

THE METAPHORIZATION OF THE HUMAN MIND AS A COMPUTER IN LITHUANIAN AND ENGLISH

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The mind, as a distinctive faculty of the human being, encompasses aspects of intellect and consciousness such as thought, perception, memory, emotion, will and imagination. As an abstract notion, it is difficult to delineate and reason about; therefore, it is a typical domain that “cries out for metaphorical conception” (Kövecses 2002, 20). This is one of the major tenets of the Conceptual (Cognitive) Metaphor Theory, which emphasizes the conceptual nature of metaphor and sees it as “understanding one conceptual domain in terms of another conceptual domain” (ibid, 4). The authors of the famous book *Metaphors We Live By* explain this in the following way: because so many of the concepts that are important to us are either abstract or not clearly delineated in our experience (the emotions, ideas, time, etc.), we need to get a grasp on them by means of other concepts that we understand in clearer terms, which leads to metaphorical definition in our conceptual system (Lakoff and Johnson 1980, 115). Applying the terms of the mentioned theory, the human mind is a target domain, conceptualized metaphorically through some other less abstract concepts, referred to as source domains.

As a potential target domain, the mind has been widely discussed by cognitive linguists (Evans and Green 2006; Kövecses, 2002; Lakoff and Johnson 1980; Lakoff and Turner 1989; Marcinkevičienė 2000). One of the tendencies observed is the so-called machine metaphor, i.e. the conceptual mapping THE HUMAN MIND IS A MACHINE, as manifested by the following linguistic expressions: *my mind just isn't operating today; he's so efficient; he's just a machine.*

The machine metaphor, related originally to Cartesian philosophy and Newtonian science, has undergone changes in parallel with advance in technology – the mind (or the brain) of the human being has been compared to the latest technological



innovation in every generation (18th century “clockwork machines”, hydraulic machinery, steam engines, electrical wiring, relays, telephone switchboards, etc.). This goes in compliance with the phenomenon known as Sperber’s Law, which suggests that the principal, topical concerns of a historical era are likely to be reflected in the chief metaphors of that time (according to Gudavičius 2000, 90).

The advent of electronics technology and the prevalence of computers in the modern world have led to the analogy of the human mind and a computer, which has a reflection in the language we use. For example, someone who is good at performing calculations or remembering things can be described as having a computer in his or her brains or forgetting unimportant, unnecessary things can be referred to as deleting unnecessary files in one’s mind.

The present paper aims at revealing the conceptualization of the human mind via the computer metaphor on the basis of linguistic manifestations of the metaphor in two languages: Lithuanian and English. To achieve the aim, the following research objectives have been set:

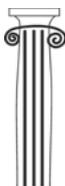
1. To perform linguistic analysis of Lithuanian and English metaphoric expressions explicating the conceptual metaphor THE HUMAN MIND IS A COMPUTER: establish the major mappings and the main meaning focus of the metaphor, discuss the degree of explicitness and conventionality of the expressions, reveal the aspects highlighted and hidden by the metaphor under analysis.

2. To trace the origin and development of the computer metaphor in scientific discourse.

3. To parallel the scientific model of the mind with the commonsense understanding of the mind as a computer, manifested in the use of language.

As conceptual metaphors can be accessed through linguistic expressions, the main research method applied in the investigation of the computer metaphor was a corpus-based analysis of metaphoric expressions retrieved from electronic corpora of the two languages. The Lithuanian material has been derived from the corpus of the Lithuanian language compiled at the Computer Linguistic Center at Kaunas Vytautas Magnus University (<http://donelaitis.vdu.lt>), while the English language data have been obtained from the British National Corpus (<http://corpus.byu.edu/bnc/x.asp>).

Since the computer metaphor is viewed as a conceptual rather than merely linguistic phenomenon, it is worth discussing its origin and pervasion in scientific discourse, which has presumably induced the spread of the metaphorical model of the mind as a computer in everyday language. The analogy of the mind and a computer was first employed in cognitive psychology in the sixties of the 20th century, when researchers of the field (Putnam, Fodor) applied the concept of a computer to theorize about the workings of the human mind. Human thought was understood as an elaborate form of computation, thus certain parts of a computer (memory storage, hard-disk) and functions (programs, RAM and ROM) and the differentiation of hard- and software as well as on- and offline, in connection



with more general electronic metaphors (wires, circuits, switching on/off) became prominent source domains for the description of the structures of the brain and mental activity in scientific explanations (Goschler 2007, 10). This model of the mind as an information-processing machine was called the computational theory of the mind or computationalism, meaning, in its broadest sense, the following analogy: perception is like input, action is like output, and all the things in-between are like the information processing performed by computers (Cisek 1999, 2).

Scientists, as part of theorizing, often construct analogies and metaphors to explain how the brain and/or mind work. This is widely discussed in the article *Talking Brains: a Cognitive Semantic Analysis of an Emerging Folk Neuropsychology* by Rodriguez (2006), who ascribes the computer metaphor to “science-derived metaphors”, which appear first in the context of scientific practice of the field and later get disseminated among inexpert language users. The impact of metaphors on scientific theories and models has been also revealed by Goschler (2007), who claims that Conceptual Metaphor Theory itself predicts the ubiquity of metaphors in scientific language and thought: a major claim of this theory is that metaphors are used to structure things which are not part of our direct experience; they are thus necessary for every scientific explanation. Boyd refers to this use of metaphor as “theory-constitutive” (according to Deignan 2005, 16). This proves again that metaphor is not a matter of language only: “it functions at all levels of understanding and discourse, from everyday interaction to the development of scientific theories” (Weiner 1992, 12).

As our research is based on the linguistic manifestations of the conceptual metaphor THE HUMAN MIND IS A COMPUTER, our interest lies mainly in the commonsense way we (as non-experts) reason and talk about the human mind and mental experience, i.e. the metaphorical model of the mind as a computer reflected in the use of language.

The analysis of the linguistic explications of the conceptual metaphor THE HUMAN MIND IS A COMPUTER in Lithuanian and English has revealed that, as a type of the machine metaphor, the computer metaphor also focuses on the functional attributes of the mechanism, which are mapped on the domain of the human mind. This is the aspect of the source domain that is most utilized in perceiving the activity of the mind via the concept of a computer. Hence, functioning is the main meaning focus (the major topic) of the metaphor under analysis. Two aspects can be distinguished here: 1) efficiency/ inefficiency of the functioning; 2) an on-off state.

Efficient functioning of the mind conceptualized through the source concept of a computer is usually observed when someone is described as exceptionally good at thinking, performing calculations, having a very good memory, being accurate and fast. Consider the following examples in English:

- (1) *“But when you’re in big business like I am, you’ve got to be hot stuff at arithmetic. I’ve practically got a computer inside my head. It took me less than ten minutes to work the whole thing out”.*



- (2) *“It’s in our report,” Bodie said. “My mind’s not a computer, Bodie. I don’t remember every single item in every untidy report that the two of you have ever put in [...].*

In the Lithuanian manifestations of the metaphor listed below, the exceptional efficiency of the mind is reinforced by describing it as a real computer (*tikras kompiuteris*) or adding the superlative degree of the adjective *perfect* (*tobuliausias*):

- (3) *Jo atmintis – fenomenali, tikras kompiuteris.*
 (4) *Tampi kažkokiu didžiuliu gyvu instrumentu, panašiu į žalsvą krabą, sudarytą iš dviejų rankų, akių, ausų ir galvos smegenų, dirbi kaip tobuliausias kompiuteris.*

Inefficient functioning of a computer (some failure or breakdown) is also mapped on the domain of the human mind, as in the following example, where some memory failure is conceptualized via the concept of a computer with the disc going wrong:

- (5) *In fact it’s not that the memory is lost, so much as the person can’t get out the facts which are stored in the memory. It’s rather like a computer when the disc goes wrong – you know the info is there but you can’t tap into it.*

The image of a computer damaged by viruses is also employed to refer to some deficiency of mental activity, for example:

- (6) *Vis dar karšta, vis dar nežinau ką veikti, ko imtis, kokių būdu, kokiom priemonėm pradžiuginti šį miestą. Galva tuščia it nugalėtas virusų kompiuteris.*

A number of metaphoric expressions in Lithuanian refer to the inefficient functioning (or breakdown) of the mind as a computer caused by some tension or information overload:

- (7) *[...] smegenys priima absoliučiai visą informaciją iš aplinkos, o kai tos informacijos būna per daug, Kristoferio vidinis kompiuteris „užlūžta“.*
 (8) *Kartais, ypač kai susijaudinu, smegenų kompiuteris perdega ir teišspaudžiu kažkokius kurčėnylio garsus.*

Another frequent mapping from the domain of computing is an on-off state of a computer, i.e. turning it on or off, which corresponds to the active or passive state of the mind in the target domain. It is manifested in the data of both languages: Lithuanian and English:

- (9) *Turiu didelę bėdą – nemoku atsipalaiduoti. „Kompiuteris“, esantis galvoje, neišsijungia nei namuose, nei pirtyje, nei pramogaujant.*
 (10) *Senis ūmai išsijungė vos ne vidury žodžio, tarsi pats būtų koks*



nelemtas vaikščiojantis kompiuteris. Jo smegenų vingiuose įvyko trumpas jungimas.

- (11) *Most of us, at least occasionally, go home, switch on the TV, switch off our minds, stretch out in a comfortable chair and let the box keep us entertained for the evening.*
- (12) *You stop fooling and turn on your brain. Put yourself in his correspondent shoes.*

One can observe that in the English examples (11) and (12) there is no direct mentioning of a computer; these are implicit realizations of the machine metaphor without specifying the type of the machine meant.

Computers are programmed, i.e. given instructions which make them perform a particular operation. So is the human mind when conceptualized through the computer metaphor:

- (13) *[...] your minds have programmed you against wealth and pleasure, against things that make your eyes sparkle and your feet dance.*
- (14) *With the mind and body so negatively programmed, this golfer is unlikely to produce his best swing.*
- (15) *Žmogaus protas yra kaip kompiuteris, užprogramuotas mintimis, kurios neribotai laikomos atmintyje įvairiuose sąmonės lygmenyse.*
- (16) *Neklauso sąžinės, jį savotiškai užprogramuoja aplinka, jis pradeda elgtis mechaniškai.*

This mapping highlights the lack of human volition when the mind is perceived metaphorically as a programmed computer: human beings perform instructions received rather than think and act by their own volition. More linguistic evidence can be provided:

- (17) *Eiles Romas rašo taip, kaip jo vadinamasis „kompiuteris“ – galva įsako.*
- (18) *[...] visos šios neigiamos mintys ir emocijos automatiškai įvedamos į protą kaip į kompiuterį, ar jūs norite įrašyti, ar ne.*

The analysis of the linguistic data has revealed that in most metaphoric expressions of both languages the reference to the computer is direct, i.e. an explicit assertion is made through the lexeme *computer* (*kompiuteris*). Most frequently it takes the form of a direct comparison in both languages or a phrase with an indication of a computer's location in one's brain or head:

- (19) *She had a mind like a computer, with indefinite retrieval of unimportant facts.*
- (20) *I made, I think, a 2 per cent or 3 per cent error over the whole test. So they said, “Herr von Karajan apparently has a computer in his brain!”*
- (21) *Rimo Vizbaros smegenys net dūzgė nuo įtampos tarsi tuoj sprogsiantis.*



jau baigiąs savo dienas persenęs kompiuteris.

- (22) [...] kiekvieno galvoje esantis „personalinis kompiuteris“ būna apkraunamas didesniu darbu.

One may argue that expressions (19) and (21), as well as some examples provided above, are similes rather than metaphoric expressions. Indeed, the distinction between simile and metaphor is tenuous and controversial. In this research, where the conceptual metaphor is the focus, the difference between simile and metaphor is seen as a matter of form only. Here we follow the tradition which takes metaphor as the more basic of the two figures and views simile as the explicit expression of a metaphorical mapping (Israel et al 2004, 123).

Implicit manifestations of the metaphor (when there is no mentioning of a computer, only some of its attributes is referred to) are rare in both languages:

- (23) *We must programme our minds to be expansive and creative and eliminate the words “I can’t” from our vocabulary.*
(24) *Publikai galutinai užlūžo smegeninės.*

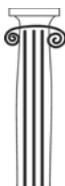
The dominance of highly explicit expressions (especially direct comparisons) among the manifestations of the conceptual metaphor THE HUMAN MIND IS A COMPUTER presumably indicates that metaphoricity based on the analogy of the mind and a computer is consciously perceived by the speaker, which is related to the novelty of the computer metaphor in everyday language.

As far as the conventionality of the metaphor is concerned, two levels should be distinguished: conceptual and linguistic (Lakoff and Turner 1989, 50). At a conceptual level, the computer metaphor can be regarded conventional in the sense that it is a type of the machine metaphor which is deeply entrenched in our conceptual system. At a linguistic level, however, it is often realized by novel, individual expressions (but conventional enough to be understood). Sometimes metaphoric expressions are put in quotation marks, which also indicate perceived metaphoricity and novelty, for instance:

- (25) *Juk, šiaip ar taip, yra dalykų, kurių pats vienas per tam tikrą laikotarpį nesuvoksi, reikalingos kelios galvos – tarsi didelis „kompiuteris“.*

Sometimes linguistic realizations of the computer metaphor are highly individual, which is especially evident in the case of extended metaphors (when the metaphor extends through the entire text). Elaborate use of the human mind-as-a-computer metaphor is evident in Debra K. Carey’s speech about the dangers of modern society:

“We keep browsing the dangerous sites (ways of thinking) that promote negativity. We refuse to use a security program (the truth) and are loaded down with Trojans and viruses. [...] It may be time for you to wipe clean the hard drive, saving only those positive things in your folders to disc and start from fresh. This is the beautiful thing about the human mind, it is



reprogrammable. Forgiveness is how we wipe away the crippled programs. [...] It removes the malware, and clears the hard drive for reprogramming” (<http://www.helium.com/tm/839380/computer-programmer-understands-garbage>).

The indication of the corresponding elements of the target domain in brackets reveals perceived non-conventionality of the metaphor, introducing the metaphor to facilitate understanding.

Metaphorical mappings are always partial: some aspects of the target domain perceived metaphorically are highlighted, others are hidden. Having discussed what is mapped from the source domain of computing to the target domain of the human mind, it is obvious that THE MIND AS A COMPUTER metaphor highlights its functional attributes and machine qualities such as precision, speed, regularity and efficiency. Just like a computer, it can be programmed, follow the instructions and perform operations with strict accuracy. What is hidden by this “computerized” view of the mind is the human nature of the mind. In contrast to a computer, the human mind does not always operate by logical rules; it can be inaccurate and disobey commands.

Referring to the scientific explanations of the mind, it is interesting to note that numerous discrepancies have been observed between a computer and the mind (among which the motivation, volition and capacity for moral discrimination of the mind) and the computational theory of the mind, once the dominant paradigm in neuroscience, psychology and philosophy of mind, has been rejected in cognitive psychology. According to Fonagy and Target (2007, 421), “analysts appropriately saw it as in many ways dehumanizing, clinically irrelevant, and incompatible with some fundamental psychoanalytic ideas”. Paradoxically, it is admitted that science has gained a lot from the computer metaphor but also missed some things, which inevitably issues from the partial nature of metaphorical structuring: as a conceptual tool, any metaphor both aids and impedes us in our understanding (Randall 2007, 613). Gardner called this phenomenon “the computational paradox”: “only through scrupulous adherence to computational thinking could scientists discover the ways in which humans actually differ from the serial digital computer” (Gardner 1985, 385).

It appears then that the commonsense understanding of the mind as computer, explicated in the use of language, clashes with the scientific model of the mind; namely, it lags behind. It confirms the general tendency that the metaphorical model developed by inexpert language users is often crude and inaccurate from a specialist’s point of view, but adequate enough for speaker’s needs (Deignan 2005, 16).

To conclude our analysis, the following statements could be made:

1. A computer, as the most sophisticated mechanism of modern times, has become the source domain of the deeply entrenched conceptual metaphor THE HUMAN MIND IS A MACHINE.

2. Linguistic manifestations of the computer metaphor in Lithuanian and



English focus on the functional aspect of the mind, i.e. its level of efficiency and an on-off state. Highly explicit expressions dominate due to the novelty of the computer metaphor in everyday language.

3. The “computerized” view of the mind in the language highlights machine-like qualities such as precision, speed, regularity and efficiency and hides the human nature of the mind.

4. The commonsense understanding of the mind as a computer, manifested in the use of language, is at variance with the computer metaphor in science, whose power and controversy made it “the subject of reflections on metaphors and analogies in the history of science” (Goschler 2007, 16).

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ŽMOGAUS PROTO KAIP KOMPIUTERIO METAFORA LIETUVIŲ IR ANGLŲ KALBOSE

Santrauka

Pagrindiniai žodžiai: *protas, kompiuteris, konceptualioji metafora, proto kaip kompiuterio teorija.*

Straipsnyje nagrinėjama konceptualioji metafora ŽMOGAUS PROTAS YRA KOMPIUTERIS ir jos raiška lietuvių ir anglų kalbose. Kalbinė metaforinių pasakymų analizė, atlikta remiantis lietuvių ir anglų kalbų tekstynų duomenimis, rodo, kad žinios apie kompiuterį (dažniausiai jo veikimo ypatybes) perkeliamos į žmogaus protinės veiklos sferą, ypač kalbant apie mąstymo ir atminties mechanizmus. Vyrauja metaforą aiškiai eksplikuojantys pasakymai (dažnai palyginimai ar žodžių junginiai, nusakantys „kompiuterio“ vietą galvoje). Tai rodo, kad jų metaforiškumas yra sąmoningai suvokiamas; neretai jiems būdingas naujumas, individualumas.

Straipsnyje apžvelgiama kompiuterio metaforos kilmė, siejama su giliai išsisknijusia mašinos metafora ir XX amžiaus antroje pusėje kognityvinėje psichologijoje dominavusia „kompiuterine“ (angl. computational) proto teorija, kuri, manoma, paskatino kompiuterinių terminų plitimą mokslinėje, o vėliau ir kasdienėje kalboje. Kalbos vartosenos pavyzdžiai rodo, kad metaforiškas proto kaip kompiuterio suvokimas (kaip ir mašinos metafora apskritai) išryškina tokius mechaninius proto aspektus kaip greitis, efektyvumas, tikslumas ir nustumia į šalį jo esmę – žmogiškąją prigimtį.

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Summary

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The present paper discusses the conceptual metaphor THE HUMAN MIND IS A COMPUTER and its manifestations in Lithuanian and English. The analysis of metaphoric expressions, based on the data of electronic corpora of the two languages, has revealed that knowledge about a computer (usually its functioning) is mapped on the domain of the human mind, especially to refer to processes of thought and memory. Most expressions are highly explicit (often direct comparisons or phrases with an indication of a computer's location in one's head). This shows that their metaphoricity is consciously perceived; they are often of novel, individual character.

The paper traces the origin of the computer metaphor, related to the deeply entrenched machine metaphor and the computational theory of mind, dominant in cognitive psychology in the second half of the 20th century, which has presumably induced the spread of computer terms in scientific discourse and, later, everyday language. Examples of language use demonstrate that metaphorical understanding of the mind as a computer (as the machine metaphor in general) highlights mechanical aspects of the mind such as speed, efficiency, precision, forcing into background its essence – the human nature.

