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COMPUTERS ARE BUILDINGS: ON CONCEPTUAL METAPHORS IN THE SEMANTIC FIELD OF COMPUTERS AND THE INTERNET IN POLISH

The aim of the present paper is to discuss metaphorical constructions, based on figurative uses of words, in informal Polish in the field of computers and the Internet. The study is based on the author's own corpus, compiled on the basis of short informal texts (entries, posts) written on 32 selected Internet forums. Altogether, the corpus consists of 1,541,449 words. The paper, as the title suggests, focuses on one metaphorical formula, i.e. COMPUTERS ARE BUILDINGS. The metaphors which can be subsumed under this heading belong to the most frequent in the corpus (alongside a different type, i.e. COMPUTERS ARE HUMANS). They are discussed within the cognitive framework, as introduced by Lakoff and Johnson (1980). Some attention will also be devoted to the possible influence of English upon Polish metaphorical constructions used in the area of computers and the Internet.

Keywords: *conceptual metaphors, corpus linguistics, Internet forums, borrowings*

1. Introduction

The aim of the paper is to explore metaphorical expressions used in the unofficial variety of the Polish language in the area of computers and the Internet; as the title suggests, the paper concentrates on COMPUTERS ARE BUILDINGS metaphors. Additionally, the paper seeks an answer to the question concerning the degree of the English influence upon Polish metaphors.

At the beginning, some remarks must be made about the Polish language in the field of computers and the Internet. In general, as was noted in an earlier paper by the present author (Zabawa 2018: 250), such language is far from

homogenous. For example, it is very varied as to the level of formality; to be more precise, three main groups can be singled out:

- Official language of computer science, used, among others, in official Polish versions of computer software (e.g. Windows operating systems, Microsoft Office package, etc.) and in instruction manuals for hardware and software. This group is by far the most formal. It can also be found in some specialized, high-quality press devoted to computers and the Internet. The language of this type is usually used by specialists who write or speak to non-specialists.
- Semi-official and unofficial language of computer science, used, among others, in some press devoted to computers and the Internet (typically directed to a younger user and often concerned with computer gaming). The language used here is relatively informal; it also commonly appears in conversations on computers carried out on Internet message boards (forums) and discussion groups. It may be used by specialists writing or speaking to non-specialists but it may also be used among non-specialists only.
- Completely unofficial language of computer science (slang, computerese), used, among others, by computer professionals (e.g. graphic designers, programmers, etc.) and computer hobbyists with deep knowledge on the subject, including people carrying out illegal actions, e.g. hackers and crackers. The language here is slangy, i.e. completely informal but at the same time highly technical. In general, it is usually completely not understandable (and not meant as understandable) by outsiders; as a result, it is used by specialists writing or speaking to other specialists.

The present study, in general, concentrates on semi-formal and informal language of computer science, hence the second type in the above-mentioned classification. It is based on a corpus, compiled and analyzed by the present author; the description of the corpus is provided in Section 3.

2. Metaphors: general considerations

Traditionally, metaphors were studied within the literary theory and the focus was on their literary effects. The revolution came with the cognitive perception of metaphor (introduced by Lakoff and Johnson 1980): it is no longer perceived as a literary device, seen mostly in poetry, but rather as a feature of everyday language, connected with perceiving “one conceptual domain in terms of another conceptual domain” (Kövecses 2010: 4). The same author explains that they usually arise from correlations in experience or similarities between experiential domains (Kövecses 2015: 1); the notion of a conceptual domain is understood as “any coherent organization of experience” (Kövecses 2010: 4). This understanding of the metaphor thus rests on the notion of conceptual domains: a source one and a target one; metaphor is, basically, as Coulson (2005: 32) puts it, “reference to one domain with vocabulary more commonly associated with another domain”.

As was said above, metaphor, in its cognitive understanding, is very frequent in everyday language. What initially may be slightly more surprising, is the fact that metaphor is also very frequent in more specialized and/or scientific discourse. It becomes less surprising, however, when one takes into consideration the fact that our perception of the world is more often than not carried out through metaphors (as Palka 2018: 188 puts it, metaphor “is not merely a stylistic flourish embellishing the language, but, ostensibly first and foremost, a vital ‘ingredient’ of thought itself”). Thus, for example, metaphors are frequent in business and advertising language (Drożdż 2012), medical (Divasson and León 2005) or religious language (Kuczok 2010, 2018).

It is often claimed (cf. e.g. Kövecses 2010) that the target domain (i.e. the one being ‘explained’ by the metaphor) is usually more abstract while the source domain (i.e. the one used for ‘explaining’) is usually more concrete. This is certainly true for most of the classic examples of cognitive metaphors, e.g. THEORIES ARE BUILDINGS (cf. e.g. Kövecses 2015: 5). However, certain metaphors may and often do deviate from this model. Szwedek (2011: 342) mentions the example of LIFE IS JOURNEY, where, as he sees it, both components are abstract; thus, we deal with abstract-to-abstract metaphor rather than the more familiar concrete-to-abstract. In addition, he, quite rightly, points out to the fact that it is not easy to measure ‘the degree of concreteness’ or ‘the degree of abstractness’. This may seem an overexaggeration but it is certain that not all the metaphors follow nicely the familiar model of concrete-to-abstract. This appears also to be true in the present study, where, in many cases, both elements appear to be equally concrete.

3. The description of the corpus

The corpus, upon which the present analysis is based, has been collected by the author of the study¹. To ensure that the corpus is reliable and homogenous, only informal language has been included: to be more precise, articles in computer press, web portals, etc., have been excluded. It is believed that this is a good solution, as the language of the press is not fully spontaneous and usually rather formal (it may be edited by language editors, based on articles in English published in an English computer magazine, etc.); besides, the numbers of authors is quite limited.

Thus, it has been decided that Internet forums devoted to computers and the Internet will be a much better choice: the range of authors is much bigger (most of the texts are short, unlike press articles) and the language is fully spontaneous

¹ The corpus, built in the years 2011-2015, was previously used in the study on English semantic loans and loan translations in Polish (Zabawa 2017; a detailed description of the process of corpus compilation can be found therein) and in the study on COMPUTERS ARE HUMANS metaphors (Zabawa 2018).

(not edited or post-edited in any way²) and informal. The entire corpus consists of short informal texts (posts, entries) taken from Polish Internet forums devoted to computers and the Internet. Altogether, 32 Internet forums were taken into consideration; the entire list can be found in the appendix at the end of the paper. The sample of between 20,000 and 60,000 words has been taken from each forum; care was taken as to include threads on various topics, including hardware (central processing units, graphic cards, sound cards, mouse devices, keyboards, etc.), software (operating systems, office programs, computer games, etc.) and the Internet (Internet providers, websites, search engines, computer viruses, keyloggers, Trojan horses, antivirus software, etc.). The total size of the corpus equals 1,541,449 running words (understood orthographically, i.e. as sequences of letters bounded by spaces); it is, obviously, a small one when compared with large general corpora, such as National Corpus of Polish (*Narodowy Korpus Języka Polskiego*, NKJP). It seems, nevertheless, that it is large enough for the present study. Besides, it is often noted that corpora of specialized genres, of which the present corpus is an example, need not be very large and are still reliable and representative for a given register (for more on this, cf. e.g. Baker 2010: 13-14, Handford 2010: 255-258, Koester 2010: 71-77). What is more, the corpus is already lexically saturated, i.e. its further expansion would not yield many more examples of new metaphorical constructions; rather, additional instances of already noted constructions would appear (for more on lexical saturation in corpus linguistics, cf. Peřizik 2013: 47-50).

All the texts comprising the corpus have been read in their entirety by the author of the study and the metaphorical uses were pinpointed. The corpus data was also analyzed (e.g. so as to provide the number of occurrences of a given construction) with the help of a special piece of software designed for text analysis (TextSTAT, version 2, developed by Matthias Hüning from the Department of Dutch Linguistics at Freie Universität Berlin, available at: <http://neon.niederlandistik.fu-berlin.de/en/textstat/>, access: 28 December 2018).

4. Most frequent metaphors found in the corpus

As metaphor is very frequent in specialized language (cf. Section 2), it comes as no surprise that it is also not infrequent in the language of computer science (for numerous examples, cf. Gozzi 1999, Stalhåmmar 2001; as Stalhåmmar rightly notices, most of the metaphors in computer-related language are based either on similarity in shape/appearance, i.e. external likeness, or similarity in

² It must be added that there is an option to edit one's own posts in most of the Internet forums. Thus, naturally, in some cases the author of a given post may have edited it; still, this is not external editing (i.e. done by a different person, e.g. a language specialist) as is often done in the case of press articles.

function/behaviour, i.e. internal likeness). The most frequent metaphors found in the corpus include:

- COMPUTERS ARE HUMANS
- COMPUTERS ARE BUILDINGS
- COMPUTERS ARE CLOTHES
- COMPUTER PROGRAMS ARE CLOTHES
- COMPUTER VIRUSES ARE ANIMALS.

It appears that one of the most frequent (or indeed *the* most frequent) metaphors found in the corpus can be summarized along the formula COMPUTERS ARE HUMANS, with three prominent subtypes: PARTS OF COMPUTERS ARE ORGANS IN THE HUMAN BODY, GOOD-WORKING COMPUTER IS A HEALTHY PERSON and BADLY WORKING COMPUTER IS A SICK PERSON (the metaphors of this type were analyzed in my previous article, cf. Zabawa 2018). Thus, in other words, a human body is among the most frequently employed source domains. It must be noted that it is by no means restricted to the field of computers; actually, quite the opposite is true, as metaphors rooted in people's bodily experiences are among the most frequent in most semantic areas (for more on this, cf. Aitchison 2003: 41, Kövecses 2010: 18, Kuczok 2018: 172, Zabawa 2017: 90).

The metaphor analyzed in this paper, COMPUTERS ARE BUILDINGS, is among the most frequent as well (though, judging from the corpus, not as frequent as COMPUTERS ARE HUMANS). As in the case with COMPUTERS ARE HUMANS metaphors, several subtypes can be distinguished:

- COMPUTERS ARE BUILDINGS: names for a building, types of a building
- COMPUTERS ARE BUILDINGS: elements of a building
- COMPUTERS ARE BUILDINGS: equipment in a building
- COMPUTERS ARE BUILDINGS: description of a building
- COMPUTERS ARE BUILDINGS: actions done in the building / to the building
- COMPUTERS ARE BUILDINGS: a person/institution taking care of a building.

All the subtypes listed above will be discussed in the next section. There are certain constructions which could also possibly be discussed along the formula COMPUTERS ARE BUILDINGS, but it is actually more probable that a different metaphorical mapping was in operation. A good example here is the word *komórka*, used traditionally in the sense of 'a small, dark room; a small space', which now also appears in the area of computers in two new figurative uses: (1) 'a unit of organization of computer memory' and (2) 'a single field (cell) in a database, spreadsheet, table, etc.'. It is highly probable, however, that the new meanings have emerged on the basis of the meaning of 'a smallest part of a living matter, e.g. a human organism'; in such a case, it will not be classified as a COMPUTERS ARE BUILDINGS metaphor, but rather COMPUTERS ARE HUMANS (or, more generally, COMPUTERS ARE LIVING THINGS). A different example of a similar type is the word *konsola* ('a console table'), used in the area of computers in the sense of 'a small machine for playing video games'. However,

the new sense appeared most probably on the basis of a different meaning, viz. ‘a piece of electronic equipment in the form of a flat surface that contains all the switches, controls, etc., to operate a given machine’. In general, the forms of this type, which are not very likely to be the examples of COMPUTERS ARE BUILDINGS metaphors, are excluded from the present study.

5. COMPUTERS ARE BUILDINGS metaphors found in the corpus

5.1. COMPUTERS ARE BUILDINGS: names for a building, types of a building

This category is the least popular, as only one example was found in the corpus, viz. the word *buda* (‘a badly-designed house, a shack; also: a doghouse’). The word is used figuratively in the area of computers in the sense of ‘the cover for a computer’ (it is thus synonymous with such forms as *obudowa* ‘cover’; the metaphor is thus clearly based on the similarity in shape). The word *buda* appears 117 times in the corpus in the new sense (including two occurrences of the diminutive *budka*). Some examples of the use of the word in question are provided below³:

- (1) *obecnie buda jest cała rozkręcona i czeka na malowanie poszczególnych elementów* [19]
‘now the shack is all dismantled and waits for its separate elements to be painted’
- (2) *dobra buda musi kosztować a oszczędzanie na tym podzespolu to szczyt ignorancji* [10]
‘a good shack must cost a lot and economizing on it is utter ignorance’
- (3) *ogólnie jestem zadowolony z nich [=wentylatorów] idealnie wpasują się w budę, przy cenie \$ 9.60 za sztukę* [19]
‘in general, I’m satisfied with them [=cooling fans]; they will ideally fit the shack and cost \$ 9.60 for one piece’.

5.2. COMPUTERS ARE BUILDINGS: elements of a building

This category encompasses both parts of a building (e.g. a room, a basement) and elements used to build a house (e.g. a window, a door). Within this category, seven examples in the corpus were found; it must be added, however, that some of them are not connected with the house in the strict sense of the word, but

³ Obvious spelling and punctuation errors (in the excerpts taken from the corpus) have been corrected; no other changes have been made. All fragments have been translated into English by the present author. The numbers in square brackets indicate the number of the Internet forum (cf. Appendix) from which a given excerpt has been taken.

rather with its closest surroundings (e.g. a gate, i.e. a door to a garden, etc., rather than a house itself). Such metaphors can perhaps be better subsumed under the heading INTERNET IS A BUILDING; as they are not frequent, however, they are discussed within the more general formula COMPUTERS ARE BUILDINGS. The words assigned to the group ‘elements of a building’ are analyzed below.

The first example is the word *belka* (‘a piece of wood for supporting the roof of a building’), used figuratively in the area of computers in the sense of ‘a long and narrow area of a window displayed on a computer screen, usually providing certain information, e.g. the name of a program or a file, or performing certain functions, such as scrolling’. The metaphor is thus based on the similarity in shape. The word appears 5 times in the new sense in the corpus:

- (4) *CF chodzi ok, są wszystkie efekty, widać jego obecność, natomiast Emerald nie widać, nie ma belki tytułowej* [18]
 ‘CF [=Compiz Fusion; the name of an application] works ok, all effects are on, its presence is obvious, whereas Emerald [the name of an application] cannot be seen, there is no title bar’
- (5) *domyślnie jest to pozioma belka przewijania, jednak wystarczy kliknąć ciemno-zielony grot skierowany ku górze, aby wypełniła ona niemalże cały interfejs programu* [10]
 ‘by default it is a horizontal scrollbar [lit. scrolling bar]; however, it is enough to click darkgreen arrow pointed upwards and it will fill in almost entire program interface’.

Next, the word *brama* (‘a gate’) is used figuratively in the area of computers in a few new senses, including: (1) ‘a server which acts as an intermediary between a user and a given website’, (2) ‘an Internet website enabling users to send text messages to mobile phones’ and (3) ‘a machine, e.g. a router, thanks to which computers from a local network communicate with computers from other networks’. The similarity in function (‘something thanks to which we can access something else’) is evident here. The word (including a derivative *bramka*) appears 10 times in the sense (1), again 10 in (2) and 29 in the sense (3):

- (6) *próbuj przez bramki proxy zawsze wchodzić* (sense 1) [4]
 ‘always try to access the Internet via proxy servers [lit. proxy gates]’
- (7) *najlepsza bramka SMS jest na mojej stronie lecz dostępna po zarejestrowaniu na stronie* (sense 2) [26]
 ‘the best SMS gateway [lit. SMS gate] is on my website but it is available after registering on a website’
- (8) *w jaki sposób znajdę nr bramy domyślnej innego kompa?* (sense 3) [15]
 ‘how can I find the default gateway number [lit. gate number] of a different comp?’.

The next example is the word *drzwi* ('a door'), used figuratively in the field of computers in two new senses: (1) 'a movable structure in the cover for a computer' and (2) 'a defect in a computer system that allows unauthorized access; a backdoor'. Thus both the similarity in shape (sense 1) and function (sense 2) is evident here. The form (including a diminutive *drzwiczki*) appears four times in the corpus in the sense (1) and twice in the sense (2):

- (9) *może źle się wyraziłem, po prostu nie lubię drzwiczek na froncie i tyle* (sense 1) [10]
 'maybe I put it wrong, I just don't like doors at the front and that's it'
- (10) *backdoor jest to luka w zabezpieczeniach systemu, pozostawiona umyślnie przez dostęp boota/osoby niepowołanej do Twojego komputera w celu późniejszej możliwości wejścia (awaryjne drzwi)* (sense 2) [4]
 'backdoor is a defect in the operating system security, left on purpose by a bot or an unauthorized person so that they can later access your computer (emergency door)'.

The word *okno* ('a window') is another example within the same category. The word is used figuratively in connection with computers in two new senses, one related to software and the other to hardware: (1) 'a frame on a computer screen' and (2) 'an opening, usually covered with a transparent piece of plastic, in the cover for a computer'. Both new senses are based on the similarity in shape. The first sense is to a large extent international and it is not surprising that it is much more frequent: the word (including a diminutive *okienko* and a derivative *okienkowy*) appears 766 times in the corpus in the sense (1) and 8 times in the sense (2):

- (11) *w laptopie nie otwiera mi się okno przeglądarki* (sense 1) [22]
 'a browser window does not open in my laptop'
- (12) *po uruchomieniu komputera pojawia się okno do logowania – nie mam hasła* (sense 1) [22]
 'after turning the computer on there appears a logon window – I don't have a password'
- (13) *jeśli nie zabraknie mi chęci właśnie na "oknach" będą wygrawerowane loga wszystkich firm wspierających mój projekt* (sense 2) [19]
 'if I don't lose my willingness it will be the "windows" that will have all the logos of the companies supporting my project engraved on them'
- (14) *jedyne co mi nie pasuje to to, że będzie widać ten dysk przez okno* (sense 2) [19]
 'the only thing that I don't like is the fact that the disc drive will be seen through the window'.

Another word in the same group is *piwnica* ('a basement, a cellar'), used figuratively in the field of computers in the sense of 'a separate space at the bottom of the cover for a computer meant for e.g. power supply unit, hard disk,

etc.'. The new sense is thus based on the similarity in function ('the area below something'). The word (including a diminutive *piwniczka* and a derivative *piwniczny*) appears 48 times in the new sense in the corpus:

- (15) *to z tego dużego kawałka spokojnie wytniesz sobie piwniczkę i coś jeszcze zostanie* [19]
 'so you will cut a small basement out of this large piece without any problems and something of it will still remain'
- (16) *masz zamiar wszystko zakryć czy tylko piwnice na zasilacz i kable?* [19]
 'are you going to cover everything or just the basement for the power supply unit and cables?'

The next example is the word *pokój* ('a room'), used figuratively in the area of computers in the sense of 'a type of an Internet forum where users can communicate in real time; a chat room'. Thus, it is another example of the metaphorical use based on the similarity in function ('a part of something bigger'). The form is used 14 times in the corpus in the new sense:

- (17) *jeżeli chcemy otrzymać swój prywatny pokój do rozmów wystarczy zwrócić się do administracji* [32]
 'if we want to get our private chat room [lit. private room for chatting], it is enough to ask the administration'
- (18) *administrator czatu może nałożyć np. ograniczenie czasowe na jeden pokój z kilkudziesięciu (na innych pokojach można się logować)* [15]
 'a chat administrator may put e.g. a time restriction on one of several dozen rooms (you can still log onto other rooms)'

The last word in the present group is *schowek* ('a cubbyhole; a small space where something can be put'), used figuratively in connection with computers in the sense of 'a clipboard; a place in computer memory where data is temporarily stored'. Again, this is an example of the similarity in function. There are 9 tokens of the word in the new sense in the corpus:

- (19) *bo domyślnie Windows tak ma, że kasuje ze schowka poprzednią zawartość jak skopiujesz nową* [17]
 'by default, Windows works in such a way that the previous content of the clipboard [lit. cubbyhole] is deleted when you copy a new one'
- (20) *można to zmienić instalując jakieś rozszerzenie/program do schowka systemowego* [17]
 'you can change it by installing some extension/program in a system clipboard [lit. system cubbyhole]'

5.3. COMPUTERS ARE BUILDINGS: equipment in a building

This group includes both permanent equipment in a building (*kafelki* ‘ceramic tiles’, *tapeta* ‘wallpaper’) and movable objects (e.g. *kosz* ‘a dustbin’). There are seven words in ‘equipment in a building’ group.

The first example in the present group is the word *kafelki*, always used in the plural form. Traditionally, the word denotes ‘ceramic tiles’; in the area of computers, the word is used figuratively to describe the graphic interface of new versions of Windows, e.g. Windows 8. This usage is clearly based on the similarity in shape. There are eight tokens of the word in the new sense in the corpus:

- (21) *pozwoli ona skonfigurować system tak, by przy każdym starcie zamiast ściany kafelków wyświetlały się stare, dobre okna (lub wybrana aplikacja)* [32]
 ‘it will allow the user to configure the system in such a way that during every boot the good, old windows (or a selected application) are displayed instead of a wall of tiles’
- (22) *okazuje się, że nowy Windows czerpie mnóstwo z Windowsa Phone 7, którego interfejs oparty jest na “kafelkach”* [10]
 ‘it turns out that the new Windows copies a lot from Windows Phone 7, whose interface is based on “tiles”’.

The next example is the word *klucz* (‘a key used to lock/unlock doors’), used metaphorically in the field of computers in two new meanings: (1) ‘a unique string of characters needed to install a given piece of software’ and (2) ‘a unit of Windows registry used to store information about computer configuration’. The new senses are based on the similarity in function. There are 249 tokens of the word in the sense (1) and 45 in the sense (2):

- (23) *ponoć mój klucz do visty zadziała też na 64 bit, ale nie wiem skąd wziąć instalkę Visty 64bit* (sense 1) [22]
 ‘my key to Vista will supposedly work on 64-bit as well, but I don’t know how to get installation package for 64-bit Vista’
- (24) *po zarejestrowaniu się dostajemy roczny klucz produktu* (sense 1) [5]
 ‘after registering we’ll get a product key for a year’
- (25) *aby to wykonać należy edytować klucz rejestru systemowego odpowiedzialny za autouruchamianie* (sense 2) [14]
 ‘to accomplish it, one has to edit the key of the system registry responsible for automatic booting’.

Another word in the category in question is *kosz* (‘a dustbin’), used metaphorically in the field of computers in the sense of ‘a temporary folder for deleted files’. Again, the similarity in function is obvious here. The form appears 28 times in the corpus in the new sense:

- (26) *w koszu na pulpicie powstał plik z rozszerzeniem .bak* [22]
 ‘in the desktop recycle bin a file with .bak extension has appeared’
- (27) *często tymi pozostałościami jest historia przeglądarki, ciasteczka (cookies), tymczasowe pliki internetowe a nawet pliki które są w koszu* [10]
 ‘these remains are often the browser history, cookies, temporary Internet files and even the files which are in the recycle bin’.

The next example is the word *pulpit* (‘a surface of a desk, table, etc.’), used figuratively in the area of computers in the sense of ‘the working area on a computer screen’ (similarity in function is present). The word appears 304 times in the new sense in the corpus:

- (28) *utwórz folder na pulpicie o nazwie np. frames* [9]
 ‘create the desktop folder with the name such as frames’
- (29) *wszystko wolno się włącza, odświeżając pulpit muszę czekać 2 sekundy po naciśnięciu F5* [5]
 ‘everything boots slowly, when refreshing the desktop I have to wait for 2 seconds after pressing F5’.

Another word is *szuflada* (‘a drawer’), used figuratively in the sense of ‘a CD-ROM tray’ (similarity in shape); this, however, is most probably an idiosyncratic use, since it appeared only once in the corpus in the sense under discussion:

- (30) *bo aktualnie nawet szuflada CD nie chce się otworzyć* [1]
 ‘because now even the CD tray [lit. CD drawer] doesn’t want to open’.

The next word in the present group is *tapeta* (‘a wallpaper’), used metaphorically in connection with computers in the sense of ‘a picture, photograph, etc. displayed as a background on a computer screen’. The metaphorical use is based on the similarity in function. There are 29 tokens of the word (including a diminutive *tapetka*) in the new sense in the corpus:

- (31) *codziennie denerwuje mnie komunikat, który wyświetla się średnio co 15-20 min. i usuwa tapetę itp. rzeczy* [11]
 ‘everyday a message, displayed every 15-20 minutes, gets on my nerves, it removes the wallpaper etc.’
- (32) *autozmiernarka tapet* [20]
 ‘automatic changer of wallpapers’.

The last example within ‘equipment in a building’ group is the word *wtyczka* (‘an object for making a connection between a piece of equipment and electricity’), used figuratively in the area of computers in the sense of ‘an extra piece of software that can be added to the main piece of software to gain

new functions' (similarity in function: 'something used to make a connection between some elements'). The word appears 188 times in the new sense in the corpus:

- (33) *ponoć obsługuje to jakaś wtyczka opery* [7]
'allegedly some Opera extension app [lit. Opera plug] can serve it'
(34) *zainstaluj sobie wtyczkę All in one SEO Pack* [7]
'install All in one SEO Pack extension [lit. All in one SEO Pack plug]'

5.4. COMPUTERS ARE BUILDINGS: actions done in the building / to the building

Occasionally, certain actions need to be done in the house, such as cleaning or disinfection. Some actions may also be carried out from outside, without the owner's consent or knowledge, such as break-in. Within the present category ('actions done in the building or to the building'), three examples have been found in the corpus.

The first example is the word *dezynfekcja* ('an act of cleaning something chemically in order to remove bacteria, etc.'), used figuratively in the area of computers in the sense of 'an act of removing computer files infected with viruses, malware, etc.' (similarity in function). The word appears twice in the new sense in the corpus:

- (35) *konieczne będzie użycie ESET Necurs Remover > Dezynfekcja: zbiór narzędzi usuwających* [5]
'it will be necessary to use ESET Necurs Remover > Disinfection: a set of tools for removal'

The next word is *porządkować* ('to tidy a room, a house, etc., up'), used in connection with computers in the sense of 'to remove unnecessary files; to arrange files into folders, etc.' (similarity in function). There are 14 tokens of the word (including a derivative *porządkowanie*) in the new sense in the corpus:

- (36) *porządkowanie dysku C* [23]
'decluttering [lit. tidying] C hard disk'
(37) *czy gdybym teraz wyłączył proces i uruchomił go przy pomocy Defragglera, to program wykorzysta pracę wykonaną przez poprzednią aplikację, czy będzie porządkował pliki "po swojemu"?* [3]
'if I shut the process off now and run it with Defraggler, will the program use the work done by a previous application or will it arrange the files [lit. tidy the files up] "all by itself"?'.

The last example in the present group is *włamać się* ('to break into a house'), used figuratively in the area of computers in the sense of 'to access illegally somebody's else email account, Facebook account, etc.' (similarity in

function). The form (including derivatives *włamanie* and *włamywacz* ‘a person who accesses illegally somebody’s account, etc.’) appears 125 times in the new sense in the corpus:

- (38) *czy ktoś włamał się na moją stronę?* [4]
 ‘has somebody broken into my website?’
- (39) *mojemu narzeczonemu ktoś (a raczej wiemy już kto) włamał się na gadu gadu i nie wiem czy nie na komputer także...* [5]
 ‘somebody (and now we rather know who) has broken into my fiancé’s gadu-gadu [an application for online chatting] and perhaps into his computer as well’.

5.5. COMPUTERS ARE BUILDINGS: a person/institution taking care of a building, etc.

It is natural that any building, before it can actually be used, must be erected first. Then, it is often the case that a building, especially a big one, needs certain people and/or institutions to take care of it. The same principles apply to computer hardware and software; thus, the present group of metaphors can be described as ‘a person or an institution taking care of a building’, within which two examples were found in the corpus.

The first construction is *administrator* (‘a person or an institution managing a block of flats, etc.’), used figuratively in the area of computers in the sense of ‘a person responsible for a given network of computers; also: a person in charge of an Internet forum, chat room, etc.’ (similarity in function). The word (including derivatives *administrować*, *administracja*, *administracyjny*, *admin*, *adminować*, etc.) appears 607 times in the new sense in the corpus:

- (40) *napisać do administratora serwera o błędzie 500 ISE* [7]
 ‘write to the server administrator about 500 IDE error’
- (41) *najprawdopodobniej administrator sam nie wie jak owy post odzyskać* [4]
 ‘most probably the administrator himself/herself doesn’t know how to retrieve this post’
- (42) *co innego administrator strony a co innego administrator serwera* [4]
 ‘a website administrator is different from a server administrator’.

The second word within the present group is *developer* (‘a person or a company that builds houses for sale’), used figuratively in connection with computers in the sense of ‘a company that develops and sells software; also: a company that designs websites’ (similarity in function). The construction (including a derivative *developerski*) appears 72 times in the new sense in the corpus:

- (43) *generalnie developerzy którzy uznali operę 9 za produkt finalny pomylili się!* [12]
 ‘in general, the developers who saw Opera 9 as a final product were mistaken’
- (44) *ruszyły zamknięte betatesty. Podczas ich trwania, fani przekazali developerom mnóstwo porad i wskazówek, jak udoskonalić grę* [30]
 ‘closed betatesters started. During the tests, fans gave the developers lots of hints and pieces of advice on how to improve the game’.

5.6. COMPUTERS ARE BUILDINGS: a description of the building

This group is rather heterogenous and it could be said to include words which were not assigned to any of the previous groups: it contains one adjective (*czysty* ‘clean’) and two nouns, one of which describes the location of a building (*adres* ‘address’) and the other its structure (*architektura* ‘architecture’).

The word *czysty* (‘clean from dust, dirt, etc.’) is used figuratively in connection with computers in the sense of ‘free from viruses, Trojan horses and other malware’ (similarity in function). The word appears 32 times in the new sense in the corpus:

- (45) *witam, dziś mój Avast wykrył i zablokował Trojana. Czy to znaczy, że mój komputer jest czysty?* [4]
 ‘hi, today my Avast has detected and blocked a Trojan horse. Does it mean that my computer is clean?’
- (46) *pliki html na komputerze pozostają czyste* [5]
 ‘html files on your computer remain clean’.

The word *adres* (‘the place of residence of somebody or something; also a description of such a place’) is used metaphorically in the area of computers in three new senses: (1) ‘the number that identifies a given computer or a piece of hardware, e.g. a router, connected to the Internet’, (2) ‘symbols identifying a given website’ and (3) ‘e-mail address’. The metaphorical uses are based on the similarity in function. The word appears in the new senses in the corpus 292, 281 and 111 times, respectively:

- (47) *wpisz “na sztywno” w ustawieniach karty LAN adres np. 192.168.1.1 (sense 1)* [22]
 ‘put, in a fixed way, the address, e.g. 192.168.1.1, within the LAN card settings’
- (48) *spróbuj jeszcze zmienić adres IP rutera (sense 1)* [22]
 ‘try yet to change the IP router address’
- (49) *a mam takie pytanie: jak wpisuje adres np. www.allegro.pl po wpisaniu www.a wyświetlają mi się wszystkie strony na które wchodziłem i których*

adres się tak zaczyna i tu moje pytanie czy dało by się to jakoś wyłączyć? tzn. wpisuję sobie adresik i nic mi nie wyskakuje? (sense 2) [12]

‘and I have a question, when I put the address e.g. www.allegro.pl, after entering www.a all the websites starting in such a way that I visited are displayed and this is my question, is it possible to turn that off? I mean I put the address and nothing pops out?’

(50) *jeśli chcesz mieć adres e-mail we własnej domenie najpierw musisz mieć domenę i konto hostingowe* (sense 3) [21]

‘if you want to have an e-mail address in your own domain, then first you must have a domain and a hosting account’.

The last example in the present group is *architektura* (‘the art of designing buildings; also the structure of a building’), used in connection with computers in the sense of ‘the structure of a computer, computer system or a piece of hardware; also the combination of elements in a computer’ (similarity in function). There are 24 tokens of the word in the new sense in the corpus:

(51) *wynika to z tego, że architektura procesorów była podobna* [25]

‘it is because the architecture of the CPUs was similar’

(52) *niektóre pogłoski sugerują, że Windows 8 będzie obsługiwał 128-bitową architekturę* [10]

‘there are some rumours that Windows 8 will serve 128-bit architecture’.

6. Conclusions

As was noted in the introductory section, metaphors are very frequent in the language of computer science. The metaphorical constructions classified under the heading COMPUTERS ARE BUILDINGS are clearly among the most frequent in the corpus. The only group which is more frequently represented in the corpus can be subsumed under the formula COMPUTERS ARE HUMANS (for the discussion of COMPUTERS ARE HUMANS metaphors, cf. Zabawa 2018). Other metaphors found in the corpus include, among others, COMPUTERS ARE CLOTHES, COMPUTER PROGRAMS ARE CLOTHES or COMPUTER VIRUSES ARE ANIMALS.

The metaphors discussed in the present paper are mostly based on figurative uses of words. Many of such words appear in new, unheard-of before, collocations, e.g. *architektura komputera* ‘computer architecture’, *adres routera* ‘router address’, *czysty plik* ‘clean file’, *administrator serwera* ‘server administrator’, etc. The majority of them are based on similarity in function (e.g. *pokój* ‘a room’ > ‘a chat room’); similarity in shape is much rarer, but it is nevertheless documented as well (e.g. *kafelki* ‘ceramic tiles’ > ‘a graphic interface for Windows 8’).

The emergence of many of the metaphorical expressions discussed in the present paper is, in all probability, triggered, or at least indirectly influenced,

by English. This is most probably the case of such constructions as *okno* ('a window' > 'a window on a computer screen'), *pokój* ('a room' > 'a chat room'), *kafelki* ('ceramic tiles' > 'a graphic interface of Windows 8'), *klucz* ('a key' > 'a product key'), *kosz* ('a dustbin' > 'a recycle bin on a computer screen'), *pulpit* ('a desktop' > 'the area on a computer screen'), *tapeta* ('wallpaper' > 'wallpaper on a computer screen'), *developer* ('a company building flats' > 'a software developer'), *adres* ('a place of residence' > 'an e-mail/website address') or *architektura* ('the art of constructing buildings' > 'computer architecture'). On the other hand, there are also a few constructions created already on the Polish soil, without any obvious influence of English. This is the case of such forms as, among others, *buda* ('a shack' > 'a cover for a computer'), *piwnica* ('a basement' > 'a space at the bottom of the cover for a computer') and *szuflada* ('a drawer' > 'a CD-ROM tray'). Such forms are, however, clearly a minority.

Thus, it is clear that, in most cases, at least some degree of the English influence can be detected (for a discussion on the criteria for distinguishing between semantic borrowings and native semantic changes, cf. Witalisz 2007, Zabawa 2017): the English forms appear in new meanings usually much earlier than their Polish counterparts⁴; this, supplemented with the fact the world of computer science is generally dominated by English-speaking countries (software developers, hardware manufacturers, etc.), shows clearly the English provenance of the new usage of many of the forms discussed in the present paper. Naturally, in some cases the situation is less clear, e.g. in the case of the word *czysty*, used in the sense of 'free from viruses and other malware'. On the one hand, the English word *clean* is frequently used in connection with computers (e.g. in such phrases as *how to clean up your computer*) (an observation on the basis of Google search and NOW corpus, <https://corpus.byu.edu/now/>) and may have influenced the emergence of the new use of the word *czysty* in Polish. On the other hand, it is at least equally, if not more, probable that it may have appeared already on the Polish soil, as an extension of the meaning 'free from drugs or other harmful substances'. In addition, the emergence of one metaphor may often facilitate the emergence of related metaphors; thus, for example, the usage of *okno* ('window') in the new sense may have facilitated the emergence of the metaphorical construction *drzwi* ('door').

In general, there are three main functions of the metaphors used in the language of computer science: explanatory, humorous, and emotional. It is probable that COMPUTERS ARE BUILDINGS metaphors are mostly used for explanatory purposes. It may be said that, in some cases at least, their use is a kind of oversimplification of the language describing computers as the precision is lost. On the other hand,

⁴ As the main focus of the paper is not on the English influence upon Polish, this will not be discussed in detail and just one example will be provided: we may consider, for example, the new meaning of the word *architektura* ('computer architecture') which appeared in English (in the phrase *computer architecture*) in as early as 1962 (OED).

thanks to their use, computer-related language is somehow friendlier to people without much specialist knowledge in the field⁵ and, as a consequence, such language may facilitate communication between specialists and non-specialists. The explanatory function is seen in such metaphorical forms as, among others, *okno* ('a window' > 'a window on a computer screen'), *pokój* ('a room' > 'a chat room'), *klucz* ('a key' > 'a product key'), *kosz* ('a dustbin' > 'a recycle bin on a computer screen'), *pulpit* ('a desktop' > 'the area on a computer screen'), *developer* ('a company that builds houses' > 'software developer'), *wtyczka* ('an object for making a connection between a piece of equipment and electricity' > 'an extra piece of software that can be added to the main piece of software to gain new functions'), *adres* ('a place of residence' > 'an e-mail/website address') or *architektura* ('the art of constructing buildings' > 'computer architecture'). The humorous function is much rarer, seen most probably in such metaphorical constructions as *piwnica* ('a basement' > 'a separate space at the bottom of the cover for a computer'), *kafelki* ('ceramic tiles' > 'a graphic interface of Windows 8') or *szuflada* ('a drawer' > 'a CD-ROM tray'). The least frequent is the emotional function (albeit it can be very frequent in the case of COMPUTERS ARE HUMANS metaphors, cf. Zabawa 2018), seen in the case of the form *buda* ('a badly-designed house' > 'a cover for a computer'). The humorous usage here probably refers to the fact that for many computer users the cover is among the least important components, much less important than what is actually inside the cover. Even such metaphors, i.e. based on humorous effects, can, in some contexts at least, bring the specialized language closer to non-specialists.

Naturally, the distinction between the three functions is in many cases only hypothetical and by no means definite. What is more, some of the constructions described in the present paper stand somehow in between, and it is not easy to precisely assign one single role to them: this is the case of e.g. *tapeta* ('wallpaper' > 'wallpaper on a computer screen'), which stands somehow in between explanatory and humorous function.

The metaphors in computer-related language are, as was hopefully demonstrated in the article, quite numerous. As the function of most of them appears to be the explanatory one, it can be claimed that thanks to the use of the metaphors (including COMPUTERS ARE BUILDINGS metaphors) in the language related to computers, the world of computers is somehow more accessible to non-specialists in the field.

⁵ In fact, many of the now widely-used metaphorical expressions have been implemented in English purposefully, with the view of being "as pedagogical as possible" (Stålhammar 2001: 117); this is the case of such well-known metaphorical expressions as *window*, *icon*, *address* or *mouse*. In fact, they have become standard terms now and are often no longer felt as metaphorical. In addition, many of such metaphorical uses are international, cf. the case of the new meaning of the word *mysz* ('mouse': 'an animal' > 'a computer device'), used in many European languages.

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Appendix: List of forums

The appendix provides the list of forums from which the entries that compose the corpus have been selected (access to websites: 14 November 2017):

- [1] *Forum Bajt* (<http://forumbajt.pl/forum.php>)
- [2] *Forum Komputerowe PL* (<http://forumkomputerowe.pl>)
- [3] *Forum PC* (<http://www.forumpc.pl>)
- [4] *Forum Fast PC* (<http://www.fastpc.pl>)
- [5] *Forum Tweaks* (<http://www.forum.tweaks.pl>)
- [6] *Forum PC Lab* (<http://forum.pclab.pl>)
- [7] *Forum PC Foster* (<http://forum.pcfoster.pl>)
- [8] *Forum portalu PCcom.pl* (<http://pc-com.pl/forum>)
- [9] *Forum komputerowe HotFix* (<http://forum.hotfix.pl>)
- [10] *Forum PCSH* (<http://www.pcsh.pl>)
- [11] *Forum dyskusyjne Programosy* (<http://forum.programosy.pl>)
- [12] *Forum Pure PC* (<http://forum.purepc.pl>)
- [13] *Forum komputerowe Pececik* (<http://pececik.com/forum>)
- [14] *Forum ITPC* (<http://forum.itpc.net.pl>)
- [15] *Forum Komputerowe Haker* (<http://haker.com.pl>)
- [16] *PC Format forum* (<http://forum.pcformat.pl>)
- [17] *Forum komputerowe Komputer Świat* (<http://forum.komputerswiat.pl>)
- [18] *Forum Pecetowiec* (<http://pecetowiec.pl/index.php>)
- [19] *Forum Benchmark* (<http://forum.benchmark.pl>)
- [20] *PC Forum* (<http://forum.pcforum.eu>)
- [21] *Forum informatyczne WebElite* (<http://www.webelite.pl>)
- [22] *Gazeta.pl Forum – Komputer* (<http://forum.gazeta.pl/forum/f,34,Komputer.html>)
- [23] *Forum Komputerowe Katalogi.pl* (<http://katalogi.pl/forum/4-forum-komputerowe>)
- [24] *Lista dyskusyjna pl.comp.bazy-danych* (<http://groups.google.com/forum/#!forum/pl.comp.bazy-danych>)
- [25] *Forum Komputerowe PC Centre* (<http://forum.pccentre.pl>)
- [26] *Pomoc PC* (<http://www.pomoc-pc.com>)

- [27] *Forum Komputerowe.com* (<http://forumkomputerowe.com>)
- [28] *PC Mod* (<http://www.pcmmod.pl>)
- [29] *Forum Komputerowe Guru PC* (<http://www.gurupc.pl>)
- [30] *Forum o grach komputerowych* (<http://www.giermania.fora.pl>)
- [31] *Game 4 Fun* (<http://game4fun.pl>)
- [32] *Playofgame.pl* (<http://playofgame.pl/forum.php>).