Transparency and Translatability of the Terminological Metaphor in the Domain of Computer Science (A Contrastive Analysis)

Doina BUTIURCA

Department of Applied Linguistics
Sapientia University Cluj-Napoca
Faculty of Technical and Human Sciences Târgu-Mureş
butiurcadoina@yahoo.com

Abstract. Our research, *Transparency and translatability of the terminological metaphor in the domain of the internet*, is a contrastive analysis in the topic of the metaphor, especially. The relationship between the common and the special lexicon in the domain of the Internet in the English language as source language, the relationship between the common denominator between the source language and the semantic basis, of equivalence in the target language represent the aims of the research. The languages in which the analysis is carried out are different from the genealogical and typological point of view (the English language on the one hand, the Romance language and Hungarian on the other). The perspective is a descriptive-semasiological one, and the methods applied – the paradigmatic and syntagmatic analysis, the contrastive analysis – are adapted to this perspective.

The transparency in the meaning, the degree of translatability, the motivated character of the terminological metaphor, the role of linguistics / of semantics in the terminology of the Internet are only some of the conclusions of the research.

Keywords: the terminological metaphor, the lexicon of the Internet, transparency, translatability, linguistics.

1. General context: metaphor patterns in informatics

The most frequent mechanisms of the formation of the specialized meaning is analogy. I. Meyer (Meyer 2004) argued that the vast majority of the computer terms are metaphors formed based on the analogy with objects / features of the real world. There are several categories of metaphors in computer science based on which the cognitive, abstract contents are organized by referencing them to cultural / material structures, to the human body, that we know directly through empirical

experience. Here are some patterns: 1. metaphors of nations. The imagined communities (virtual communities) are the metaphors of nations: 2. e-mail; electronic mail; 3. BBS; 4. news groups; 5. Chat-rooms (real-time conversations), etc. Unlike nations, virtual communities are based on reciprocity, not on unity. Community is derived from *munus* (gift) – i.e. mutual and fair exchange.

The interaction between the user and the computer is based on metaphors of space. Several metaphors are used in the cyberspace. *The Well*, "the new frontier" is a virtual community (the metaphor refers to the Romantic years of the conquest of the West in the USA, the "new frontier"). Its mission is to contribute to the civilization of the "continent" emerged at the frontier of the electronic. *The Well* has regions similar to *amazon.com* (the paradise of books). The ending .com indicates the fact that the region belongs to Internet commerce and trade.

The Empire (The Empire of the Skies) is another metaphor of cyberspace. It is a conceptual metaphor on the level of which the influence of the Western culture can be identified. The meanings of the metaphor differ: 1. Cyberspace is open to everyone and is not restricted to certain nations or privileged races. 2. Cyberspace is being populated by bodiless beings similar to angels. 3. Cyberspace has no frontiers, it provides a remedy against loneliness.

The list of options is called a *menu*, a culinary metaphor. In the cyberspace, there is mail (electronic), Telenet sessions (Rom. *A deschide sesiuni Telenet*; telenet), there are art collections (Eng. *electronic coffee-table book;* Rom. *album de artă electronic*), there are pseudonyms (Eng. *alias/alternate name/nickname*; Fr. *pseudonyme*), there are search agents (Eng. *Web crawler/Web worm/Web spider/Web browser;* Rom. *agent de căutare Web/robot de căutare Web*; Fr. *chercheur Web/explorateur Web/fureteur Web*), administrators (Eng. *Webmaster/ Web administrator/Webmeister/site administrator*; Rom. *administrator al unui site*). The cyberspace also has spies (Eng. *lurk*; Fr. *se planquer*; Ro. *a spiona mesajele unui grup de discuții*).

These are metaphors that form a complex system of networks. Although each metaphorical pattern has distinctive features, the concepts interact on the level of the same structure. Interaction is the *sine qua non* condition of creating a logical communication system in computer science, in general, and in the lexicon of the Internet in particular.

1.1. Research objectives and methods

In our research, we aim at studying transparency, the relationship between the common and the specialized lexicon, as well as translatability on the level of the terminological metaphor. The study was conducted on three linguistic branches different from the genealogical and typological point of view: the Germanic branch, the branch of the Romance languages as well as the Finno-Ugric branch.

The languages of the selected corpus for our analysis in studying the occurrences of computer terms are: the English language (source language) and the following languages: French, Italian, Spanish (with the variants used in Mexico and Argentina), Portuguese, Romanian, Hungarian, Catalan and Galician (target languages).

The study follows the descriptive-semasiological approach (P. Leart 1995, M.T. Cabre 1998, Loic Depecker 2002, A. Bidu-Vrânceanu 2010, etc.), an approach which accentuates the role of linguistics in specialized languages such as the role of meaning, its proper use in the specialized text/context, especially in translation. Therefore, the research combines the semantic, lexicological, etymological analysis of the corpus of the proposed terms, stressing the importance of linguistic semantics. The role of linguistics in computer terminology implies issues of etymology, philology, aspects of connection between conceptualization and meaning in the translation process. The applied methods are the paradigmatic and syntagmatic analysis, the interdependence between the descriptive linguistic methods of analysis of the terminological metaphor in a contrastive approach. The cognitive perspective, though secondary to our objectives, is fundamental to the study of reasoning through equivalence, of the transfer from a pre-conceptual schema to a specialized domain.

The research makes use of some of the most recent publications in the domain of computer science (PC World, PC Magazin), but especially the general and specialized dictionaries such as: *Panlatin Internet Glossary* (1999) – corpus elaborated by Realiter and the translation offices of the Canadian government (responsibles: Georgeta Ciobanu, Teresa Cabré I.Castellvi, François Mouzard, Loik Depecker; Manuel C. Nuñez Singala, Giovanni Adamo, Enilde Faulstich, Marie Rute Costa, Leticia Leduc; *Angol–magyar informatikai szótár* (Iványi, ed.), Tinta Könyvkiadó, Budapest, 2006; *Magyar–román szótár* (Reinhart, Lázár, Román, eds.), Bucharest, 2005, etc.

2. The terminological corpus

The terminological corpus is relatively small, given the contrastive perspective of the research, the study of the occurrence of the metaphor in terms of the common lexicon, of portability/translation, etc.

– Eng. *stalk*; Rom. *a urmări stând la pândă*; Hu. *becserkész/ oson/ lopakodik* (LC): Eng. *Net stalking/ network stalking*; Rom. *hărțuire pe Internet/* Hu. *net követés /hálózati követés* (LS).

– Eng. *warrior*; Rom. *războinic, luptător*; Hu. *harcos* (LC): Eng. *information warrior/* Ron. *luptător informațional /* Hu. *információharcos* (LS).

– Eng. *bridge/* Rom. *pod, punte, pasarelă/* Hu. *híd* (LC): Eng. *bridge router*, Eng. *bridge-router, b-router/* Rom. *punte de rutare/* Hu. *hídútválasztó* (LS);

– Eng. *tool*/ Rom. *unealtă*/ Hu. *eszköz, szerszám* (LC): Eng. *metasearch tool*/ Rom. *unealtă de metacăutare*/ Hu. *metakereső* (*eszköz/motor*)*,* etc.

2.1. The terminological metaphor in the language of the Internet

In its broad sense, the terminology of computer science – with a few exceptions – was formed through semantic calque, based on the English model – on the horizontal axis as an extension of the specialized language from different natural languages. The "transfer" from the source language to the target languages respects the principle of conceptual invariance (different from semantic invariance, limiting in terms of the productivity of the conceptual metaphor, in general). In a narrow sense – on the vertical axis (regarding the relationship of the common lexicon – CL – and specialized lexicon – SL – of every target language) –, the mechanisms and strategies of semantic transfer are variable, depending on the etymological source / on image / on the type of semantic representation / on the typology (inflected/agglutinating) of the languages, even if the designated referent retains its univocity / mono-referential character. For example, the verb *stalk* has several meanings in the common lexicon of the English language: 1 'to walk in a way that shows you feel angry or offended'; 2. to follow and watch someone all the time in a threatening way because of an extremely strong interest in them'; 4. 'literary to move around in a place in a dangerous, harmful, or threatening way', etc. (*Macmillan English Dictionary*, 2006: 1391). In the common language, the idiom *stalking horse* is used with the following meanings: 1. 'an action intended to hide what someone is really trying to do'; 2. 'someone who pretends that they want to be the leader else to win the post in an election' (idem).

The pre-existence of a semantic nucleus (vb. *stalk*) and that of a syntagmatic linguistic pattern (*stalking horse*) are two elements that have facilitated not only the analogy (on the cognitive level), the direct transfer of the specialized meaning, but also the polilexical structure of the term in the language of the Internet existing in the English language – *Net stalking.* From this point of view, *Net stalking/network stalking* constitutes the common core of the terms in the target languages – the conceptual invariant – as follows:

Eng. *Net stalking/ network stalking*; Fr. *cyberharcèlement*; Fr. *harcèlement électronique*; Fr. *harcèlement avec menaces sur réseau*; Sp. *acechar por la Red* (MEX); Sp. *acechar por Internet* (MEX); *acecho en la red* (ESP); *paseo por la red* (ESP) Cat. *assetjament a la xarxa*; It. *agguto con minacce in rete*; Ro. *hărțuire pe Internet*; Gl. *axexo* (*Panlatin Internet Glossary*), Hu. *net követés /hálózati követés* (*Angol–magyar informatikai szótár,* Iványi, ed.).

As it can be seen, the terms / terminological variants respect, regardless of the typology/genealogy of the target-languages, the unequivocal character of specialized communication, designating the same referent. There is no

dilution of the informatics meaning on the route from the source language to the target language. However, the semantic "representation"/feature under which translation/equivalence is carried out, differs subtly from one language to another: maintaining the specialized metaphorical meaning is much more accurate in the French and Romanian languages through the richness of meaning of the words from the CL: Fr. *harcèlement*/ Ro. *hărțuire*); Fr. *cyberharcèlement*; Fr. *harcèlement électronique*. The "metaphorical" nature of the specialized meaning can be underrepresented in the terminological variants of the same language and/or of two or more related or not related languages: Fr. *harcèlement avec menaces sur réseau*/ It. *agguto con minacce in rete* are two quasi-identical syntagms, which bring more transparency through the nouns *menaces*/ *minacce*. The syntagms are illustrative from the socio-terminological perspective as well, of the so-called *external* terminology: the insertion of the linguistic element in the given contexts "is addressed" first of all to the receiver (generally not a specialist) through the high degree of transparency. On the other hand, however, the insertion of such semantic markers (with socio-terminological value) is not able to maintain the high degree of scientificity as in the case of the variants *harcèlement électronique*/ *cyberharcèlement* or *net követés* in Hungarian.

The syntagms in the Spanish language (Sp. *acechar por la Red* (MEX); Sp. *acechar por Internet* (MEX); *acecho en la red* (ESP); *paseo por la red* (ESP) maintain the specialized metaphorical meaning through the presence of both terms of the metaphor, a phenomenon that can also be found in the Internet language of the Hungarian language: Hu. *net követés / hálózati követés.*

The terminological corpus of the Internet lexicon represents a category of terms with a nominative and referential value, created through double transfer: 1. internal, from the preconceptual schema of the target-domain; 2. external, from a source language to the target languages. Regardless of the source-domain, the metaphor of informatics is based on analogy, a process which confers a particular complexity to the descriptive-linguistic approach in terminology.

The process of decoding the HTML metaphors, of the lexicon of the internet, etc., despite the transparency of meaning, can be achieved solely in context. This aspect reinforces the idea of the need for the interdependent interpretation of the terminological metaphor from the semantic and contextual perspective. The issue of context in the expression of the metaphor is extremely complex, taking into consideration the abstract and strongly conceptual character of the specialized text, the different degrees of conceptual fixing, the different modalities of expression, etc. Belonging to one of the new terminologies, several metaphors are polilexical, formed from a common semantic core.

2.2. Sources of creativity in the Internet language: The transfer from CL to SL

The transfer of a word from the common lexicon to the specialized lexicon – which we called internal transfer – is one of the main sources of terminological creativity, either considering the synchronic perspective or considering the metaphor as the result of diachronic evolution. As a result of analysing the corpus of Internet metaphors, another source of conceptual-semantic creativity can be identified, that is, the migration of the terms from a specialized language to another: *suffix* (SL): info. *domain suffix* (SL); *surfing* (SL): (inf.) *Internet surfing*/ (inf.) *Net surfing* (SL); *surfer* (SL): *Internet surfer* (SL)/ *Web surfer,* etc.

2.2.1. Internet metaphor and transparency

The *concrete-abstract* transfer (En. *tool*, *stalk*; *bridge*/ Hu. *eszköz*; *harcos*; *híd*, etc.) is one of the many sources of the terminological metaphor, able to provide a specific transparency in specialized communication. For example, the English *tool* forms the common core of a series of Internet metaphors: En. *metasearch tool*; Fr. *outil de métarecherche*; Sp. *herramienta de metainvestigación* (MEX); *herramienta de metabúsqueda* (ARG); Sp. *metabuscador* (ESP); Cat. *metacercador*; Por. *ferramenta de busca*; Por. *ferramenta de metapesquisa* (BRA; POR); It. *strumento per metaricerche*; Rom. *unealtă de metacăutare*; Glg. *metabuscador* (*Panlatin Internet Glossary*); Hu. *metakereső* (*eszköz/motor*) [*Angol–magyar informatikai szótár,* Iványi ed.].

The evolution of meanings follows a complex path in the concrete–abstract transfer. The terminology belonging to the Internet lexicon takes words denoting concrete words of the material world based on analogies. It is the *sine qua non* condition of transfer, which ensures, besides its high degree of transparency, a good translation of the metaphor.

The *function analogy* represents another source of transparency of the Internet metaphor.

The role of *warrior, fighter* makes possible the creation of the metaphor *information warrior* in the English language. The metaphorical characteristic of "role/function" is maintained with the necessary exceptions in all target languages, through a specific algorithm. In the French language, the semantic equivalence is created by a word belonging to the general lexicon: Fr. *guerrier*, which is then attributed – based on the model of the source language – the specialized meaning of the domain: *guerrier de l'information.* Thus, the metaphorical path is rebuilt in the target language based on previously determined traits: "role/function". The same features are the basis for translating the metaphor in other languages as well. In the Romanian language, in the Spanish spoken in Argentina and in Mexico,

in the Portuguese spoken in Portugal, in the Italian and Galician language, in Hungarian, we find both the transparency of the term as well as the metaphorical analogy of function: Ro. *luptător informațional*; Sp. *ciberguerrero* (ARG; MEX); *infoguerrero* (MEX); Port. *ciberguerreiro*; Glg. *ciberguerreiro* (cf. Georgeta Ciobanu, François Mouzard, Loic Depecker, Manuel, C.N. Singala, Giovanni Adamo, Maria Rute Costa, Enilde Faulstich, Leticia Leduk, Teresa, Cabré.I. Castellvi, *Panlatin Internet Glossary*). In the Italian language, the metaphor is slightly modified under the semantic pattern through using the work *miliziano* in the term *cibermiliziano.*

The same analogy of function makes the translation of the metaphor possible in the Hungarian language through Hu. *információharcos.* The use of the term *harcos* provides the Hungarian Internet language with a particular transparency. In the common lexicon of Hungarian, the word *harcos* used as adjective (*harcos*, -ak,-at, -an) and as noun (*harcos*, -ok,-t,-a) designates the notions of combatant / fighter, etc. (*Magyar román szótár* 2005: 336), being particularly productive in terms of "metaphorical" characteristics of the specialized meaning in the language of computer science, in the political language, in the language of sports, etc.

2.2.2. The relationship between the common core and the metaphorical variants of the target languages

Studying the Internet metaphor from the contrastive perspective, a few aspects can be identified: 1. every series of metaphors has a common semantic core. It is formed – with the necessary exceptions – in the English language from a signifier belonging to the common language, which we call signifier 1 (CL), in order to create a specialized term (in the domain of computer science), which we call signifier 2 (SL). The relationship between signifier 1 and signifier 2, but especially the meanings given by signifier 1 are extremely complex and claim a double approach: on the *horizontal axis* of the specialized and/or standardized language (axis including the source language and the target languages), a macro-systemic axis; on the *vertical* / micro-systemic axis (the relationship between LC and SL, regarding the identity of every language). The complexity of the meanings of signifier 1 is given by several factors such as: the meaning can be usual with a very long history in the common language and / or very topical, it can be highly productive regarding the lexical-semantic creativity and / or minimally productive, etc. The terminological metaphor (which we call signifier 2) is the carrier of a strictly specialized IT meaning, created through direct transfer in the English language and/or through semantic calque, in the other languages / through metaphorical extensions of signifier 1, etc.

In a first acceptation, translating a metaphor in the IT domain means "to state" in another language – either in the lapidary form of a syntagm – what has been stated

in the source language, with the condition to keep the conceptual and semantic equivalences given by the common core. The difficulty of translating some of the terminological metaphors stems from the fact that translation / equivalence has a triple determination: conceptual, linguistic and cognitive. Beyond the conceptual equivalence, of the translator's concern for the unequivocal and mono-referential aspect of the metaphor, beyond the linguistic operations, there are mental operations of great subtlety. These are operations which include a thorough knowledge of the common lexicon, of the past of the words and / or of the etymon from the source language and from the target language. If we compare the metaphor En. *information warrior* with its conceptual equivalent in the Italian language, *cibermiliziano*, we observe that both metaphors respect the imperative of a specialized term to be unequivocal, both metaphors designating the same referent, and both being motivated on the linguistic level. There is, however, a certain "distance" between the two terms, respectively between the common core (En. *warrior*) and the semantic basis of the Italian language (I. miliziano), used to rebuild the metaphorical path: *warrior* and *miliziano* are two different words regarding their past, their usage, their semantic traits, in general, even if they have certain common themes. Therefore, two aspects regarding the translation of the metaphor have to be kept in mind in terminology: 1. from the perspective of the descriptive-semasiological analysis, we cannot absolutely equate the metaphor in the source language with the metaphor in the target language; 2. the semantic equivalence in the translation of the polilexical metaphor remains the expression of the hermeneutical approach of the translator.

From another perspective, the words belonging to the common lexicon of a language are productive to different extents, from the conceptual-semantic aspect and the aspect of being able to develop specialized meanings through analogy. For example, *bridge* achieves through direct transfer in the Internet lexicon one polilexical metaphor with terminological variants in the English language: bridge router, brouter, bridge-router, b-router(LS), similar to En. *wallet*, unlike *cell*, which is distinguished by its interdisciplinary / trans-disciplinary statute. The need for the metaphor to keep its transparency in the target language determines the translator to keep the syntagmatic structure of the terms (the syntagmatic structure makes both terms of the metaphor actual) from the domain of the Internet as well as the semantic equivalent of the common core in the target languages. Not in every situation does the target language conserve the syntagmatic structure or the common semantic core. Here is an example: Fr. *pont-routeur*; Sp. *ruteadorpuente* (MEX), Sp. *puente-ruteador* (MEX), Sp. *puente enrutador* (ARG), Sp. *canalizador puente* (ESP), Sp. *direcciondar puente* (ESP), Sp. *entutador puente* (ESP), *trazador puente* (ESP); Cat. *pont adre çador*, Cat.*pont encaminador*; It. *ponte-instradatore*, It. *brouter*/ Rom. *punte de rutare, bridge router*, Rom. *bridge*/ Glg. *ponte direccionadora*(Lexic panlatin de Internet, idem 1999), Hu. *hídútválasztó* (Iványi (ed.) *Angol–magyar informatikai szótár, 2006*)

are broadly terms formed based on the common semantic core given by En. *bridge.* The terms in the Catalan language and in the Portuguese spoken in Portugal [Cat. and/or Por. *brouter* (POR); Por. *encaminhador* (POR)] do not keep the common core given by *bridge,* nor the syntagmatic structure. In the Portuguese language, the metaphor *roteador bridge* (POR) is registered, which is a hybrid syntagm on the level of terminological expression, which combines two different linguistic elements: En. *bridge* +Por. *roteador.*

The translation of the terminological metaphor can be considered by definition an interaction between two specialized languages, but the interaction between two conventional languages can never happen outside the "key", the only key that can open every world (W. von Humboldt): the natural language.

NOTE: Translated from Romanian by dr. Noémi Fazakas, Sapientia Hungarian University of Transylvania, Faculty of Technical and Human Sciences, Târgu-Mureş.

Works cited

Sources

Ciobanu Georgeta (coord.). 1999. *Panlatin Internet Glossary*, Corpus elaborated by Realiter and the translation offices of the Canadian government (responsibles: Georgeta Ciobanu, Teresa Cabré I. Castellvi, François Mouzard, Loik Depecker; Manuel C. Nuñez Singala, Giovanni Adamo, Enilde Faulstich, Marie Rute Costa, Leticia Leduc).

Iványi, Antal (ed.). 2006. *Angol–magyar informatikai szótár*. Budapest: Tinta Könyvkiadó. ISBN 963 9372 79 X.

Reinhart, Erzsébet–Lázár, Edit–Román Győző (eds.). 2005. *Magyar–román szótár*, Bucharest.

Macmillan English Dictionary. 2006. International Student Edition.

References

Bidu-Vrănceanu Angela (coord.). 2010. *Terminologia lingvistică*. Bucharest: EUB.

Cabré, Maria Teresa. 1998. *La terminologie.Théorie, méthode et applications.* Ottawa: Presses de l` Université d` Ottawa et Armand Colin.

Depecker, Loic. 2002. *Entre signe et concept. Eléments de terminologie générale,* Paris: Presses Sorbonne Nouvelle.

Leart, Pierre. 1995. *Les languages spécialisées*. Paris: Presses Universitaires de France.