ON THE IT TERM *MEMORIE*

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Abstract

The aim of this paper is to determine the semantic characteristics of the IT term *memorie/ memory*. The first part of the paper deals with the semantic relations the term develops in IT specialized terminology. The second part of the article focuses on comparing the terminographic and lexicographic definitions of the term, in order to identify the differences between them. The paper concludes with the discussion of a few examples from Romanian online texts that contain the term we are interested in.

Key words: *terminology*, *memorie/ memory*, *semantic relations*, *hyponymy*, *polysemy*

Résumé

Le but du présent article est d'élucider les traits sémantiques du terme *memorie*/ *mémoire* employé dans la sphère de l'IT. La première partie de l'article discute des rapports sémantiques développés par ledit terme dans le cadre de sa discipline fortement spécialisée. Dans la seconde partie, nous présentons, dans un but comparatif, les définitions dudit terme offertes par plusieurs dictionnaires, pour bien identifier les différences d'approche existantes entre les définitions techniques à portée fonctionnelle – efficaces au seul intérieur de ladite discipline – et celles à portée sémantique plus étendue, qui font usage de moyens lexicaux traditionnels. L'article s'achève par l'analyse de quelques exemples, cueillis de textes en roumain trouvés dans le milieu virtuel et qui contiennent le terme concerné.

Mots-clés: *terminologie*, *memorie/ mémoire*, *rapports sémantiques*, *hyponymie*, *polysémie*

Considering that a large number of words found in general dictionaries are technical terms, almost 40% (Bidu-Vrănceanu, Forăscu, 2005: 47), and a growing number of people are interested in IT terminology, the paper aims to discuss some of the linguistic characteristics of MEMORIE in Romanian specialized (SL) and general lexicon (GL).

Analyzing terms in a similar way with language units is theoretically accepted by Bidu-Vrănceanu (2007: 110), the idea of classifying terms in strictly determined paradigms such as hyponymy, polysemy, synonymy, antonymy or lexical-semantic fields can lead to a relevant and rigorous analysis of a term meaning. The demarcation of such classes is favored by the fact that terminologies are considered 'structured ensembles of scientific and technical notions' (P. Lerat, apud Bidu-Vrănceanu, 2007: 111).

The methodology consists in combining both paradigmatic and syntagmatic types of analyses. The paradigmatic analysis aims at identifying the strict terminological meaning of a term while syntagmatic analysis focuses on the way a certain term is

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used in various contexts ranging from strictly specialized to non-specialized ones. Combining the two methods shows a current trend of terminology as an interdisciplinary field of research where linguistics, lexicography and sociology are interconnected.

As a field of linguistic research, terminology (Bidu-Vrănceanu, 2012: 13) requires an 'internal approach from the perspective of science specialists in each field' (Bidu-Vrănceanu, 2000: 64). The production and dissemination of scientific rules beyond the limits of a single language is the concern of international organizations such as ISA (International Federation of National Standardizing Associations), ISO (International Organization for Standardization) etc. At the same time, terminology is a sum of terms (Bidu-Vrănceanu, 2012: 12) that belong to a sub language' (ibid.). These terms are unambiguous, have only one meaning, and are characterized by strict lexical-semantic relations (Bidu-Vrănceanu, 2000: 64) that are regulatory by nature. On the other hand, the concept of terminology is used in the sense of an interdisciplinary science (idem), 'science of terms that studies them while focusing on the linguistic and socio-psychological mechanisms of emergence, evolution and distribution' (Busuioc, Cucu, 2003), analyzing aspects regarding 'linguistic and non-linguistic encoding and the logical hierarchy of knowledge and concepts' (Bidu-Vrănceanu, 2000: 64). Therefore, terminology aims at developing theories at a conceptual level (*ibid.*: 65), needed for structuring and describing specific characteristics of terms belonging to a certain specialized field of knowledge (idem).

The descriptive/prescriptive relation is important for defining what terminology is. Understood as a scientific system concerned with non-ambiguous specialized communication in a certain technical or professional field, terminology is approached in both a descriptive and prescriptive manner. So far as linguistic analysis or 'external terminology' (Bidu-Vrănceanu, 2007, 2010) is concerned, the main approach is descriptive in nature. In analyzing the various semantic relations that can appear in any scientific field, IT terminology in this case, it is important to describe the semantic relations that develop in a certain terminology and to analyze a semantic relation in different types of texts aiming to observe and define the potential semantic consequences that may occur (Bidu-Vrănceanu, 2007: 112).

The paper aims to: 1. Discuss the semantic relations that MEMORIE develops within SL (IT terminology), 2. Compare the definitions of the term in *Dicționar explicativ pentru științele exacte. Tehnologia informației* (DEXSE), *Dicționar IT* (DIT) and *Dicționar explicativ ilustrat al limbii române* (DEXI), in order to identify potential similarities and differences, 3. Discuss some of the contexts from on-line media in which MEMORIE is used.

1. Research on the main specialized IT dictionary (DEXSE) showed that MEMORIE develops the following semantic relations: homonymy, hyponymy, synonymy (considered an ambiguity factor in any scientific terminology) (Bidu-Vrănceanu, 2007: 112-113, 2012: 20-21) and a pseudo-antonymy relation.

1.1. One of the most important requirements of any terminology is that the terms have one and only one meaning so that ambiguous situations are excluded. Contextually, avoiding ambiguity is preferred by almost all terminologies (Bidu-Vrănceanu, 2007: 112). In reality, it has been proved (Bidu-Vrănceanu, 2007: 112-113) that polysemy is present in some terminologies (e.g. law, computer science and even linguistics).

Internal polysemy can be found in the case of both frequently used IT terms

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(PROCESOR, MEMORIE) and strictly specialized terms found only in DEXSE (OCTAL, DECODIFICATOR, DUODECIMAL, ZECIMAL, etc.). Attempting to avoid any kind of ambiguity, DEXSE formally distinguishes the terms by adding more information: OCTAL **1**[VALOARE SAU STARE], **2**[CALIFICATIV AL UNUI SISTEM DE NUMERAȚIE]; DECODIFICATOR **1**[CONVERTOR DE DATE], **2**[CONVERTOR DE COD]; DUODECIMAL **1**[VALOARE SAU STARE], **2**[CALIFICATIV AL UNUI SISTEM DE NUMERAȚIE]; ZECIMAL **1**[VALOARE SAU STARE], **2**[CALIFICATIV AL UNUI SISTEM DE NUMERAȚIE]. By doing so, DEXSE shows a clear preference for homonymy in a similar way suggested by other papers on the subject (Bidu-Vrănceanu, 2007: 113). So, DEXSE distinguishes between $MEMORIE_1$ "unitate funcțională a unui sistem de prelucrare a datelor în care acestea pot fi introduse, păstrate şi regăsite" and $MEMORIE_2$ "întregul spațiu adresabil într-o unitate centrală şi în alte memorii interne, utilizabil pentru executarea instrucțiunilor". Considering that the terms define two different concepts, discussing them separately is perfectly adequate.

1.2. Hyponymy is a very important and frequent semantic relation in terminologies. This is due to the fact that it is a straightforward way to classify not only objects but knowledge as well (Bidu-Vrănceanu, 2007: 137).

One specific feature of IT terminology, identified in DEXSE, is the tendency to develop long series of hyponyms for a single term. Mortureux (1997: 83) defines this process in a way similar to how junctions between brain cells are made and names it *synapsie*. The new terms are without exception composed of two or more units, one of them being the superordinate MEMORIE: MEMORIE ADRESABILĂ PRIN CONȚINUL, ~ ASCUNSĂ, ~ ASOCIATIVĂ, ~ AUXILIARĂ, ~ CAPACITIVĂ, ~ CARE POATE FI ŞTEARSĂ, ~ CRIOGENICĂ, ~ CU ACCES DIRECT, ~ CU ACCES SECVENȚIAL, ~ CU BULE, ~ CU CONȚINUT MODIFICABIL, ~ CU FERITE, ~ CU INELE MAGNETICE, ~ CU LINIE DE ÎNTÂRZIERE, ~ CU LISTĂ DIRECTĂ, ~ CU N INELE PE BIT, ~ CU UN INEL PE BIT, ~ DE MASĂ, ~ DINAMICĂ, ~ ELECTROSTATICĂ, ~ EXPANDATĂ, ~ EXTERNĂ, ~ EXTINSĂ, ~ INTERMEDIARĂ, ~ INTERNĂ, ~ MAGNETICĂ, ~ MAGNETICĂ CU PELICULĂ SUBȚIRE, ~ NEREMANENTĂ, ~ NEVOLATILĂ, ~ NUMAI PENTRU CITIRE, ~ PE TAMBUR MAGNETIC, ~ PERMANENTĂ, ~ PRINCIPALĂ, ~ RAM, ~ REALĂ, ~ REMANENTĂ, ~ REPROGRAMABILĂ NUMAI PENTRU CITIRE, ~ REUTILIZABILĂ, ~ SECUNDARĂ, ~ STATICĂ, ~ TAMPON, ~ VIRTUALĂ, ~ VOLATILĂ [NEREMANENTĂ].

1.3. Although synonymy is theoretically rejected, there are some terms that are clearly synonymous according to DEXSE: MEMORIE CARE POATE FI ŞTEARSĂ = MEMORIE REUTILIZABILĂ, MEMORIE CU FERITE = MEMORIE CU INELE MAGNETICE, MEMORIE NEVOLATILĂ = MEMORIE REMANENTĂ, MEMORIE RAM = MEMORIE CU ACCES DIRECT, etc.

1.4. A pseudo-antonymic relation can be observed between some hyponyms of MEMORIE, such as MEMORIE: MEMORIE INTERNĂ – MEMORIE EXTERNĂ, MEMORIE REMANENTĂ – MEMORIE NEREMANENTĂ.

We do not consider these terms to be antonymous. Formally, they seem to be so, INTERN being the opposite of EXTERN, and REMANENT being the opposite of NEREMANENT. In spite of this, we believe the terms are only hyponyms of MEMORIE:

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MEMORIE INTERNĂ	MEMORIE EXTERNĂ
„memorie” „la care poată să aibă acces calculatorul” „numai prin intermediul canalelor de intrare-ieşire”	„memorie” „la care poată să aibă acces calculatorul” „fără utilizarea canalelor de intrare-ieşire”
MEMORIE REMANENTĂ	**MEMORIE NEREMENENTĂ**
„memorie” „al cărei conținut se pierde când se decuplează alimentarea cu energie electrică”	„memorie” „al cărei conținut nu se pierde când se decuplează alimentarea cu energie electrică”

The last parts of the definitions do not indicate some kind of semantic incompatibility or opposition but only a property of each type of memory. Furthermore, it is known that physical objects do not have antonyms (L. Depecher, apud Bidu-Vrănceanu, 2007: 130).

2. The presence of specialized terms in language dictionaries for common use is socially motivated and it has to do with the number of people interested in scientific knowledge (Bidu-Vrănceanu, 2007: 46). The most important condition for a term to be included in a general dictionary is to be used by a significant number of people. Also, the definition of the term has to be clearly formulated so that anyone who is not a specialist can understand it. Considering that specialized dictionaries are addressed to specialists and cannot really be helpful for those that are not, general dictionaries have to decode the specialized meaning by making it accessible to anyone who wants to find out what a term means. By doing so, dictionaries place themselves at the crossroads of strictly specialized language and common language in this way terminologies tending to become less opaque (Bidu-Vrănceanu, 1993: 48, 2007: 45).

DEXI	DIT	DEXSE
(inform.) Parte a calculatorului electronic în care sunt stocate instrucțiunile, cuvintele, valorile numerice etc., după o codificare prealabilă.	Memory Memorie - Un calculator dispune de două tipuri de memorie (unde sunt stocate datele): memorie ROM (pe hard disk) şi memorie RAM (memorie cu acces aleatoriu), utilizată de microprocesor. În timp ce primul tip de memorie este numai pentru citire (Read Only Memory), cel de-al doilea tip este unul volatil. Astfel, memoria ROM este alcătuită din date scrise direct pe disc, ele nefiind pierdute decât în cazul unor erori sau defecțiuni, în timp ce datele aflate temporar în memoria RAM pot dispărea definitiv în momentul când computerul este oprit brusc, fără a se fi reuşit salvarea (scrierea) lor pe hard disc.	memorie, 1[dispozitiv] / storage (device) /mémoire, 1 [dispositif] / Unitate funcțională a unui sistem de prelucrare a datelor în care acestea pot fi introduse, păstrate şi regăsite. memorie, 2 [spațiu] / memory [storage] /mémoire, 2 [espace] / Întregul spațiu adresabil într-o unitate centrală şi în alte memorii interne, utilizabil pentru executarea instrucțiunilor.

MEMORIE is difficult to define even for specialists. DEXSE formally differentiates the two meanings of it by adding more information: DISPOZITIV and SPAȚIU, while English terminology uses STORAGE for the actual hardware component and MEMORY for the storing capacity of the hardware component.

DIT defines MEMORIE by using two of its hyponyms which can lead to errors

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in decoding the actual meaning. The additional information provided can be somehow useful, but it is not enough. After reading the definition, someone who is not familiarized with IT terminology will not be able to understand what MEMORIE means. On the other hand, DEXI uses the word *parte* which renders anyone incapable of determining if *parte* means an actual hardware component or the storing capacity of the hardware component. More ambiguity is created by the use of terms that are not easy, or even impossible, to understand for someone that does have the necessary IT knowledge, such as *instrucțiuni*, *cuvinte* and *valori* (*numerice*). Of the three, only *instrucțiune* is found in DEXI with a definition that cannot be very useful because it is strictly specialized ("unitate sintactică a programului unui calculator, care conține informația și care indică operația de efectuat").

It is hard to accept that the extra information provided by DIT can lead to the correct decoding of the meaning of MEMORIE. The absence of some terms used for defining MEMORIE in DEXI has the same effect.

3. The different types of text in which MEMORIE can be found are extremely important. Terms can be autonomous only in nomenclatures. In general language texts, terms are found in different combinations of words that can lead to semantic change (M. T. Cabré apud Bidu-Vrănceanu, 2007:147). We are interested in seeing what happens with MEMORIE when it is used in various contexts.

The polysemic term MEMORIE is frequently used in Romanian with both of its meanings: 1. "unitate funcțională", and 2. "spațiu adresabil într-o unitate centrală și în alte memorii interne, utilizabil pentru executarea instrucțiunilor" (DIT).

$MEMORIE_2$ can be found in texts that have to do with gadgets:

(a) *Despre Galaxy S Advance GT i9070, oficialii Samsung au mai confirmat că va avea o* $MEMORIE_2$ *de până la 16 GB.* (A, 31.01.2012)

(b) *Varianta de HTC Flyer cu suport pentru 3G şi WiFi oferă o* $MEMORIE_2$ *de 32 GB pentru stocare, memorie care poate fi extinsă printr-un card microSD de până la 32 GB.* (B24, 17.4.2012)

(c) *Noul iPad se va lansa pe 16 martie în SUA şi pe 23 martie în România şi va costa între 499 de dolari* (*varianta Wi-Fi cu* $MEMORIE_2$ *de 16 GB*). (G, 12.03.2012)

(d) *Samsung a lansat un telefon cu* $MEMORIE_2$ *de 3 GB*

Apart from the polysemy of the term, which raises some problems, the large number of hyponyms it develops, strictly specialized terms, can also be a problem for those unfamiliar with IT. Some of these concepts cannot even be found in recent dictionaries such as DIT:

(e) $MEMORIE_1$ DRAM (DYNAMIC RANDOM-ACCESS MEMORY*)*: *Elpida Memory anunță că a dezvoltat un cip de* MEMORIE *DRAM pentru telefoane inteligente*. (P, 7.04.2011)

(f) $MEMORIE_1$ DDR (DOUBLE DATA RATE): MEMORIE *DDR de 32 GB de la Samsung.* (CL, 22.06.2009)

(g) $MEMORIE_1$ FLASH: *Samsung a anunțat realizarea primului chip de* MEMORIE *FLASH în tehnologie 30 nm.* (ZR, 24.10.2007)

Conclusions

An important characteristic of MEMORIE is its productivity in developing a large number of subordinate terms (hyponyms). The newly formed hyponyms have the advantage of being semantically transparent, indicating at the same time a precise conceptual hierarchy.

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DEXSE includes MEMORIE in two separate entries which illustrates that homonymy is preferred to polysemy. Synonymy can only be found between certain hyponyms of MEMORIE (MEMORIE CARE POATE FI ŞTEARSĂ = MEMORIE REUTILIZABILĂ, MEMORIE CU FERITE = MEMORIE CU INELE MAGNETICE etc.). The term itself is not synonymous with any other IT term. MEMORIE INTERNĂ – MEMORIE EXTERNĂ and MEMORIE REMANENTĂ – MEMORIE NEREMANENTĂ cannot be antonyms. We can at most consider them pseudo-antonyms.

The lexicographic definition of MEMORIE can hardly be decoded due to some of the terms used (*parte*, *instrucțiuni*, *valori numerice*). Their absence, or strictly specialized definition from DEXI is a true problem because it makes it almost impossible to understand the definition of MEMORIE.

At the syntagmatic level we have pointed out that MEMORIE is a frequently used term. Both meanings "unitate funcțională" and "spațiu de stocare" can be found in on-line media.

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