaz Group: more concrete (accessible to the senses), related to the functioning of the body (motivated by the human body sensory motor apparatus), more accurate (cognitively more structured) and historically older. With the aim of more accurately determining the meaning of the lexical items when analyzing the terminological dictionary, we relied on two contemporary Brazilian dictionaries: *Novo Dicionário Aurélio* (Ferreira, 2004) and *Dicionário Eletrônico Houaiss* (Houaiss, 2001). The latter being more useful for our purposes due to the fact that it includes more historical and etymological information. For the English examples presented in this article, we relied on the *Cambridge Advanced Learners' Dictionary* (CAMBRIDGE, for short) and on the *Oxford Advanced Learners' Dictionary* (OXFORD, for short).

The application of the MIP will be demonstrated with a lexical unit taken from the entry "tuna and tuna-like fishes"[3], in the DDA: "vivem em profundidade e apresentam *grande* valor commercial" [they live in deep waters and have a *great* market value]. We point to the lexical unit "great" and its contextual meaning: "large in amount, size or degree" (CAMBRIDGE). We understand that "big" (CAMBRIDGE) is the most basic contemporary meaning of this unit.

When we compare those two meanings of "great", we notice that the contextual meaning contrasts with the most basic meanings, even though it can be understood in comparison with them. In fact, we can think of the tuna's market value in terms of an entity bounded by a surface, that is, a physical object whose size can be measured. Moreover, large physical objects tend to be more evident, significant and influential. In such a case the lexical unit "great" is marked as metaphorical.

The group's concern in formulating a set of criteria to support the analysis and description of the respective metaphors led to the creation of two other criteria, over and above those mentioned previously. The first one relates to the productivity of the conceptual metaphor, and the second one to the linguistic metaphor's possible resistance to literal paraphrases. In so far as the productivity of a certain conceptual metaphor is concerned, we attempted to determine whether other metaphorical expressions could be created out of it, in addition to the one initially identified. For these other metaphorical expressions, the repetition of the same lexical items is not a pre-requisite. In other words, it is not the reiteration of the metaphorical lexical item of a linguistic metaphor that indicates the productivity of the conceptual metaphor, but the linguistic metaphors themselves. The productivity of a metaphor can be used as a tool to reveal the degree of metaphoricity of its linguistic instantiation. Furthermore, productivity can be taken as an indicator of the recurrence of a conceptual metaphor in the different contexts within the corpus, which are, in this case, the dictionary entries, definitions and observations.

As for the lexical unit "great", the conceptual metaphor IMPORTANCE IS SIZE can be identified in the definition of the entry "tuna and tuna-like fishes". This conceptual metaphor is highly productive, as it is realized in many linguistic expressions in the DDA:

(i) proteínas biologicamente ativas com *grande* grau de pureza [biologically active proteins with a *high*[4] level of purity]

(ii) no processo de fusão nuclear [o hidrogênio] produz *grande* liberação de energia [in the nuclear fusion process hydrogen produces a *high* energy liberation]

(iii) sítios de características naturais raras, singulares ou de *grande* beleza cênica [sites with natural features which are rare, peculiar or have a *great* scenic beauty]

(iv) equipamentos de *pequeno* impacto ambiental [tools of "little" environmental impact]

(v) a possibilidade de ingerir água é *pequena* [the possibility of ingesting water is "small"]

Therefore, we can verify the productivity potential of the conceptual metaphor IMPORTANCE IS SIZE and consequently suggest that the degree of metaphoricity of such a linguistic instantiation is quite high.

The second criterion is intended to determine whether there is at least one paraphrase of the linguistic metaphor at issue that could be employed as a synonymous lexical unit with a more basic meaning. In this case, we consider as literal the paraphrase which least departs from the meaning of the linguistic metaphor.

In the following excerpt, taken from the DDA, "preservação de ecossistemas naturais de *grande* relevância ecológica" [preservation of natural ecosystems of *high* ecological relevance], we can propose "*great* ecological relevance" with no significant variation in meaning of the linguistic metaphor. If a literal paraphrase is not possible in the specific context, i.e., if the attempt to find a more basic lexical unit results in significant distortion of the meaning conveyed by the sentence, then the inescapability of the metaphor is evident. Thus, we assume that the contextual meaning of the lexical unit analyzed is the only one that is possible in this situation.

In the following example, "produto imediato do *cruzamento* entre linhagens geneticamente diferentes" [the immediate outcome of the *crossing* between genetically different lineages], a literal paraphrase is not satisfactory. When we compare the meaning of "crossing" in this context "a mixture of two different things which have been combined to produce something new" (CAMBRIDGE) to its more basic meaning "to go across from one side of something to the other" (CAMBRIDGE), it can be considered

metaphorical. However, at first, we could not find any lexical unit in Portuguese that conveyed its most specific meaning without being weakened in this context. "Crossing" in this case was considered to be a polysemic item with a metaphorical origin.

When trying to determine the level of metaphoricity of the instantiations, we can think of a continuum ranging from what was considered to be highly metaphorical to what was less typically metaphorical, i.e. whose metaphoricity was not consensual within the group.

4. Analysis

4.1 Highly metaphorical occurrences

The cases considered to be highly metaphorical were those in which it was possible to satisfactorily determine a difference between a metaphorical use (more abstract) of the lexical unit in the context of the DDA and a literal use (more concrete or basic). We used both of the previously mentioned dictionaries to determine the literal use of the lexical units. After determining the different uses of the lexical unit, the next step consisted of identifying the conceptual metaphor and the mappings which allowed such linguistic expressions. The following analysis describes the cases in Table 1, marked as highly metaphorical.

	Literal use	Metaphorical use
(a)	lagos existentes *dentro* do território [existing lakes *in* the territory]	lavagem *dentro* de 24 horas [washing *in* ("within") 24 hours]
(b)	*através* da seção transversal de um escoamento [*through* the cross section of an outflow]	*através* de profundas mudanças estruturais na sociedade [*through* deep structural changes in the society]
(c)	os pontos mais *altos* [the *highest* peaks]	*alto* valor econômico [*high* economic value]

Table 1. Literal and metaphorical uses.

(a) *Dentro* [in]

As for the lexical item *dentro* [in], its contextual use in the following sentence in the DDA was considered clearly literal: "mares, rios e lagos existentes *dentro* do território de um Estado" [seas, rivers and lakes *in* the territory of a

State]. In this case, the meaning of the lexical item is closer to what we considered the idealized cognitive model which represents "in". This model might also include a vertical component of three-dimensionality, as in "in a box" or "in the house"; however, the two-dimensional aspect appeared to be satisfactory to point out its literal aspect in the example. In this case, the idealized cognitive model which represents "in" is the CONTAINER schema.

On the other hand, the next example was considered metaphorical: "sem posterior lavagem *dentro* de 24 horas" [with no further washing *in* 24 hours]. In this case, the lexical unit was taken as being used in a different context from the one considered literal, as it treated the length of a day (24 hours) as a container.

Aside from those two examples, the first with a more literal and the second with a more metaphorical meaning, the CONTAINER schema can also be observed in the examples below, ordered according to an increasing scale of abstraction.

(i) camada gasosa, situada *dentro* da atmosfera [layer of gases, located *in* the atmosphere]

(ii) propagação de vibrações mecânicas (...), *dentro* da faixa de freqüência de 16Hz [emission of mechanical vibrations *in* the frequency range 16Hz]

(iii) troca de materiais entre as partes vivas e não vivas claramente definidos *dentro* do sistema [material exchange between living and non-living parts clearly defined *in* the system]

(iv) que explore (...) imóvel rural, *dentro* de condição de rendimento econômico [which exploits rural real estate, *in* the condition of economic revenue]

The CONTAINER schema is related respectively to: (i) the layer of gases defined as atmosphere; (ii) the frequency range 16Hz; (iii) what is considered a system; (iv) the set of conditions of economic revenue.

The perception of similar structural correlations between different domains is a reasonable hypothesis to explain these changes in meaning. A more abstract domain is understood in terms of a more concrete domain; in other words, simpler conceptual structures are mapped in order to structure more complex concepts. The perception of these structural correlations (or mappings) does not seem to depend on the etymology of the lexical unit,

since we can observe the CONTAINER schema with similar structural correlations in all examples.

In the example "sem posterior lavagem *dentro* de 24 horas" [with no further washing *in* 24 hours], the CONTAINER schema is also combined with the conceptual metaphor TIME IS SPACE, that is, the abstract domain TIME tends to be understood in terms of the concrete domain SPACE. We can experience with our bodies the measurement of physical spaces, whereas measuring time is not easily accessed by the senses, and we usually deal with it artificially, with resources such as clocks.

These and subsequent examples testify that the source domain SPACE is highly productive to express the target domain TIME, as we can notice in several everyday linguistic instantiations that use spatial relations to express temporal relations, as in the following examples: "we are *far from* winter", "my birthday is *near*", "the time for change *has come*", and "our deadline *has been moved up*".

(b) *Através* [through]

As for the lexical unit *através* [through], its different meanings are a result of mappings based on the SOURCE-PATH-GOAL schema, which allows for understanding a more abstract domain in terms of a more concrete domain. The meaning conveyed in the first example below was considered literal, whereas the second one was considered metaphorical.

> (i)   volume de fluido que passa por unidade de tempo, *através* da seção transversal de um escoamento [volume of a fluid which passes per units of time, *through* the cross section of an outflow]

> (ii)   o homem só poderá integrar-se perfeitamente na biosfera *através* de profundas mudanças estruturais [man can only integrate perfectly into the biosphere *through* radical structural changes]

In sentence (i), the fluid goes from a specific point (SOURCE) through a cross section (PATH) towards a point (GOAL). In a similar way, in sentence (ii), the man in a specific condition (SOURCE) undergoes radical structural changes (PATH) to a certain condition (GOAL).

Between the more concrete use of "through" in (i) and the more abstract use in (ii), we can notice several intermediate meanings whose level of abstraction can be considered as increasing, as in the examples below. In (iii), for instance,

the substance goes through a physical path in ligneous tissues, and in (iv) a path to be followed seems to be made out of the sequence of generations.

(iii) alta difusibilidade *através* dos tecidos lenhosos [high diffusibility *through* the ligneous tissues]

(iv) mantenha a sua homogeneidade *através* de gerações sucessivas [maintain their homogeneity *through* subsequent generations]

(v) de outros organismos colocados em seu genoma *através* de técnicas de ADN recombinante [from other organisms placed into its genome *through* recombining DNA techniques]

(vi) instrumento internacional bilateral, *através* do qual um país industrializado (...) pode compensar suas emissões [bilateral international instrument, *through* which an industrialized country (…) may compensate its emissions]

(vii) objetiva uma melhor qualidade de vida *através* da transformação da sociedade industrial [aims for a better quality of life *through* changes in industrial society]

(c) *Alto* [high]

In the examples with the lexical unit *alto* [high], the image of a physical entity with spatial orientation –in this case, verticality– is mapped onto an abstract concept (e.g. degree). This abstract concept uses other systems which have height as an intrinsic property (e.g. hill). In the excerpts below, such a metaphorization applies to both physical and concrete entities, such as the molecular weight of elements, and more abstract ones, such as the economic value of a product.

(i) os pontos mais *altos* de uma seqüência de morros [the *highest* peaks of a series of hills]

(ii) elementos metálicos de *alto* peso molecular [metallic elements with *high* molecular weights]

(iii) energia (...) com *alto* teor de carbono e hidrogênio [energy (…) with *high* levels of carbon and hydrogen]

(iv) manter um *alto* nível de segurança nuclear mundial [to maintain a *high* level of world nuclear security]

(v) constitui ambiente especial de *alto* valor econômico [constitutes a special environment with a *high* economic value]

Therefore, it can be noticed that the several senses of a lexical unit are connected to each other through a "chain of meanings". Moreover, we can state that the correlation between the senses is open-ended as well as subjective. The polysemy of lexical units such as *dentro* [in], *através* [through] and *alto* [high], among others, are not arbitrary but highly motivated.

4.2 Less typically metaphorical occurrences

We considered less typically metaphorical those cases in which a literal meaning could not be determined in another context and whose metaphorical extensions seemed to depend at least in part on diachronical or etymological aspects. These cases point to a clear metaphorical origin. The lexical items *lesão* [injury], *centro* [center], *banco* [bank/bench] and *visar* [to look at/to target/to aim at], whose uses appeared to be less clearly metaphorical, are analyzed below.

(a) *Lesão* [injury]

The indetermination of the word *lesão* comes from its apparent primary meaning. The first meaning found in the dictionaries we consulted, either *lesão* in Portuguese and "injury" in English, parallels the following definition: "to harm yourself or somebody else physically" (OXFORD).

In the DDA this physical meaning seems to be extended through metaphorical or metonymical processes by means of personification in order to refer to the environment or to the law as if these two "entities" were living beings. The lexical item "injury" occurs twice in a definition for the word "damage", where the affected "entities" are not human, but rather a "property" and the "environment". It also occurs in two other definitions where the injured "entity" is a "diffuse interest" (uma lesão ao *interesse difuso*) or a "right" (prevenir qualquer lesão de *direito*).

Although the physical meaning seems to be extended through a metaphor or a metonymy to refer to more abstract domains –such as rights or the environment (seen as living beings)– this correlation was not evident.

(b) *Centro* [center]

For our purposes, another lexical item with less typically metaphorical uses was *centro* [center], as the following examples show:

(i) rede circular, de malha fina, com pesos na periferia e um cabo fino no *centro*, pelo qual é puxada [fine-meshed circular net with weights on its extremity and a thin handle at its *center*, by which it is pulled]

(ii) as espécies citadas acima ocorrem no *Centro* e Norte do país [the species mentioned above exist in the *Center* and North of the country]

(iii) lotes de colonização que se destinam a constituir o *centro* da comunidade, incluindo as residências dos trabalhadores [colonization plots which are meant to form the *center* of the community, including workers' houses]

(iv) o ambiente é mantido o mais próximo do natural, devendo conter, *centro* de visitantes, museus, outras facilidades e serviços [the environment is kept as natural as possible, necessarily including a visitors' *center*, museums, other facilities and services]

The lexical item "center" can be used in a literal way, as: "shoot the *center* of the target", "the vase was placed in the *center* of the table" and "our house has a *central* location". And it can also be used in a more abstract way, i.e., without a physical or spatial center as reference. Here we have a CENTER-PERIPHERY schema, according to which something in the center is more important than something in the periphery. The conceptual metaphor IMPORTANT IS CENTRAL arises from those mappings, and generates sentences such as "she considers herself the *center* of attention", "peripheral questions must be left aside until the *central* problem can be solved", "money is at the *center* of many arguments".

Aside from these examples, the lexical item "center" also occurs in expressions such as: visitors' center, study center, health center and community center. In these cases, more than a centrality meaning, the item refers to a specific physical space, which is a place of common interests and activities. This meaning seems to remain the same even when a physical space is not defined, as in: "that region is a drug dealing *center*" and "this city has become a *center* of cinematographic production".

When "center" appears in noun phrases, we can again distinguish a literal use (health center) from an abstract one (center of cinematographic production). Apparently, in such cases the item "center", which derives from a metaphor, forms another literal nucleus of meaning that can be expanded again in a metaphorical way.

(c) *Banco* [bank/bench]

The occurrences with the lexical item *banco* [bank/bench] were also considered less typically metaphorical due to some peculiarities in their possible extensions. The first thing to be considered here is the question: are the two meanings of *banco* homonyms or an example of polysemy? Some Brazilian Portuguese dictionaries consider it to be a homonym, putting the word in two different entries: one (Ferreira, 2004) treats it as a case of homonym, giving it two different entries –"bench" (furniture) and "bank" (financial institution). And the other (Houaiss, 2001) presents the item as a case of polysemy, assigning it a single entry with several senses. Aside from a possible common origin of the two meanings of *banco*, if considering only the meaning of "bank", we have an example which is very close to the discussion of the item "center". The meaning of "bank" (financial institution) is gradually extended to refer to places in which other entities are saved: "Development Bank", "germplasm bank", "data bank", "bank of ideas".

(d) *Visar* [to look at/to target/to aim at][5]

As for the lexical item *visar*, its contextual use in the following sentences in the DDA is another example of what might be considered less clearly metaphorical:

> (i) caçador que *visa* fim exclusivamente esportivo [the hunter who *aims at* an exclusively sporting purpose]
>
> (ii) produção *visando* seu plano de abastecimento [the production *aiming at* its supply plan]
>
> (iii) ação *visando* recompor área [an action *aiming at* the restoring of an area]
>
> (iv) *visando* ao bem da coletividade [*aiming at* the good of the community]

In all these cases the meaning of *visar* is "to aim at". However, it can also have a more literal meaning in Portuguese, as in "ele *visou* a presa e atirou" [he *targeted* the prey and fired a shot]. Or another even more literal meaning, as in "sentada no sofá, ela *visava* os objetos na sala" [sitting on the sofa, she would *look at* the objects in the room].

Despite a possible division between a more literal meaning ("to target" or "to look at") and another more metaphorical one ("to aim at") for the same lexical item, what is being discussed here is the fact that, in Portuguese, one

meaning of *visar* ("to target" or "to look at") is rarely used or almost in disuse. Therefore, a possible "metaphorical origin" would depend, in this case, on considerations of an etymological and diachronic nature.

For this reason, it can be claimed that nowadays in Portuguese the lexical item *visar* is practically restricted to meaning "to aim at", and could no longer be considered a metaphor because of a fossilization process. This is what would be traditionally called a "dead metaphor".

However, if we consider the strong productivity of the verb *ver* ["to see", from which *visar* stems] (which appears in many expressions alluding to the physical meaning of the word to conceptualize other actions), it does not make much sense to consider it a dead metaphor. All these extensions of meaning are possible because of the ways in which we conceptualize the action of SEEING. It is from these extensions that the conceptual metaphors AIMING IS SEEING, KNOWING IS SEEING and many others arise. Although the verb *ver* is less typically metaphorical, it seems to be very metaphorically productive if we consider the diachronic perspective.

5. Conclusions

Because we could not find pre-established criteria in the specialized literature, it was necessary for the group to create its own criteria to identify metaphors. The discussions focused on determining what could be a more literal or a more metaphorical meaning of each lexical item. Afterwards, using the criteria developed by the Pragglejaz group (2007) and adding the criteria developed by our group –conceptual metaphor productivity and metaphor resistance to literal paraphrases– identification became clearer and more objective than before. Nevertheless, we noticed that some level of subjectivity was always present when we investigated metaphors.

According to the group's assessment, the metaphors found in the dictionary (DDA) were divided into highly metaphorically cases –those with a stronger delimitation between literal and metaphorical meanings– and less typically metaphorical cases –those with a less categorical delimitation. Such classification, however, was mainly operational, since there was no clear edge delimiting them.

Moreover, we noticed that although it is possible to divide literal and metaphorical uses of a lexical item, between these two extremes there is a

continuum of meaning, and one or more of its concrete meanings can be considered more central or highly metaphorical in a family of related meanings.

Confirming the first hypothesis of this research, we could verify that the reason why conceptual metaphors appear in abundance in this terminographical work is because they are inherent to language. Some of these metaphors, such as *dentro* [in], *através* [through] and *alto* [high], are basically inescapable. Furthermore, as we can notice from the examples *lesão* [injury], *centro* [center], *banco* [bank/bench] and *visar* [to look at/to target/to aim at], all of them analyzed in this paper, metaphorical extensions seem to be one of the main reasons for the polysemy of lexical items.

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NOTES

[1] Although Temmerman (2000) uses the expression "unit of understanding" instead of "term", in this study we sometimes loosely employ the word "term". We did not specifically analyze metaphorical lexicalizations (metaphorical terms) nor their specificity in the structuring of Environmental Law: our main purpose was to analyze the metaphorical occurrences in this linguistic environment.

[2] Although the research was carried out with Portuguese terms, some of the items were translated into English for the purposes of the present article.

[3] The term in English is the equivalent to the original entry words *atum e afins* as presented in the DDA.

[4] In examples (i) and (ii), a literal translation for *grande* would be "great". However, since "high" is a more appropriate translation, it will be maintained.

[5] In Portuguese, the verb *visar* stems from the verb *ver*. The verb *ver* means "to look at" or "to see", while *visar*, from metaphorical extension, can mean "to aim at" or "to target".