

## (Re)Metaphorisation and Demetaphorisation in the Romanian Informatics Language

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Language, and informatics language, particularly, make extensive use of the metaphor, be it poetical, linguistic or scientific<sup>1</sup>. Informatics language is one of scientific and technical expertise, which is why this paper analyses the manner in which the *scientific metaphor* is herein updated. As opposed to the poetical metaphor, which is of an individual nature and quintessentially connotative, the scientific metaphor is expressed denotatively, having a general and conventional characteristic. In informatics language, the scientific metaphor can have a metalinguistic function, of explaining a notion or even a phrase, but what is most noteworthy for the purpose of this paper is its linguistic function, through which a concept of a newly constituted referential field, which does not benefit from its own terminology, is established. We will be observing the way in which informatics language undergoes metaphorical operations in its source language, English, and is afterwards confronted with a double phenomenon of *demetaphorisation* and *re-metaphorisation* in Romanian<sup>2</sup>.

According to Tudor Vianu,

a metaphor is the alternation, within the conscience, of two series of representations: 1) a series of similarities between the reality which is designated by its own means through that word and the reality designated through it in a metaphorical manner; 2) a series of differences between the two realities. The metaphor is psychologically supported by the perception of a unity of the objects through the veil of the differences between them. [...] The metaphor is only produced when the awareness of the unity of the objects in which the transfer has occurred coexists with the awareness of the differences between them (Vianu 1968: 307).

Thus, the *metaphor* (< Gr. *Metapherein* ‘transfer’, formed with the Greek prefix *meta-*, which conveys the idea of change, and of the verb *pherein* “to wear, to

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<sup>1</sup> For the distinction between the mathematical metaphor (by extension, the scientific one), the linguistic metaphor and the poetical metaphor, see Marcus 1970: 93–95.

<sup>2</sup> This paper expands upon a subject briefly approached by the same author in the article “The Functioning of the Scientific Metaphor in informatics language in Romanian”, in *Limbaje și comunicare*, vol. X<sub>1</sub>, *Creativitate, semanticitate, alteritate*, Iași, Casa Editorială Demiurg, 2009.

carry”) implies a change of meaning, resulting from an implied comparison, in which the chief meaning of a word or an expression is substituted by the secondary, metaphorical meaning of a word which, in most instances, is polysemantic<sup>3</sup>.

Changes of meaning through metaphoric transfer find their origin in the need of the language to keep up with the progress of civilisation. The history of scientific and technological discoveries offers multiple testimonies which concern the necessity of the surfacing of the metaphor, of changes of meaning, a need generally born out of the destitution of a language in a certain moment within the evolution of knowledge and civilisation. The scientific and technological fields of today are rapidly evolving, which makes it possible to take full advantage of the potential offered by the metaphor. The emergence of new realities in science and technology makes it necessary to find new names. Language solves these shortcomings either by creating a new word out of elements already existent within the language, or by borrowing the term from a foreign language (the origin language of the verbalisation of the new discoveries, or from another foreign language), or by modifying the meaning of an older, pre-existing word of the language. Returning to the Romanian informatics language, along with the loan translations, its defining lexical characteristic consists of a plethora of new adaptations from the English language. In order to make the demetaphorisation and re-metaphorisation phenomena in Romanian informatics language more accessible, we will first examine the process of metaphorisation in general and in English, the language of origin of the informatics language, in particular<sup>4</sup>.

*The extensions of meaning* which words undergo at a semantic level radically differentiate informatics language from other specialized languages. These extensions of meaning

occur at a paradigmatic level, by the change of the referential field, while maintaining the semantic nucleus and the omission of some peripheral semes present in the definition found in English dictionaries. At a syntagmatic level, the contextual-stylistic restrictions associated with the initial meaning are removed (Stoichițoiu-Ichim 2001: 85–96, my translation).

This definition by Stoichițoiu-Ichim indicates two essential aspects of metaphorisation, one semiotic, and the other one semantic, and here we refer, on the one hand, to the basic mechanism of the metaphor, *metaphorical abstraction*, and, on the other hand, to *metaphorical sentence*, which involves treating the metaphor as a discourse (Ricoeur 1984: 109–160). To quote Emile Benveniste,

with the sign, we arrive at the intrinsic reality of the language; with the sentence, we are tied to things outside the boundaries of language; and while the sign

<sup>3</sup> For a detailed study of polysemy and of the changing of senses, see Ullman 1962.

<sup>4</sup> Max Black denies the metaphoric character of words which, through metaphoric transfer, fill a gap in the vocabulary. Paul Ricoeur summarises Black’s reasoning: “if the metaphor is an expression which replaces an absent literary expression, these two expressions are equivalent; thus, the metaphor can be translated by the use of an exhaustive paraphrase; then the metaphor does not bring with it any information. And if the metaphor does not teach us anything, then its justification must be found elsewhere than in its function of acquiring knowledge; or, as the catachresis, in relation to which it is only one of its types, it fills a gap in the vocabulary; but, in this case, it works as a literary expression and disappears as a metaphor” (Ricoeur 1984: 139–140, my translation).

has the signified which is inherent to it as a constituent counterpart, the meaning of the sentence implies reference to the situation of the discourse, as well as to the attitude of the speaker (Ricoeur 1984: 122, my translation).

Metaphorical abstraction is a logico-linguistic mechanism which makes the metaphoric transfer possible, and which consists

in ‘forgetting’, in eliminating – properly in ‘ignoring...’ – a number of attributes which the metaphorised term conjures up in our minds in the case of its normal use (Ricoeur 1984: 171, my translation).

This implies a double operation of elimination: firstly, as a result of the analysis of the common and differentiating attributes, the mind of the receiver must ignore all the differentiations which could cancel the closeness and, eventually, the overlapping of the two terms, and afterwards to execute the same operation with the similar characteristics, solely keeping that which is necessary in order to make the metaphorical transfer. Consequently, we can borrow the definition of the metaphor, formulated by Hedwig Konrad: “The metaphor defines an object with the aid of the representation of its most typical attribute” (Ricoeur 1984: 172, my translation).

In view of that, in informatics, by giving the name *virus* to the computer programme which reproduces itself by attaching itself to other programmes and executing parasitical and destructive operations, all the conceptual traits are eliminated (“inframicrobial germ, pathogen agent, invisible to the ordinary microscope, which reproduces solely within living cells, causing a range of infectious diseases; inframicrobe, (p. ext.) the toxin of the microbe”, cf. NDULR), with the exception of that of “invisible, destructive agent”. By using the same principle, the informatics term *ferestra*, which translates the English *window*, is an example of a word which has undergone re-metaphorisation in Romanian. Out of all the semes of this word<sup>5</sup>, both in English, and in Romanian, the metaphorised term from informatics only keeps these attributes: “rectangular frame” (on the computer screen), “which allows for the viewing of” information (a document, a spread sheet, a picture or an application). Similarly, let us consider the word *vrăjitor* /*wizard*, used in informatics to name an interactive assistance utility<sup>6</sup>. Apart from the meaning of “person who casts spells, who deals in witchcraft” (cf. NDULR), in English, the word currently also means “a person who is savvy in a particular field”, a characteristic justified by the word’s etymology itself (< wise + -ard, Cf. NODE). The metaphoric transfer was made at the level of this last attribute, the others being omitted. However, in Romanian, the word *vrăjitor* does not have this trait, which leads to its demetaphorisation (in relation to the English *wizard*), compensated, nonetheless, through the phenomenon of re-metaphorisation, executed at the level of the attribute “which casts spells”. As it can be noted from the examples given above, the etymological roots of the adaptations indicate their undergoing a process of

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<sup>5</sup> For a detailed description of the types of semes which operate within the scientific and technical sememe, see Paul Miclău, *Dimensiunea semantică a limbajelor specializate*, in Coteanu, Wald 1981. We will only mention the seven main semes categories: *perceptible*, *structural*, *funcțional*, which pertain to *item production*, which *identify time and space*, *classematic* and *epistemic*.

<sup>6</sup> Cf. NODE: “a help feature of a software package that automates complex tasks by asking the user a series of easy-to-answer questions”.

metaphorisation, but their metaphoric nature is not evident unless the etymology of these words is examined.

The phenomenon of extensions of meaning is called upon by Rodica Zafiu (Zafiu: 2001), which talks about the “metaphorical extension” generated by the mutual influence between the specialised language and the common language. The specialised language, the informatics one, in this case, adopts words from the current language, whose meaning is expanded through metaphor. The metaphoric word can be adopted as it is from English – in which case, in Romanian, it is demetaphorised, becoming denotative, (*mouse, bullet, bridge, banner, bowl, chat room, daemon, daisy chain, finger, firewall, ghosting, grabber, notebook, patch, ragged, screen saver, shortcut, thread, web, wizard* etc.), or it can be mimicked semantically, by having its metaphoric route retraced, through the process of re-metaphorisation. (*fereastră < window, gazdă < host, hartă < map, virus < virus, rădăcină < root, meniu < menu, pachet < pack, poartă < gate, a salva < to save, a naviga < to surf, a vizita < to visit, a virusa < to virus, a apela < to call, a arhiva < to archive, bibliotecă < library, buclă < loop, cascadă < cascade, a exporta < to export, icoană < icon, miez < core, oaspete < guest, a rula < to run, vrăjitor < wizard* etc.). Very frequently, however, English adaptations circulate together with their translated terms (*wizard/ vrăjitor, folder/ director/ dosar, input/ intrare* etc.). Where Romanian has borrowed metaphorical terms from English, in most cases, it has borrowed the metaphoric meaning alone and not the literal one as well.

By assuming the theory of the mathematical metaphor, elaborated by Solomon Marcus (Marcus 1970: 95–98), Rovența-Frumușani (Rovența-Frumușani 1995: 66–70) distinguishes between the *linguistic* and *graphic* scientific metaphor, each of them possibly being *interior* and *exterior*, according to the referential fields the notions which experience this transfer of meaning belong to. Thus, in the case of exterior metaphors, the transfer is either from the common language to the specialised language or from a specialised language to the ordinary language. Conversely, interior metaphors rely on an exchange which occurs within the same field of reference. As the above examples prove, informatics language takes full advantage of the exterior linguistic metaphor, heavily using the vocabulary of the everyday language.

All the words discussed above are examples of metaphoric extension at a conceptual level, which Rovența-Frumușani calls *nominal metaphor* (with a denominative function). This can be both *exterior inter-referential*, as well as *interior inter-referential*. Within the *exterior inter-referential metaphor*, apart from the metaphorisation of words from the ordinary language, the phenomenon of adapting a specialised term in another field of science (for example, the phrase *unitate sintactică* (< *syntactic entity*), specific to logic and the field of linguistics, enters the informatics language of programming, indicating groups of characters which build the programming algorithms’ sequences of operations; the word *funcție* (< *function*), pertaining to linguistic, logic, mathematics and chemistry, in programming languages indicates a “procedure which has a name, is memorised and returns a value” (Trif 2006: 180); *gramatică* (< *grammar*), from linguistics, is used in informatics to indicate a group of rules used to describe the structure of the correct positions in a programming language; *geometrie* (< *geometry*), a mathematical term, indicates in informatics “the physical structure of the hard-disk’s

surface, which contains the total number of tracks, the number of sectors, the number of tracks per inch and the location of the parking zone” (Trif 2006: 181); *variabilă* (< *variable*), a logic and mathematical term, denotes within programming languages a memory zone whose content can be modified during the execution of a programme; similarly, the mathematical and logics term *algoritm* (*algorithm*) can be found in informatics language). The examples identified above offer the right to state that logic, mathematics and linguistics offer the most productive specialised languages for building the informatics vocabulary through the operation of inter-referential metaphorical extension.

As informatics is a fairly recently established scientific practice, the informatics language knows less cases of metaphoric transfer which have occurred within itself, in which case we may refer to the *interior nominal* or *inter-referential metaphor*. The case of the word *magistrală* can be offered, which suffers a double phenomenon of metaphorisation, through the initial transfer from the common language (meaning “a main route for vehicular, train, etc. communication”, cf. NDULR) to the informatics language, where it updates the meaning to “internal electronic route through which information is transmitted from one part of the computer to another”, through the semantic mimicking of the English informatics term *bus*<sup>7</sup>. Within the same informatics field, in Romanian, the term undergoes a second procedure of metaphorisation, which causes it to indicate, according to the definition of MDN, a “group of communication lanes for the transmission of information from different sources to one or more receivers” or, according to the more accessible definition given by Radu-Nicolae Trif,

a means of communication of high speed and capacity, created for the transfer of data from distances of hundreds of thousands of kilometres, within a network which covers a wide area (WAN), such as the Internet (Trif 2006: 63),

this time translating and doubling the English term *backbone*. Consequently, in Romanian, the double metaphorisation of the word *magistrală* exemplifies both the exterior inter-referential metaphor, as well as the interior inter-referential metaphor. That is not the case with the source language of informatics, namely, English, where, in order to indicate two different notions, the metaphor has, as a source, two different words from the ordinary language. Only the case of the exterior inter-referential metaphor can be discussed here, regarding both the word *bus* (“coach” in ordinary language), and *backbone* („spinal column”, (fig.) “basic element, fundament” in common English). Another word which illustrates the nominal inter-referential metaphor is the word *ramură* (< engl. *branch*), which is used in informatics to name, firstly, a sector of a root directory, representing, in its turn, a directory and any other subdirectories which it could contain, so that, later on, to have its meaning extended within programming as well, where *ramură* (< *branch*) refers to any change in the normal sequence of a programme’s steps, a change which can be conditioned or unconditioned. This time, in the case of the corresponding

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<sup>7</sup> Cf. NODE: “Computing: a distinct set of conductors carrying data and control signals within a computer system, to which pieces of equipment may be connected in parallel”.

English term *branch*, after the metaphoric extension has first occurred at the level of the ordinary language, the nominal inter-referential metaphor can be noted as well.

Following the analysis undertaken above, different levels of generality of the scientific metaphor (Rovența-Frumușani 1995: 67) can be detected, ranging from the “general metaphor”, which characterises any type of scientific discourse (as it is the case of the words *câmp* < *field*, *funcție* < *function*, *variabilă* < *variable*, *valoare* < *value*, *ramură* < *branch*, *rețea* < *network*, *rădăcină* < *root*, *instrucțiune* < *instruction*, *șir* < *string*, *tablou* < *table*, *operație* < *operation*, *indice* < *parameter*, *spațiu* < *space*, *model* < *pattern/model*, *agent* < *agent*, *bandă* < *band*, *celulă* < *cell*, *clasă* < *class*, *coadă* < *queue*, *filtru* < *filter*, *linie* < *line*, *mesaj* < *message*, *nod* < *knot*, *satelit* < *satellite*, *strat* < *layer*, *aplicație* < *application*, etc.) to the “standard metaphor”, specific to a certain type of scientific practice, in this case, informatics (*adresă* < *address*, *arhivă* < *archive*, *buclă* < *loop*, *director* < *directory*, *document* < *document*, *dosar* < *folder*, *epurare* < *filter*, *fereastră* < *window*, *fundal* < *background*, *hartă* < *map*, *icoană* < *icon*, *legătură* < *link*, *memorie* < *memory*, *meniu* < *menu*, *miez* < *core*, *parolă* < *password*, *piraterie* < *piracy*, *văduvă* < *widow*, *vrăjitor* < *wizard*, *taie și lipește* < *cut and paste*, *primul venit, primul servit* < *first come, first served*, *arbore director* < *tree directory*, *cal troian* < *Trojan*, *gaură neagră* < *black hole*, *mesaj bumerang* < *boomerang message*, etc.) and the “individual metaphor”, marked especially at the didactic and vulgarisation level of the informatics discourse. The latter is the result of an analogy which the author finds revealing at a certain moment in a certain context, as it happens, for example, in:

(1) Despre procesor se spune că este „c r e i e r u l calculatorului”, deoarece:  
 – realizează calcule aritmetice și operații logice (Unitatea Aritmetică Logică);  
 – controlează celelalte componente ale calculatorului (Unitatea de Comandă și Control) (TIC: 8)<sup>8</sup>.

(1a) It is said that the CPU is the “b r a i n ” of the computer because it:  
 – carries out arithmetic calculations and logical operations (Arithmetic Logic Unit);  
 – controls the other components of the computer (Command and Control Unit) (TIC: 8).

(2) Procesorul presupune două componente principale: calea de date și controlul, m u ș c h i i și respectiv c r e i e r u l procesorului (OPC: 12).

(2a) The processor has two main components, the data path and the control, the m u s c l e s and the b r a i n , respectively, of the processor (OPC: 12).

(3) Rețelele de arie largă, care traversează continentele, sunt c o l o a n a v e r t e b r a l ă a Internet-ului, care susține World Wide Web-ul (OPC: 19).

(3a) *Wide area networks*, which cross continents, are the b a c k b o n e of the Internet, which supports the World Wide Web (OPC: 19)

The above given examples (“*the brain of the computer*”, “*the muscles and the brain of the CPU*”, “*the backbone of the Internet*”) strengthen the theory according to which *anthropomorphic metaphors* (< gr. *Anthropos* „human” + *morphe* „form”) have an extraordinary frequency in any language, but not at the level of the ordinary language, but at the specialised one (for example, in Romanian “*gura de vărsare a unui fluviu*”, “*gura-leului*”, “*gura-lupului*”, “*ochi de pisică*”, “*ochi magic*”, “*ochiul-*

<sup>8</sup> Hereafter the paper will provide, in our translation, quotations of the source text.

boului”, “ochi-de-tigru”, “inima căruței”, “creierul munților”, “mâna coasei”, “la prima mână”, and in English: “the mouth of a river”, “the brow of a hill”, “the hands of a clock”, “the heart of the city”, “the foot of a mountain/ hill/ slope/ cliff”, “the eye of the storm”, to name but a few cases, without taking into consideration the phraseological joints in which the anthropomorphisms are infinitely productive)<sup>9</sup>. However, in informatics language, it is not only the metaphorical associations with parts of the human body or with human traits (see *infra* “to understand”, “translator”, “translation”) which are taken advantage of, but also those with concrete objects of the real world, as given by the example in (4)<sup>10</sup>:

(4) Memoria internă reprezintă „biblioteca” sistemului de calcul (TIC: 8).

(4a) The internal memory is the “library” of the system of calculations (TIC: 8).

According to the concept defined by C. Kerbrat – Orecchioni (cf. Corjan 2003: 329–333) regarding the connotation, in all the four texts above ((1), (2), (3) and (4)), we are facing what is called “*in praesentia* metaphor”, caused as a result of keeping the metaphorised term within the phrase. Together with the “*in absentia* metaphor”, the metaphor *in praesentia* is the connotative value which a lexical entity contracts after its update within the sentence, where, at the intersection of the paradigmatic axis with the syntagmatic one, within the lexical code, it maintains a relationship of polysemy *in praesentia* or *in absentia*. More often than not, the metaphor *in praesentia* is materialised within the discourse according to the formula “X is Y” (“The processor is ‘the brain of the computer’”; “Wide area networks are the backbone of the Internet”; “The internal memory is the library of the system of calculations”), through the deletion of the comparative adverb *as* or *like*, there being established a relationship of identity between the X and Y denotations (the comparisons “Wide area networks are like the backbone” or “The internal memory is like the library” are inferred). In other instances, this type of metaphor is created through the omission of the copulative verb from the metaphoric formula “X is Y”, in which case, the association between the terms involved in the process of metaphorisation is made by means of juxtaposition, resulting in the syntactic version “X, Y”: “[...] data path (X<sub>1</sub>) and the control (X<sub>2</sub>), the muscles (Y<sub>1</sub>), and the brain of the processor (Y<sub>2</sub>), respectively” (see *supra* (2)).

The co-presence of the compared term and of the comparing term in the *in praesentia* metaphor involves the lack of the need for an explanation, because at an intuitive level the common semes of the two terms can be immediately identified. For example, the sememe /*biblioteca*/ (/library/) displays the connotative semes of “place to keep”, “collection”, “documents”, “information”, “access”, which facilitate

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<sup>9</sup> Giambattista Vico was one of the first philosophers too observe the overwhelming frequency of this type of metaphoric transfer: “In all languages, the greatest part of expressions referring to inanimate objects is taken by transfer from the human body and its parts, from human senses and human passions... Ignorant man makes himself into the yardstick of the universe” (Ullmann 1962: 214, my translation).

<sup>10</sup> According to Stephen Ullmann, the metaphors which have the translation of abstract experiences into concrete terms at their basis, represent one of the four great classes of the metaphor (together with the anthropomorphic, “synesthetic” metaphors and those which have the animal kingdom as their source), which can be found in the most varied of languages and styles of languages (see Ullmann 1957: 266–289, Ullmann 1962: 214–218).

the decoding of the meaning of the informatics term *memorie internă* (*internal memory*): “memorising zone where programmes are kept, when they operate, and which also contains the data required by the operating programmes”<sup>11</sup>. Similarly, the semes „axis”, „support” of the sememe */coloană vertebrală/* (*/backbone/*) highlight the importance of wide area networks – systems of communication and data exchange based on the interconnection of multiple computers (“the vertebra” of the network), which span over hundreds of kilometres – for the functioning of the Internet (international network of computers, from the English *International Network*). Conversely, in example (1), the metaphor “the brain of the computer” is accompanied by a justification of its application, which draws attention to the common sememes */creier/* (*/brain/*) and */procesor/* (*/processor/*) which lay at the base of the metaphoric transfer, namely “main part”, “mind”, “intelligence”, “which organises”, “which leads”.

On the other hand, the *in absentia* metaphor involves the elimination of the metaphorised term from the sentence. Consequently, out of the two terms, X and Y, the metaphoric syntax will only contain Y, which implies X. As a result, the extralinguistic referent X will be denominated in the sentence by Y (for example “The brain of the computer (Y) is mounted on the motherboard”). In order to discover the object denoted by Y, a double substitution must be made: on the one hand, a substitution at the onomasiologic level, the Y term being replaced by X, and, on the other hand, at the semasiological level, the figurative meaning of Y substituting the literal one. The larger the level of stereotypicity of the metaphor which has resulted from the double substitution, the easier it is to decipher it. In the case of informatics language, the *in absentia* metaphor acts especially in the case of the standard scientific metaphor, because, as it has been noted throughout this paper, the creation of informatics terminology is based on the metaphoric transfer, both in English, as well as in Romanian. In the following sentence, (see *infra* (5)), for example, the metaphorised term “host” inevitably conjures up the usual denotative meaning of the word in our minds, that of “person who keeps someone in their house for rent” or “temporary home occupied by someone as a guest or as a tenant” (NDULR). Within the informatics language, the sememe only keeps the semes necessary for the occurrence of the metaphoric transfer, namely “temporary home”, “which offers”, the resulting definition in informatics being that of “a computer in a network of computers, which offers programmes or data files to other computers”.

(5) G a z d e l e sunt conectate printr-o subrețea care are sarcina de a transporta mesajele de la o gazdă la alta, exact așa cum sistemul telefonic transmite cuvintele de la vorbitor la ascultător (TIC: 20).

(5a) H o s t s are connected through a sub network which has the purpose of transporting messages from one host to the other in the same way the telephone system transmits words from the speaker to the listener (TIC: 20).

If in cases (1), (2), (3) and (4), the scientific metaphor introduces a “substantial analogy”, the transfer in meaning occurring at the ontological level, the phrase above illustrates an analogy of a “rational” nature (Rovența-Frumușani 1995: 67), identifiable within the sequence “...has the purpose of transporting messages from

<sup>11</sup> Cf. the glossary of terms compiled by the authors of OPC.



one host to the other in the same way the telephone system transmits words from the speaker to the listener.”

Both in the case of the individual scientific metaphor, as well as in the case of the standard scientific metaphor, as the analysis above have shown, the metaphor is the result of an “intersememic connections”, to use the words of I.C. Corjan, which stems from the observation made by Umberto Eco:

The connection between two equal semes existent within two different sememes (or two meanings of the same sign) allows for the substitution of one sememe for another (Eco 1982: 358, my translation).

In the examination of the methods of analysing a metaphor, I.C. Corjan describes in detail the mechanism of the semic intersection, stating that

the metaphor recognises the common semes of two notions which reveal different isotopies – as opposed to the synecdoche and the metonymy which rely on a unique isotopy; the transferred semes can be generic – classes – or specific – semantemes (Corjan 2003: 333, my translation).

Within the phrase, the proper term precedes the metaphoric terms more often than not, but the reverse is also frequent:

(6) Un calculator poate să „î n ț e l e a g ă ” mai multe limbaje de programare întrucât fiecare limbaj are un „ t r a d u c ă t o r ” – *compiler* propriu (IPR: 3).

(6a) A computer can “ u n d e r s t a n d ” more programming languages as each language has a “ t r a n s l a t o r ” – its own *compiler* (IPR: 3).

(7) „ T r a d u c e r e a ” textului de program din limbajul de programare ales în limbajul intern al calculatorului se face de către compilator prin *compilare* (IPR: 8).

(7a) “ T h e t r a n s l a t i o n ” of the programme text from the chosen programming language to the internal language of the computer is made by the compiler through *compilation* (IPR: 8).

The provisional attribute of the metaphor, especially of the individual one, can be highlighted either through the use of inverted commas (see *supra* (1), (4), (6), (7)), or through the introduction of some expressions which have the purpose of attenuation, of auto-correction, such as *meaning, so to speak, a kind of, so-called* etc. (see *infra* (8), (9)):

(8) Un singur defect microscopic în plachetă sau într-una dintre zecile de etape poate duce la pierderea acelei suprafețe a plachetei. Datorită acestor a ș a - n u m i t e d e f e c t e , producerea unei plachete perfecte este practic imposibilă. (OPC: 21)

(8a) A single microscopic defect in the placket or in one of the tens of stages may lead to the loss of that surface of the placket. Thanks to these s o - c a l l e d defects, producing a perfect placket is virtually impossible (OPC: 21).

(9) Memoria RAM (Random Access Memory) este o memorie v o l a t i l ă ,  
[metaphoric sentence] a d i c ă informațiile sunt păstrate atât timp cât nu se întrerupe  
alimentarea cu tensiune [attenuation] (TIC: 9).

(9a) RAM memory (Random Access Memory) is a volatile type of memory  
[metaphoric sentence], meaning the information is kept as long as the power supply is not  
interrupted [attenuation] (TIC: 9).

In this last example, we come face to face with what Rovența-Frumușani calls *verbal metaphor* (Rovența-Frumușani 1995: 68–70), made at the level of the

sentence, out of the need to explain a process, reason for which it is mainly used in didactic and popularisation texts. Except for the case in which the metaphoric enunciation is followed by attenuation, (see *supra* (9)), Roventă-Frumușani also identifies the “metaphoric sentence + argumentative justification” correlation, applicable to the didactic informatics discourse:

(10) Viruși Stealth (s e f u r i ș e a z ă )<sub>[metaphoric sentence]</sub>: își ascund prezența, făcând ca fișierele infectate să pară a fi neinfectate<sub>[argumentative justification]</sub> (TIC: 23).

(10a) Stealth Viruses (t h e y s n e a k )<sub>[metaphoric sentence]</sub>: hide their presence, making the infected files seem healthy<sub>[argumentative justification]</sub> (TIC: 23).

(11) Principalul dezavantaj al unei magistrale este faptul că ea creează o „s t r a n g u l a r e” a comunicației, ce poate limita randamentul maxim de I/E.<sub>[metaphoric sentence]</sub> Atunci când fluxul de I/E trebuie să treacă printr-o singură magistrală, lărgimea de bandă a acesteia poate limita randamentul maxim de I/E. În sistemele comerciale, unde ratele de I/E trebuie să fie foarte frecvente și în supercalculatoare, unde ratele de I/E trebuie să fie foarte ridicate datorită performanței ridicate a procesorului, proiectarea unei magistrale capabile să satisfacă cerințele procesorului, precum și conectarea la mașină a unui număr mare de dispozitive de I/E prezintă o dificultate majoră<sub>[argumentative justification]</sub> (OPC: 616).

(11a) The main disadvantage of a highway is that it creates a “s t r a n g u l a t i o n” of the communication, which can limit the maximum efficiency of I/O<sub>[metaphoric sentence]</sub>. When the I/O flux has to pass through a single broadband, expanding its bandwidth can limit the maximum efficiency of I/O. In commercial systems, where the I/O rates have to be very frequent and in supercomputers, where the I/O rates have to be very high thanks to the high performance of the processor, designing a highway capable of satisfying the requirements of the processor, as well as the connection of a high number of I/O devices to the machine is of a major difficulty<sub>[argumentative justification]</sub> (OPC: 616).

Up until now, we have focused on the paradigmatic level of the metaphoric transfer. However (and here, we agree with Paul Ricoeur), the conversion of meaning is not possible outside the boundaries of the contextual environment of the discourse, because “the meaning of a linguistic entity is defined as its capacity to integrate an entity of superior level” (Ricoeur 1984: 112, my translation) and “only in the position of a discourse does the term acquire a singularising function” (Ricoeur 1984: 119, my translation). In order to decode the meaning of the words given as examples above, the receiver will follow the situation of the discourse, as well as the action the constituting words of the sentence exert on each other. Thus, considered in isolation, the terms *fereastră* (*window*), *virus* and *wizard* only make us think of their generic meaning, specific to the common language, medical jargon, and literal expressiveness, respectively. Consequently, “the constancy of the meaning is always just the constancy of the contexts” (Ricoeur 1984: 127, my translation), and changing the field of reference and implicitly, of the discourse type, brings with it the metaphorical transfer.

Eugen Coșeriu carries out a minute analysis of the circumstances within which the discourse is produced which he names “frames” (Coșeriu 2004: 314–325, my translation) and which he groups into four types, namely *situation*, *region*, *context* and *the universe of the discourse*. We will offer a more detailed or concise

description of these types, according to their importance in upgrading the metaphoric meaning of words in the informatics language.

*The situation* implies setting the discourse in time and space, through the aid of adverbs such as *here, there, now, then*, but also of verb tenses, the present tense indicating the moment itself when the discourse occurs. The situation also establishes the identity of the speaker and the listener, through the use of the personal pronouns (*I, you*), just as the proximal demonstrative pronouns (*this*) and the distal one (*that*) signal the position of the speaker regarding the referent. To quote Ricoeur, “auto-referentially, the discourse determines an absolute this – here – now” (Ricoeur 1984: 123).

Regarding the *region* of the discourse, Coşeriu makes a distinction between three types: *the zone, the field* and *the environment*. By *zone*, the Romanian linguist means “‘the region’ in which a sign is known and currently used; its limits depend on the linguistic tradition and usually coincide with other limits, also linguistic”, while “*the field* is ‘the region’ in which *the object* is known as the element of the vital horizon of the speaker or of an organic ‘space’ of experience or of culture, and its limits are not linguistic” (Coşeriu 2004: 317). *The environment* is conditioned by social and cultural structure, requiring its own means of expression. From this point of view, the professional community of computer scientists, in this case, forms an environment, because it has its own terminology, integrating, as it was previously shown, both “specific signs for ‘objects’ from a larger field” (in the case of Romanian, *carcasă, câmp, fereastră, hartă, poartă, gazdă* as opposed to the English *case, field, window, map, gate, host*), as well as “specific ‘objects’” („procesor” “processor”, „calculator” “calculator”, „cursor”, „director” “directory”, „partiție” “partition”, „backup”, „buffer”, „browser”, „controller” etc.) and “specific signs for ‘objects’ which are also specific” (Coşeriu 2004: 318) (*procesor/processor, calculator/computer, cursor, director/folder, partiție, buffer/buffer, backup, browser, controller* etc.). We are interested here in the distinction which Coşeriu makes between *common words* and *technical words*, the former being characteristic of zones, and the latter of fields. However, the linguist considers that a word signifies both within a zone, as well as a field, which means that the inadequacy is not total. So, following the reasoning of Coşeriu’s principle, the word *mouse* simultaneously signifies in the languages which have borrowed the term as it is from English, this being the zone, as well as the field in which the object, “mouse”, is known. At the same time, Coşeriu notices that in the case of ordinary words, the field is more ample than the zone, while in the case of the technical words, considered in a particular linguistic community, the zone and the field overlap. In the case of informatics terminology, an *interidiomatic field*<sup>12</sup> can be mentioned, which can be *continuous*, in so far as it encompasses more idioms, as it is the case of “mouse”, or *discontinuous*, because within the limits of the Romanian language, the terminology is part of the more narrow field of informatics. However, considering the metaphoric nature of the informatics terms, plotting and appreciating the zone and field is more

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<sup>12</sup> Apart from the *interidiomatic fields*, Coşeriu also signals the existence of *idiomatic fields* („dor” (“longing”), for example, pertains to the Romanian idiomatic field), *ambiental* or *dialectic* (in Coşeriu 2004: 319).

difficult, a sign being able to indicate a series of objects from reality. But here is where the third frame found by Coșeriu steps in, namely *context*.

*The context*, which reflects “all the reality which surrounds a sign, a verbal act, or a discourse, as a ‘science’ of the interlocutors, as a physical presence and as an activity”, can be, according to Coșeriu, “idiomatic”, “verbal” and “extraverbal” (Coșeriu 2004: 320). The *idiomatic context* is represented by the language itself, in this case, Romanian, which acts as a backdrop for the occurrence of the informatics discourse. The signs of the informatics language signify only through links to the wider context of the Romanian language, as well as in connection with other signs pertaining to the same “field of significance”, so in a narrower field (for example, the word *mouse* signifies a pointing device, in relationship with other devices from the language, such as *tastatură/ keyboard, joystick, touchpad, modem*). *The verbal context* constitutes the discourse itself. It is possible to decode each sign or sequence of discourse only by referring to both what has been said before, as well as to what is about to be said within the discourse. In order to refer to the determinants set before or after the sign considered at a certain moment, Coșeriu refers to an “unmediated” verbal context, while the whole discourse constitutes the “*thematic context*”. In the case of a manual or an informatics paper, the significance of each chapter or even of the words and phrases which they build, can be discovered by referring to the information presented in the previous sections, just as the following chapters contribute to its progressive enriching with new contents. The verbal context can be conditioned or can create “the extraverbal context”, which is defined by the non-linguistic factors which determine the occurrence of the discourse, Coșeriu considering the physical, empirical, natural, practical, historical and cultural ones. The “practical context” is relevant for this paper, as it involves the specific situation in which the discourse is produced. For example, the informatics discourse can come to life in a formal or informal situation, in a laboratory or in a conference, between specialists or within a classroom. The practical context of communication is of a major importance and is mirrored in the structure of the discourse. Consequently, regarding the manifestation of the linguistic metaphor in informatics language within a text which is aimed at specialists, the conceptual metaphor will be heavily used, while in the didactic and the popularisation texts, the individual and the verbal metaphor will have a high incidence.

The last frame mentioned by Eugen Coșeriu is the *universe of the discourse*, which is “the universal system of significations which pertain to a discourse (or a phrase) and which determine the validity and meaning” (Coșeriu 2004: 324). Informatics, together with mathematics and other sciences, is a “universe of the discourse”. As a result, a sentence like (12) signifies in informatics, but makes no sense in common language, or in gastronomic language:

(12) Pentru a modifica sau șterge un comentariu, executați clic-dreapta pe c e l u l a care conține marcajul de comentariu și selectați c o m a n d a dorită (Edit Comment sau Delete Comment) din m e n i u l c u s c u r t ă t u r i care apare (MO03I: 134).

(12a) In order to modify or delete a comment, right click on the c e l l which contains the mark of the comment and select the desired c o m m a n d (Edit Comment or Delete Comment) from the displayed s h o r t c u t m e n u (MO03I: 134).

Contextualisation within the informatics discursiveness, marked by the contribution of English terms, has a value of abstraction and metaphoric phrase which updates the traditional logic of the rhetoric procedure in case, beyond the technical functionality of the metaphor within the ensemble of the standardisation of the technological progress. (Re)Metamorphisation and de-metamorphisation, as simultaneous and concentric processes, facilitate the building of a discourse of semiotic extraction, and semantic, respectively, capable of expressing virtual space both through adaptations from English, as well as local meanings. While these metaphorical uses of the words which constitute the expertise terminology of informatics are institutionalised as a part of the language, being registered within dictionaries as different meanings and included in the category of conventional metaphors, they still remain metaphors, expressions of the evolution of the language, together with the evolution of science and technology.

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### **Abstract**

Language, in general, and the informatics language in particular, make extensive use of the metaphor, be it poetical, linguistic or scientific metaphor. In the present paper we deal with the way scientific metaphor enters the informatics language, a specialized language which verbalizes science and technology. The purpose of the paper is to put emphasis on the phenomenon of metaphorical extension by means of which the informatics language, both in English and Romanian, takes over words from the current language. Apart from the borrowed informatics terms which lose their metaphoricity when entering Romanian, the reconstruction of the metaphorical process of the translated specialized terms is also a central issue to be brought into focus.