

TERM-FORMING CAPABILITIES OF THE UKRAINIAN EQUIVALENTS
OF ORIGINAL COMPUTER VERB TERMS

Abstract

The article outlines the term-forming potential of the Ukrainian (translated) equivalents of computer verb terms. It is noted that taking into account verb-centricity as a defining feature of the grammatical system of the Ukrainian language, verb terms are essential elements of terminology in a particular field, including computer language. They play a significant role in shaping the thought, in achieving the accuracy and univocality of the information it carries. The proposed study aims to determine the potential of translated original computer verb terms of the equivalent type in terms of their terminological capabilities in the Ukrainian language. It was ascertained that the creation of the Ukrainian verb term begins with translating the original English verb term. The type of translation (equivalent / non-equivalent), in its turn, determines the way of creation (for the equivalent type) and the way of translation (for the non-equivalent type) of a Ukrainian verb term. Translated verbs (or verbs of the equivalent type) serve as a source for forming terms via semantic derivation with its main mechanisms – terminologization and trans-terminologization. This is conditioned by the part of speech category of the studied terms, the particular importance of verb semantics in the Ukrainian language.

Keywords: verb term, computer terminology, donor language, recipient language, translation, translation equivalent, semantic derivation, terminologization, trans-terminologization.

Introduction

The current stage of scientific and technological progress, which became striking in the late 20th – early 21st century, determines the development of various fields of science and technology. The development of these fields of science and technology is associated with the evolution of professional language used in the communication process. The concept of *professional language* (or *language for special purposes*, LSP (Hoffman, 1985, p. 53), or *sublanguage* (Hoffman, 1987, p. 298), or *specialised language* (Faber & Lopez-Rodriguez, 2012, p. 9)) first appeared in the 1960s and 1970s. The German linguist L. Hoffman (1985) defined it as a set of all linguistic means used in a professionally limited communication sphere to achieve understanding

among all sphere representatives (p. 53). H. Picht and J. Draskau (1985) also offer their definition of professional language: “LSP is a formalised and codified variety of language, used for special purposes and in a legitimate context – that is to say, with the function of communicating information of a specialised nature at any level – at the highest level of complexity, between initiated experts, and, at lower levels of complexity, to inform or initiate other interested parties in the most economical, precise and unambiguous terms possible” (p. 3) or “subset of ordinary or general natural language, often with some additional specific features absent from ordinary language. ...language intended to be used for narrow professional purposes...” (Ryan, 2000, p. 31). Despite some minor differences in the definitions of professional language (or *language*

for special purposes), all world terminologists advocate the logicity and consistency of such interpretations of professional language, but add that the determining factor in the functioning of any professional language is established terminology as the basis, the foundation of this professional language (Kyiak, Naumenko, & Ohui, 2006, p. 28; Faber & Lopez-Rodriguez, 2012, p. 9; Cabre, 1999, p. 7).

One of the representatives of modern young professional languages in Ukrainian linguistics is the professional computer language, which is currently evolving (Bulakhovskiy, 2010, p. 90; Nikolaieva, 2002, p. 1; Havrylova, 2017, p. 190; Filiuk, 2007, p. 6). This is proved by its different quantitative composition, the presence of several doublets to denote the same concept (phenomenon or process), non-codification of many units, an ambivalent position regarding its belonging / non-belonging as a representative of a separate terminological system to modern Ukrainian literary language, etc. The formation stage is confirmed primarily by its lexical level, represented along with other strata (professionalisms and jargonisms) by relevant terminology as the main stratum and as an indicator of the state of the entire language system of this field. Among the major reasons why the Ukrainian computer professional language is at the stage of formation are: young age of the branch itself; rapid development of this branch in the world due to a growing public demand for *the modern digitalisation of society* (one of the demands was caused by the COVID-19 pandemic, which led to a revision of strategic priorities towards creating necessary technologies to facilitate remote working, make it as effective as from a stationary workplace), and also too short a period (attributable to the rapid development of the branch) for logically motivated, nationally justified standardisation and codification of nominating necessary scientific concepts. These conditions are related to the fact that computer terminology has a distinctly English colouring (both the computer industry and the vocabulary to denote relevant concepts

originated in the USA – in the conglomerate of Stanford, Santa Clara, Los Altos, Mountain View, Sunnyvale (California), known as Silicon Valley), so the first stage in the formation of terminology in other languages was the translation of a term from the donor language to the recipient language. Later, depending on the translation mechanism, the term underwent various semantic and structural changes, determined by the specifics of the recipient language and its laws, which requires a more extended period.

Another reason for a long course of adapting a particular English computer term is the way it enters the language. If it is direct, it takes less time, and such terms better fit into the language in which they are adapted. If another language mediates, it takes more time for necessary terms to enter the language terminological system. Furthermore, such an indirect way of entering the language encumbers the very entering process with additional features of the intermediary language, which have to be overcome later, as they often do not comply with the norms of the recipient language. And this leads to an increase in the adaptation time. For instance, for a long time, terms expressed by nouns dominated in specialised dictionaries of the Ukrainian language – both for nominating objects, phenomena, facts, which is considered an immanent feature of nouns and for naming process, action, state or quality, properties, characteristics, i.e. objectification of these realities. This situation results from the influence of an intermediary language – Russian. Until recently, words were borrowed, including from the computer sphere, whose grammatical system is characterised by more substantivity (Selihei, 2014, p. 37). Until recently, the principle of objectification in the naming process, action or state was firmly established in Ukrainian term-formation. However, now there is a clear tendency to denote process, action, or state in Ukrainian professional texts in a more natural way for the Ukrainian language – by verbs, thus making the utterance more dynamic, natural, and semantically transparent. Another

evidence of a mediated introduction of a term is the use of word-forming elements (prefixes, suffixes, etc.), characteristic of an intermediary language, in the process of adapting the original term. For example, the Ukrainian computer terminology makes use of both cognate verbs formed with the suffix *-yzuvaty* / *-izuvaty*, which appeared under the influence of the Russian language, and the suffix *-uva-* / *-yuvaty*, characteristic of the grammatical system of the Ukrainian language, cf.: *aktyvizuvaty* and *aktyvuvaty* from Eng. *to activate*, *aprosymatyzuvaty* and *aprosymuvaty* from Eng. *to approximate*, *buferyzuvaty* and *bufervuvaty* from Eng. *to buffer*, *klasteryzuvaty* and *klasteruvaty* from Eng. *to cluster*, *katalohyzuvaty* and *katalohuvaty* from Eng. *to catalogue*, etc. However, there is an increasing tendency to supersede the terms with the suffix *-yzuvaty* / *-izuvaty*, which highlights the mediated way of transition of a term to the recipient language and the entrenchment of the terms with the suffix *-uva-* / *-yuvaty*.

Therefore, the object of the proposed study is Ukrainian (translated) equivalents of original computer verb terms. The aim is to determine the capabilities (ways, mechanisms) of Ukrainian verb (translated) equivalents of original computer verb terms in the codified nomination of computer notions.

Objectives of the Study

1. Systematise all factual material considering the presence/absence of a translation equivalent to two types - verbs of equivalent translation and verbs of non-equivalent translation.
2. Determine the main ways and mechanisms of forming verb terms motivated by verbs of equivalent translation.
3. Elucidate the possibilities of further developing the semantic structure of the terms formed in the Ukrainian language (based on the analysis of definitions in various dictionaries).

The illustrative material is selected from sci-

entific texts of mostly external professional communication (articles in popular science journals, instructions for users of various devices, instructions for installing equipment, textbooks, manuals, etc.) (Mishchenko, 2013, pp. 34-37), which are created for non-professionals; therefore their complexity level is lower and relatively more straightforward to be understood by the target audience.

Literature Review

The problem of adapting English computer terms has been repeatedly raised in the studies of well-known foreign researchers, in particular M. Matsolek – on the peculiarities of the Polish language (Maciołek, 2013), N. Kübler, P.-Yv. Foucou (2003) – French, P. Wellburn (2005) – Spanish, Abdullah A. Khuwaileh (2010), A. Khuwaileh, T. Khwaileh (2011), Alomoush, Al Fagara (2010), Cr. Solimando (2017), D. Suwais (2005) – Arabic and others.

This issue is also topical in Ukrainian linguistics. Authors S. Yenikieieva (2001), O. Kalnik, O. Vorobiova, A. Symonenko and M. Oleshko (2019), A. Sydor, R. Nanivskyi (2019), O. Fil (2013, 2014), V. Kyvliuk (2017), I. Kuchman (2005) and others clarify the specifics of translating computer terms from the donor language (or producer language), i. e. English, to the recipient language, which is Ukrainian or Ukrainian and Polish. It is noteworthy that, while the mentioned authors focus on the translation of noun computer terms (both simple words and compounds), L. V. Smienova (2021) researches into the peculiarities of translation with subsequent word-formation changes or adaptation of computer verb terms in the Ukrainian language. However, only the first steps have been taken towards an in-depth study of the peculiarities of adapting originally codified verbs-terms used in the computer terminology vocabulary of the Ukrainian language. This has determined the relevance of the problem.

Methodology

Consideration of the problem involves analysis of factual material in the systemic and structural aspects. The generalisations made on this basis determine the use of both general and special research methods. *General scientific* methods (analysis, synthesis, modelling, abstraction, generalisation, induction, deduction) facilitate a close, thorough consideration of computer terminology, its qualification as the primary stratum of computer vocabulary, which forms the professional computer language. *Linguistic* methods include descriptive (for determining the body of factual material, its classification and determination of characteristics) and structural with component analysis techniques (for determining the semantic structure of the analysed terms), vocabulary definitions (for establishing the semantic continuum of the realities denoted by terms), distributive analysis (for identifying the syntagmatic environment of a term), analysis of direct components of the word-forming structure (for highlighting the word-forming derivative of terms and the word-forming means as an expression of a specific derivational meaning). The use of these methods ensures a coherent, consistent analysis of verb terms regarding their formation based on English verb terms.

Results

The number of nominative concepts in computer terminology is quite extensive. Taking into account verb-centricity as a defining feature of the grammatical system of the Ukrainian language (Kushlyk, 2015, p. 5), names of the process, action or state, expressed by verbs, are essential elements of terminology of the various fields, including the computer field. In Ukrainian, depending on the presence or absence of an equivalent when translating a verb term from a donor language (English) to denote a process, action or state, translated verbs are grouped into two types – verbs that have an analogue in the

recipient language (equivalent verbs), and verbs that have no such analogue (non-equivalent verbs). To describe various processes of computer term formation in Ukrainian, it is also essential to distinguish equivalent verbs by origin – borrowed or native. The belonging of a translated verb to one of the two types determines the ways and mechanisms of computer term formation.

Verbs of the first type usually serve as a source for forming terms through semantic derivation, represented by two mechanisms – terminologization and trans-terminologization. Terminologization is a shift of words from common vocabulary to a certain terminological system and, accordingly, acquiring characteristic features of terms. Four mechanisms of terminologization are usually distinguished:

1. metaphORIZATION;
2. metonymization;
3. expansion (generalization) of meaning;
4. narrowing (specialization) of meaning (Paul, 1960, p. 5; Smienova, 2021, p. 11; Ponomarenko & Liakhova, 2014, p. 92).

However, verb terms are formed mainly due to the narrowing (specialisation) of the existing meaning and metaphORIZATION. Moreover, the borrowed equivalent most often undergoes a narrowing of meaning, while the native equivalent undergoes metaphORIZATION.

Verbs of the first type, which are translated by a borrowed equivalent, including, *avtoryzuvaty* (Eng. to authorise), *adaptuvaty* (Eng. to adapt), *aktyvizuvaty* (Eng. to activate), *anuliuvaty* (Eng. to annul, to cancel, to annihilate), *bifurkuvaty* (Eng. to bifurcate), *eksportuvaty* (Eng. to export), *emuliuvaty* (Eng. to emulate), *identyfikuvaty* (Eng. To identify), *importuvaty* (Eng. to import), *indeksuvaty* (Eng. to index), *katalohizuvaty* (Eng. to catalogue), *koduvaty* (Eng. to code), *masshtabuvaty* (Eng. to scale), *reiestruvaty* (Eng. to log), *filtruvaty* (Eng. to filter), *veryfikuvaty* (Eng. to verify), etc. These verbs for defining a scientific concept may or may not undergo semantic changes in computer vocabulary terminology. Accordingly, they can be divided into three

groups. The first group consists of verb terms, which have the same meaning both in computer terminology and in general usage (*aktyvizuvaty* (Eng. to activate), *anuliuvaty* (Eng. to annul, to cancel, to annihilate), *bifurkuvaty* (Eng. to bifurcate), *kombinuvaty* (Eng. to combine), *komparyuvaty* (Eng. to compare), *masshtabuvaty* (Eng. to scale), *modyfikuvaty* (Eng. to modify), *prohramuvaty* (Eng. to program), *rezervuvaty* (Eng. to reserve), *synkhronizuvaty* (Eng. to synchronise), *standartyzuvaty* (Eng. to standardise), etc.).

For example, general explanatory dictionaries of the modern Ukrainian language define the verb *modyfikuvaty* as ‘to subject to modification (transfiguration of an object or phenomenon, which is characterised by the appearance of new features, properties while preserving its essence); to modify’¹ (Busel, 2009, p. 683; Rusanivskyi, 2014, p. 396). Specialist dictionaries provide the same meaning of the term *modyfikuvaty* (Glossary of computer technology, 2000, p. 148) and, accordingly, it functions with this meaning in relevant texts, e.g., *logical (time) bombs are programs that use different methods to delete or modify (modyfikuyut) information at a particular time or under some condition* (Redko, 2007, p. 189).

In the semantic structure of the second group of verbs, an apparent narrowing, concretisation (specialisation) of meanings is determined by the computer sphere ((*administruvaty* (Eng. to administer), *blokuvaty* (Eng. to block), *indeksuvaty* (Eng. to index), *katalohizuvaty* (Eng. to catalogue), *komponuvaty* (Eng. to compose), *konfihuruvaty* (Eng. to configure), *reiestruvaty* (Eng. to log), *filtruvaty* (Eng. to filter), etc.). For example, the verb *administruvaty* (Eng. to administer) with the common usage semantics ‘to manage an institution, organisation, business, etc.’ (Busel, 2009, pp. 12-13) later developed another meaning associated with the computer sphere – ‘to control and manage the functioning

of information and computer system, network’ (Rusanivskyi, 2010, p. 132), e.g: *The Linux server can and often should be installed (installuyvaty) without a monitor and administered remotely, because with this style of administration it is not exposed to such threats as with local administration* (Ostapov, Yevseiev and other, 2013, p. 461).

Other verbs underwent similar changes. The verb *emuliuvaty* (Eng. to emulate) narrowed the general meaning ‘to reproduce the functioning of the whole system.’ (Busel, 2009, p. 350; Rusanivskyi, 2015, p. 637) to the meaning ‘to make one computer behave like another different type of computer so that the imitating system can operate on the same data and execute the same programs as the imitated system’ (Proidakov & Teplytskyi, 2005, p. 188), e.g.: *If there is no particular font in the PDF file, Acrobat will automatically try to emulate (emuliyuvaty) it* (Sushytska, 2005, p. 112); the verb *filtruvaty* (Eng. to filter) – from the general meaning ‘to pass a liquid, gas, etc. through a filter to clean and remove unwanted particles // to pass or trap electric currents, electromagnetic or sound waves of a certain frequency, etc.’ (Busel, 2009, p. 1537) to the meaning ‘to limit the access of unwanted signals, materials, information’ (Proidakov & Teplytskyi, 2005, p. 211), e.g., *It is crucial that a modern firewall filters only inbound traffic and does not filter (filtruie) outbound traffic, which is very dangerous* (Borian, 2019, p. 134).

The third group was formed by verbs, the terminologization of which may be concomitant with further development of the semantic structure of the motivator. These are, for example, *avtoryzuvaty* (Eng. to authorise), *veryfikuvaty* (Eng. to verify), *eksportuvaty* (Eng. to export), *importuvaty* (Eng. to import), *koduvaty* (Eng. to code), *marshrutyuvaty* (Eng. to route), etc. In particular, the “Great explanatory dictionary of modern Ukrainian language” records the verb *importuvaty* (Eng. to import) with only one meaning – ‘to bring goods from abroad’ (Busel, 2009, p. 493); while “Slovnyk ukrainskoi movy”

¹ The article presents its own translation of both the definitions recorded in the lexicographical works of the Ukrainian language and examples of the functioning of the analyzed word in the text.

– with two: 1) ‘to import goods, services, etc.; the opposite to export’ and 2) ‘to import files, data, etc.’ (Rusanivskyi, 2015 p. 482). Specialised dictionaries specify the definition of the term *importuvaty* (Eng. to import) with two semantic positions – ‘to open a file or document in the program window in a format different from the default for this application’, and ‘to bring an object, file or document stored on disk in another file format into some file or document’ (Proidakov & Teplytskyi, 2005, p. 263), which indicates the development of the semantic structure of the computer verb term *importuvaty* (Eng. to import), e.g.: *Thanks to the built-in translator ... Excel 2003 is able to import (read) (importuvaty) data from files created with other types of programs...* (Kurbatova, 2004, p. 196) and *Excel worksheets can import (importuvaty) information from various external sources, which saves a lot time by avoiding unnecessary data entry* (Kurbatova, 2004, p. 195).

Transterminologization is the transfer of a term along with its semantic continuum from one branch’s terminology to another. There are functional and semantic trans-terminologizations. The functional trans-terminologization is the transfer of the semantic continuum without any noticeable changes. Among such verb terms are *ahrehuvaty* (Eng. to aggregate), *aproksymatyzyuvaty* (Eng. to approximate), *heneruvaty* (Eng. to generate), *imunizuvaty* (Eng. to immunise), *inkrementuvaty* (Eng. to increment), *instaliuvaty* (Eng. to install), *konvertuvaty* (Eng. to convert), etc.). For example, the chronology of recorded definitions of the word *instaliuvaty* (Eng. to install) in various dictionaries allows us to trace the semantics of this word. Among the sources, which record the meaning of the word *instaliuvaty* (eng. to install), there is primarily the “Great explanatory dictionary of modern Ukrainian language” – ‘to carry out installation (1) various installation works, structure erections, lighting network, etc.; 2) _{inf.} a) putting a software product onto a personal computer; b) one of the restrictions on a software product in case it is

sold by a firm)’ (Busel, 2009, p. 507). “Slovnnyk ukrainskoi movy” records this word with the meanings: 1) ‘_{art.} to make an installation (a work of fine art in the form of a structure, construction, etc., using various objects)’; 2) ‘_{inf.} to perform the installation (the process of installing software on the end-users computer)’ (Rusanivskyi, 2015, p. 537).

As indicated by the definitions of the verb *instaliuvaty* (Eng. to install), the first source provides a general interpretation, not linked to a particular area – based solely on the translation of the English verb *to install*, which means ‘to position, locate, fix.’ However, it is more accurate to refer this word to art terminology since the very installation technique (performance resulting from spatial and semantic contexts of arranging objects and materials) and, accordingly, the names of accompanying actions appeared in art in the era of postmodernism (from late 20th century). The seme ‘to fix, set up, assemble’ is also conveyed by the term *instaliuvaty* (Eng. to install) in the computer terminology system, formed as a result of transterminologisation, i. e. most likely, the transfer of a name with a semantic continuum from art terminology to computer terminology, e.g., *Microsoft recommends installing (instalyuvaty) Service Pack 2 as soon as it is released* (Yarmush & Redko, 2006, p. 125).

The verb term *kvantuvaty* (Eng. to quantise) primarily used in physics with the meaning ‘_{phys.} to divide into quanta (portions), to express any value in the form of consecutive links of its values, according to a certain law’ (Rusanivskyi, 2015, p. 823) has also undergone functional trans-terminologization. Having preserved the seme ‘to turn into a smaller part of something, a part of something’, it developed the meaning ‘to turn the amplitude of an analogue signal wave into a digital signal’ (Proidakov & Teplytskyi, 2005, p. 415), or ‘to compress a large set of values to a smaller set to reach a single quantum value in digital image processing’ (Pivniak et al., 2010, p. 363), e.g., *Then the samples obtained at discrete moments of time are quantised*

(kvantuyutsya) in the DAC block (*Digital-to-Analog Converter*) by level, i.e. they are converted into a digital binary code (Chemes & Yampolskyi, 2008, p. 72), and *When constructing a compression algorithm, there are two possibilities: to analyse and quantise (kvantuvaty) each sample signal separately or together with other samples, combining them into a vector* (Parhomei & Tsopa, 2020, p. 33).

In contrast, semantic transterminologization is accompanied by semantic reinterpretation of the term, sometimes with adding a certain semantic connotation. Examples of such terms are the verbs *inkapsuliuvaty* (Eng. to encapsulate), *klasteryzuvaty* (Eng. to cluster), etc.). General dictionaries record the verb *klasteryzuvaty* (Eng. to cluster) with the meaning 'special. to combine several homogeneous elements into a cluster; to generalise by gathering together' (Rusanivskyi, 2015, p. 130). The amount of information and the degree of prevalence in different fields, laid down in this definition, reveals the concept *klaster* (Eng. cluster) – 'combination of several homogeneous elements regarded as an independent unit with certain properties' and used, as outlined in "Slovnuk ukrainskoi movy" data, in eight areas – information, mathematics, astronomy, linguistics, physics, chemistry, music, economics (Rusanivskyi, 2015, p. 129). In the computer sphere, the term *klasteryzuvaty* (Eng. to cluster), while retaining the integration seme 'to combine', has developed the meaning – 'to connect two or more servers in order to provide high system availability and scalability' (Pivniak et al., 2010, p. 371), e.g., *To cluster (kvantuvaty) with redundancy means that one of the servers takes over the entire computational load, while the other remains inactive, but ready to accept calculations when the main server fails* (Berezovskyi, Potiienko, & Zavadskyi, 2009, p. 332).

Given that the computer industry is the youngest branch of science and technology, its terminology is mostly recipient, i.e. a term from another sphere of use is transferred to the computer sphere. Most often, we can observe a transfer of

meanings within computer-related fields, including mathematics, economics, and occasionally others - biology, medicine, art, etc.

Translation equivalents, which serve as motivation for computer terms and also belong to the first type, can be native verbs, in particular: *vbuduvaty* (Eng. to incorporate), *vydalyty* (Eng. to delete), *vydilyty* (Eng. to allocate, to select), *vyity* (Eng. to exit), *vyrivniaty* (Eng. to justify), *vyterty* (Eng. to delete), *vidnovyty* (Eng. to regenerate, to restore), *zavantazhyty* (Eng. to download), *zamostyty* (Eng. to tile), *zarazyty* (Eng. to infect), *zatrymaty* (Eng. to delay), *zberehty* (Eng. to save, to store), *zchytaty* (Eng. to read), *nazvaty* (Eng. to name), *obnovyty* (Eng. to regenerate, to retrieve, to refresh, to redisplay, to renew), *ochystyty* (Eng. to clear), etc. As in the case of borrowed words, the main way to form terms using native common words is terminologization. However, the main mechanism of terminologization here is metaphorization of meaning, i.e. a reinterpretation of semantics based on analogy or association. It should be noted that metaphorization of verb semantics has its own specificity implying that it is not the action or process named by verbs but the entities marked by this action or process that undergo reinterpretation.

Typically, linguists distinguish analogy by 1) formal similarity; 2) functional similarity; 3) external and functional features. The functional similarity is relevant for verb metaphors as means of creating terms on the basis of metaphorization.

Metaphor-forming processes involve the actualisation of various semantic features of base words conveyed by the corresponding semes.

Native verbs as translation equivalents of original computer verb terms can belong to two groups. The first consists of native verbs terms. The analysed terminology have one more synonym – a borrowed word (internationalism), the second – of native verbs terms that have no such synonym. The first group includes verb terms *vbuduvaty* (Eng. to incorporate), *vydozminyty* (Eng. to modify), *klatsaty* (Eng. to click), *vidno-*

vyty (Eng. to regenerate, to restore), *vstanovyty* (Eng. to establish, to set, to install), *zarazyty* (Eng. to infect), *peretvoryty* (Eng. to convert), *rozpiznaty* (Eng. to recognise), *roztashuvaty* (Eng. to place), *spriamuvaty* (Eng. to direct), etc. Foreign equivalents may denote the same. For example, the verb *zarazyty* (Eng. to infect), according to explanatory dictionaries, expresses the meaning: 1) ‘to pass an infection to someone, something // to saturate the air, water, etc. with something harmful to health’; 2) ‘fig. to make someone have the same emotion, feeling, to convey an inclination to something, to get someone interested in something’ (Busel, 2009, p. 417; Rusanivskiy, 2014, p. 463). Formed as a result of metaphorization based on the similarity of the described processes, the computer term *zarazyty* (Eng. to infect) means ‘to introduce a virus (a specially written, small-sized program, i.e. program code) into a computer system that can “adapt” to other programs, create its own copies and embed them in files, documents, computer system parts, etc., and perform various unwanted actions on the computer’ (Redko, 2007, p. 186). The verb *vbuduvaty* (Eng. to incorporate), according to general dictionaries, means ‘while building, to insert, fit an object, part, etc. into something’ (Busel, 2009, p. 114; Rusanivskiy, 2012, p. 79). Metaphorization resulted in a computer term meaning ‘to insert information from the source file fragmentarily or completely into the recipient file for further use as an integral file’ (Rytsar, 2006, p. 71).

However, borrowed equivalents often serve as a means of recognising a particular lexical-semantic variation. For example, English verb computer terms *to restore*, *to resume*, *to regenerate* are translated in the recipient language primarily with the native equivalent *vidnovyty* and borrowed – *reheneruvaty*. To denote computer industry realia, the verb *vidnovyty* is more often used. Its general usage meanings are:

1. ‘to render a new or previous appearance to something by fixing, replacing, etc.’;
2. ‘to restart interrupted action, work, etc.’;

3. ‘fig. make new, revive, enliven’;
4. ‘fig. to reproduce in memory; to recall’;
5. ‘chem. to conduct restoration (the process of joining electrons by an atom of a substance, with a reduced degree of oxidation of its elements)’ (Rusanivskiy, 2012, p. 701).

The given English terms differ in their meanings in the donor language. This distinction is preserved in the definitions of the computer term *vidnovyty* formed as a result of specialisation of the general meanings (first and second) in explanatory dictionaries:

1. ‘to return to the previous place, to the previous state’ (Proidakov & Teplytskyi, 2005, p. 431), which is more equivalent to Eng. *to store*;
2. ‘to return with the continuation of further actions, i.e. to continue the task from the point where it was stopped’ (Proidakov & Teplytskyi, 2005, p. 431), which is equivalent to Eng. *to resume*;
3. ‘to replace part or all of the screen (periodical overwriting) with an output of new graphic data for prompt display’ (Proidakov & Teplytskyi, 2005, p. 425), which is adequate to Eng. *to regenerate*. Another synonym of the verb *vidnovyty* – internationalism *reheneruvaty* – refers only to the third shade of meaning.

The semantics and components of the pair *rozpiznaty* (Eng. to identify) – *identyfikuvaty* (Eng. to identify) are also differentiated. General explanatory dictionaries give the verb *rozpiznaty* with the meanings:

1. ‘to identify something by certain signs, tokens // to perceive, to distinguish something with the senses // to discover, recognise someone, something as familiar; to identify’;
2. ‘get a fuller picture of someone or something; to evaluate someone, something accurately by learning more deeply’;
3. ‘to figure out, to find a difference, a distinction between someone or something due to some signs, tokens; to distinguish’ (Busel, 2009, p. 1256).

The specialisation of the first and second meanings given in the general explanatory dictionaries led to the formation of a verb computer term with definitions:

1. 'to make this or that computer program suitable for further use by activating special operations';
2. 'to recognise in someone, something the user or other objects, the data about which were previously entered into the program';
3. 'to get a fuller picture of the object whose parameters are to be analysed; to evaluate something correctly by learning it more deeply' (Proidakov & Teplytskyi, 2005, p. 422).

The borrowed verb equivalent *identyfikuvaty* can be used to denote some of these definitions. However, in other dictionaries, the above definitions tend to explicate the semantics 'to recognise in someone, something a user or other objects, the data about which were previously entered into the program' through the verb term *identyfikuvaty*.

The second group is formed by native verbs terms that have no borrowed doublets. Among them are *vvesty* (Eng. to input), *vybraty* (Eng. to select, to choose), *vyvesty* (Eng. to display), *vydalyty* (Eng. to delete), *vydilyty* (Eng. to allocate, to select), *vyrizaty* (Eng. to cut, to excise), *vyterty* (Eng. to delete), *vidvidaty* (Eng. to visit), *vidkryty* (Eng. to open), *vidnovyty* (Eng. to regenerate, to restore), *vstavaty* (Eng. to insert), *zaboronyty* (Eng. to forbid), *zavantazhyty* (Eng. to download), *zadaty* (Eng. to set), *zakryty* (Eng. to close), *zamosyty* (Eng. to tile), *zapamiataty* (Eng. to store), *zapsyaty* (Eng. to write, to record), *zapustyty* (Eng. to start), *zakhystyty* (Eng. to protect), *zberehyty* (Eng. to save, to store), *zhortaty* (Eng. to collapse), *zchytaty* (Eng. to read), *ochystyty* (Eng. to clean, to delete), *peredaty* (Eng. to transfer), *pereity* (Eng. to jump), *peremistyty* (Eng. to move), *peretiahyty* (Eng. to drag-and-drop), etc. All these terms arose as a result of terminologisation of common words. Metaphorization of the meaning of the base word remains the main mechanism of ter-

minologisation. It is noteworthy that metaphorization is more characteristic of the semantics of verbs that explicate an action, particularly a specific physical action, intellectual activity, movement transfer, etc. For example, the verb of specific physical action *vyrivniaty*, used to translate the English computer term *to justify*, has the following meanings in general explanatory dictionaries:

1. 'to make something flat, without deepening or protrusion // to make straight, straighten, smooth something bent // to make it even';
2. 'to make the position of someone or something equal vertically or horizontally';
3. 'to place, put in a straight line (row, column, etc.)' (Busel, 2009, p. 148; Rusanivskyi, 2012, pp. 413-414).

The second recorded lexical-semantic variant ('to make the position of someone or something equal vertically or horizontally') served as a basis for linking this meaning with the computer sphere – 'to make all lines written in a document such that they have the same length, begin and end at the same level' (Proidakov & Teplytskyi, 2005, p. 288), or 'to place text lines evenly along the left and right margins, inserting extra space between words in each line' (Rytsar, 2006, p. 98), e.g., *Word allows opening multiple windows for simultaneous work with several texts, as well as to split one active window horizontally into two and align (vyrivnyaty) them* (Bakushevych & Kapatsila, 2007, p. 139).

The verb of intellectual activity *zapamiataty* (Eng. to store, to memorise) has the following meanings in Ukrainian explanatory dictionaries:

1. 'to store, keep in memory';
2. 'rarely to lose in memory, forget';
3. 'special to record information (about special devices)' (Busel, 2009, p. 410; Rusanivskyi, 2014, p. 396).

The third lexical-semantic variant 'special to record information (about special devices)', which developed as a result of transferring the meaning 'to store, keep in memory' (by similarity to the action denoted by the base verb), represents the

definition of the computer verb term, e.g., *Office365 does not require you to remember (zapamyatovuvaty) correspondents' email addresses - just know the recipient's last name...* (Lytvynova, Spirin, & Anikina, 2015, p. 8).

The verb of movement *pereity* (Eng. to jump), according to dictionaries, expresses 13 basic meanings:

1. 'when going, to cross something or move to the other side of something';
2. 'to pass some space, some distance, etc.';
3. 'the same as *prokhodyty*';
4. 'when going, to move from one place to another // to change one's place of residence';
5. 'having left someone or something, to join another or others // to change denomination, adopt a new religion';
6. 'become the property of another, to be at the disposal of another';
7. 'to pass (about time, events, etc.)';
8. 'coll. to stop, to cease (about precipitation)';
9. 'to exceed something';
10. 'dial. to cease fermenting (about the dough)';
11. 'having left or finished something, to take up something else, to turn to something else';
12. 'to change the line of action, start acting differently';
13. 'by gradually changing, to turn into something else' (Busel, 2009, p. 934).

Special computer dictionaries record the verb term *pereity* with the meaning 'to move from one web page to another' (Rytsar, 2006, p. 97), which evolved due to the transfer (by functional similarity) of the meaning 'when going, to move from one place to another', e.g.: *In this situation, you can press F 8 and go (pereity) to the advanced boot options menu (safe mode, etc.)* (Shekhovtsov, 2005, p. 515).

The verb of movement *zsunuty* (Eng. to displace) explicates the semantics:

1. 'by shifting, pushing something, to move to another place';

2. 'by moving individual objects, to bring them closer to each other, gather in one place, together // to bring closer to each other; to bring together' (Busel, 2009, p. 481; Rusanivskiy, 2015, p. 385).

Metaphorization of the second meaning with accompanying concretisation contributed to the formation of the definition intrinsic to the computer term - 'to move an object one pixel at a time' (Rytsar, 2006, p. 115), e.g., *Each time you need to extract a bit, all bits of the shift register are shifted (zsvuyutsya) to the right by 1 position* (Ostapov, Yevseiev, & Korol, 2013, p. 141).

Discussion

The study results allow us to highlight several scientific problems, the consideration of which is gaining in importance with the development of professional computer language in different languages in general and Ukrainian in particular.

Firstly, the origination of the computer industry in the USA and, due to this fact, the English origin of computer terms determine the need to translate the original term into the language that borrows it when conveying the denoted concept in the computer terminology of other languages.

Secondly, a significant role in outlining the trends regarding possibilities, ways (methods, mechanisms) of conveying the information embedded in original computer terms is played by the part of speech category of the term and features of the grammatical system of the target language.

Thirdly, the formation of terminology in a particular field, including computer, should reflect the national specifics of the language of translation, which is extremely important for achieving an appropriate degree of accessibility, professionalism, high culture, identity, and adequacy of scientific concepts.

Fourthly, verb terms are essential elements of computer terminology for denoting action, process, or state in both the donor and recipient lan-

guages. They ensure the accuracy, transparency, and dynamism of the information they carry.

Conclusion

The process of creating computer terms in the Ukrainian language is at the stage of formation, on account of the young age of the computer industry, the rapid development of this industry and, concurrently, a considerable retard of both the formation of professional language in this field and lexicographic practice that would certify the standardisation and codification of terms used to designate computer concepts. This state of affairs is currently caused by the absence of a single glossary of computer terms, the presence of several doublets to denote the same concept (phenomenon or process) and their arbitrary selection, non-codification of many units, constant changes within the system attributable to the displacement of borrowings in the presence of identical equivalent, elimination of language clichés of the intermediary language and search for the best specific equivalents, etc. However, the intensity of the ongoing processes in the industry itself, the speed of changes in the terminology of this industry, and the fact that computerisation covers all spheres of social life, give grounds to conclude about the self-sufficiency of this language system on par with the professional languages of other branches and the appropriate level of representation of scientific concepts in this terminology. This is facilitated by various ways and mechanisms of conveying original computer terms in the Ukrainian language. Within the verb system, the ways and mechanisms of conveying scientific concepts are determined by the belonging of the translated verb term to one of two types – verbs that have a translation equivalent and verbs that have no such a translation equivalent (non-equivalent). The primary way to form computer terms from base translation verbs of the first type is a semantic derivation with its main mechanisms – terminologisation and trans-terminologization. The terminolo-

gization of borrowed words occurred mainly due to the narrowing of the semantics of the base word – with or without much change in the semantic structure of the term, while terminologization of native words – due to metaphorization, based on analogy (functional or visual) to a phenomenon or association with specific ideas.

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