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## PECULIARITIES OF COMPUTER TERMINOLOGY: ITS STRUCTURE, SOURCES, AND TRANSLATION

*The article examines the features of computer terminology, its structure, sources, and translation of complex word terms and terminological phrases. The ways of translating terms in the IT industry are analyzed. The problem of consideration appears in the focus of both foreign and domestic linguists in connection with the rapid development of computer technologies and the constant updating of the lexical component of this field. The problem of translating English computer terms into Ukrainian is an urgent one. The article analyzes the latest research and publications devoted to the study of terms in the field of information technologies and the peculiarities of their translation. Today translation remains a pertinent issue when dealing with technical documentation, literature, and software interfaces.*

*The word "term" is defined, and its main features are analyzed. The expediency of distinguishing compound words-terms and terminological combinations is proven. Compound terms are formed by combining two or more words and are called composite terms. According to the method of combining the components, two groups of compound terms are provided. Based on the structure, different groups of compound words are given. According to the authors of previous studies, the term phrases are integral lexical units.*

*Computer terms enter the Ukrainian language in various ways: borrowing, translation, transcription, and preservation of the inscription in Latin. At first, computer terminology was almost completely borrowed from the English language, as Ukrainian developments were significantly behind. Many English terms today no longer need translation, as they have become common as a result of transliteration. Rare cases of borrowings from the English language are preserved. The main difficulty in translating texts in the field of IT, namely terminological units, is the transfer of foreign language realities through the means of the Ukrainian language. For this purpose, the main ways of reproducing the terminology in the Ukrainian language were outlined: – transcoding; – tracing; – descriptive translation; – equivalent translation. Features of each method are given and examples are given. A careful analysis of the special terminology showed its ambiguity, therefore a number of factors were provided on which its correct understanding and translation depend.*

**Key words:** *compound word terms, terminological combinations, the terminological system of the IT industry, transcoding (transliteration and transcription), tracing, descriptive translation, and equivalent translation.*

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## ОСОБЛИВОСТІ КОМП'ЮТЕРНОЇ ТЕРМІНОЛОГІЇ: ЇЇ СТРУКТУРА, ДЖЕРЕЛА ТА ПЕРЕКЛАД

*У статті розглянуто особливості комп'ютерної термінології, її структура, джерела та переклад складних слів-термінів та термінологічних словосполучень. Проаналізовано способи перекладу термінів в*

галузі ІТ. Проблема розгляду постає у фокусі як зарубіжних, так і вітчизняних лінгвістів у зв'язку з стрімким розвитком комп'ютерних технологій й постійним оновленням лексичної складової цієї сфери. Актуальною є проблема перекладу англійських комп'ютерних термінів українською мовою. У статті зроблено аналіз останніх досліджень та публікацій, присвячених вивченню термінів у галузі інформаційних технологій та особливостям їх перекладу. На сьогодні, проблема перекладу є актуальною, у зв'язку з роботою з технічною документацією, літературою та інтерфейсом програмних продуктів.

Надано визначення слову «термін», проаналізовано його основні ознаки. Доведено доцільність розрізняти складені слова-терміни та термінологічні сполучення. Складені терміни утворюються складанням двох або більше слів та називаються термінами-композиціями. За способом об'єднання компонентів надано дві групи складених термінів. З огляду структури, надано різні групи складених слів. На думку авторів попередніх досліджень, терміни-словосполучення є цілісними лексичними одиницями.

Комп'ютерні терміни потрапляють в українську мову різними шляхами: запозичення, переклад, транскрипція та збереження напису латиницею. Спочатку комп'ютерна термінологія була ледве не повністю запозиченою з англійської мови, оскільки українські розробки значно відставали. Багато англійських термінів сьогодні вже не потребують перекладу, оскільки набули загального застосування як результат транслітерації. Зберігаються непоодинокі випадки запозичень з англійської мови. Основною складністю перекладу текстів в галузі ІТ, а саме термінологічних одиниць є передача іншомовних реалій засобами української мови. Для цього було окреслено основні способи відтворення термінології українською мовою: – транскодування; – калькування; – описовий переклад; – еквівалентний переклад. Надано ознаки кожного способу та наведено приклади. Ретельний аналіз спеціальної термінології, показав її багатозначність, тому було надано ряд факторів, від яких залежить її правильне розуміння та переклад.

**Ключові слова:** складені слова-терміни, термінологічні сполучення, термінологічна система галузі ІТ, транскодування (транслітерація та транскрипція), калькування, описовий переклад, еквівалентний переклад.

**Formulation of the problem.** The Ukrainian IT industry has brought significant changes to our society. Given the widespread use of computer technologies, it's clear that the linguistic implications of this phenomenon are important. Both foreign and domestic linguists have studied this problem, but it remains incompletely understood due to the rapid development of computer technologies and the constant updating of the relevant lexicon. As a result, there is a lack of comprehensive professional dictionaries that could simplify the work of PC users, beginner IT experts, or translators. Given the ongoing process of computerization, it's crucial to provide accurate translations of relevant texts from one language to another. Currently, the most pressing issue is the translation of English computer terms into Ukrainian.

**Research analysis.** The theoretical foundations of computer terminology were laid back in the 1930s by O. Reformatsky, H. Vynokur and developed by modern linguists O. Superanska, V. Danylenko, L. Buyanova, T. Panko, S. Hrynyov, T. Kade and others. In this context, it is appropriate to mention the works of V. Koptilov (Koptilov, 2002: 47) T. Kyyak (Kyyak, 2008: 35) N. Kashchyshin, A. Dyakov (Dyakov, 2000: 84), V. Karaban (Karaban, 2002: 251), and others, whose works are devoted not only to the study terms in the field of information technologies but also to their translation.

**The purpose of the study.** The purpose of this research is to identify the peculiarities of computer terminology, give its structure and sources, and analyze methods of translation of complex word terms and terminological phrases.

**Presentation of the main material.** The study of terminological vocabulary in the field of IT is an actual and promising direction of modern linguistics. Progressive processes of computerization dictate the need for adequate translation of relevant texts from one language to another. Today, in the vast majority of cases, the problem of translating English computer terms into Ukrainian is relevant. This is required for the translation of technical documentation, literature, and the interface of software products. Texts in the field of IT are saturated with terminology that carries key information. Inaccuracies and errors in the use and translation of terms can cause misunderstandings between specialists, and incorrect translations of terms can negatively affect the technological process, the implementation of various projects, and the development of companies.

A term (from the Latin terminus – limit, end) is a word or word combination that denotes the concept of a certain field of knowledge or human activity (Longman Dictionary, 2000: 365).

The main features of the term are:

- 1) systematicity: each term is included in a certain terminological system, in which it has a terminological meaning, and outside its terminological system it can have a completely different meaning;
- 2) accuracy: the term should convey the meaning of the concept it denotes as completely and accurately as possible; an imprecise term can be a source of misunderstandings between specialists;
- 3) striving for unambiguity within the limits of one's terminological system: if most words in a common language are ambiguous, then most terms are

unambiguous; this is due to their purpose, but ambiguity (most often ambiguity) cannot be eliminated;

4) availability of a definition: each scientific term has a definition that clearly outlines and limits its meaning (Oxford Dictionary, 2000: 712).

Separating compound word terms (CWT) and terminological phrases (TP) as types of multi-component terms is appropriate.

Compound terms are formed by adding two or more bases. They can also be called composite terms. Compound terms can include roots and derived words, and such terms can be written together or with a hyphen.

According to the method of combining the components, the terms are divided into 2 groups (Koptilov, 2002: 109):

1) terms formed based on the addition of independent bases;

2) terms formed based on interfix addition of bases.

The word-forming means of this term formation are the connecting elements *i-* and *e-*, which are also called combining forms (CF).

From the point of view of the structure, T. Kyiak distinguishes the mood types of compound words (Kyiak, 2008: 35).

1) compound one-word terms formed from simple bases according to the N1+N2 model (combination of a noun with a noun);

2) compound one-word terms in which at least one component is a derived base formed according to the model (N+Part. I) or (N+Part. II) or (Adj.+Part. I) or (Adj.+Part II);

3) compound one-word terms with international components;

4) compound terms with anthroponyms.

According to E. Yenikeeva, terminological word combinations are multi-component units, chains of words connected by means of prepositions or without them (Yenikeeva, 2001: 56). Z. Kudelko considers a phrase to be two or more full-meaning words integrated by a syntactic link (Kudelko, 2000: 113). In his opinion, the specified unit is part of the sentence, but it can exist outside of it.

In terms of content, terms, and phrases are integral lexical units. (Karaban, 2002: 203).

The terminological system of the field of information technologies belongs to the youngest systems, as it arose in the 20th century together with the emergence and development of computer and information technologies (Karaban, 2002: 88). Computer discourse emerged simultaneously with the advent of electronic computing machines in the United States, beginning in 1946.

As computer technology advanced in Ukraine, a unique language emerged among professionals for communication. The availability of personal computers and the growth of the Internet also drew many people to this field. That is true that many English terms today no longer need translation, as they have gained general recognition and are used as a result of transliteration (directory, file, program). There are rare cases of borrowings from this language when Latin writing is preserved (Internet, CD-ROM, E-mail, online, offline, WWW, Windows, WORD, etc.). Many borrowed words are used, and some of them are appropriate because the Ukrainian equivalent is too long or does not accurately reflect the meaning of the concept (for example, сервер “communication station with an external network”, дiґітайзер ‘converter into digital form’, стрімер ‘magnetic tape drive’, хост ‘remote communications management computer’, etc.). But some could choose a Ukrainian analog (browser – viewer, controller – control device, configuration – composition, interactive – dialog, plotter – graph builder, sorting – arrangement, driver – control program, installation – installation, etc.).

Computer vocabulary begins to be used not only by computer scientists but also by people who have absolutely nothing to do with computers since this phenomenon is rather quickly integrated into the life of modern society. The vast majority of terms that arise spontaneously belong to professional slang that is understandable to a separate layer of users. The relatively young age of specialists who are employed in this field of professional activity, as well as the popularity of computers in the youth environment prone to the use of jargon expressions, determine the fashion for them among users. In this regard, in addition to the computer terminological system itself, there is a rich specific group language – the so-called slang of computer users and professional computer specialists. It is clear that this slang is far from scientific terminology, in which each of these words has a certain more or less successful counterpart (for example хард – hard drive, hard disk, квартирки – Windows, сідюк – CD-ROM, коннектитись – connect using a computer, вжикалка – dot matrix printer, etc.). The main difficulty of translating texts in the field of IT, namely the translation of terminological units, is the disclosure and transmission of foreign language realities by means of the Ukrainian language. A prerequisite for a complete translation of any special text, especially in the field of IT, is its complete understanding by the translator.

The main ways of reproducing the terminology in the Ukrainian language are: transcoding; tracing; descriptive translation; equivalent translation.

1. The transcoding method consists of transmitting the sound or graphic form of the word of the source language by means of the alphabet of the translation language. The components of transcoding are transliteration, transcription, and mixed and adaptive coding. Transcoding of terms occurs especially often when the term in the translation language consists of international term elements of Latin or ancient Greek origin.

2. One of the methods of translating complex terms in the field of IT is tracing (from the French *calque* “copy”). Tracing is the translation of lexical units of the original by replacing their constituent parts (morphemes or words) with lexical counterparts in the target language. Often in the process of translation, transcription, and tracing are used simultaneously. When translating multi-component phrases, tracing is used with a change in the sequence of the components of the phrase.

3. An explication is used in the case when the phrase consists of terms that have not yet come into use in a certain field of science or technology and require interpretation, an explication is used. The descriptive method or explication (from Latin *explicatio* ‘explanation’) is a lexical-grammatical transformation in which a lexical unit of the original language is replaced by a word combination that explains or defines this unit. Explication is an extremely productive way of translating computer terms since the rapid development of the field of information technology requires finding understandable equivalents for terms in a timely manner and establishing them in the translation language. With the help of explication, both multi-component terminological phrases and single-word complex terms are translated. To apply this method of translation correctly, it is necessary to have a good knowledge of the subject area of the text being translated to correctly reveal the meaning of the concept marked by the term.

4. If the meaning of the English word fully corresponds to the Ukrainian meaning, then such a translation is called equivalent. This type of translation is quite common when translating English computer terms, although there are not too many corresponding words in this field in the Ukrainian language. IT terminology is perhaps the most dynamic of terminological systems, and it is unlikely that it will ever be possible to put a full stop and be considered researched because innovations in computer technology are developing quite rapidly. When translating texts in the IT field, difficulties arise if the word has several meanings. The selection of the correct meaning of the term depends on the skill of the translator since dif-

ferent meanings of the same word can be used at the same time. It is often necessary to take into account the semantic differences of terms in the field of IT, for different countries the translation of the same term may sound different (Oxford Dictionary, 2000: 322). The term must be recognized in the text.

A careful analysis of the special terminology shows its extreme heterogeneity. Along with single-valued terms that have precise and clear semantic boundaries, there are also multi-valued terms. Therefore, the ambiguity of even single-component terms complicates their correct understanding and translation, the adequacy of which depends entirely on the context of the situation (Yenikeeva, 2001: 58). The choice of the method of translation of the term is determined by a number of factors:

1) logical-objective (it is related to the existing system of concepts in the field of science or technology in the country of the translation language);

2) terminological, which is related to the presence of a complex terminological system in the translation language;

3) linguistic (depending on the structure of the language of translation and the relation to borrowings and internationalism, preference is given to one or another method of translation);

4) normativity, which is related to the availability of documents in which mandatory or recommended terms are recorded: terminological standards, textbooks and training manuals, and normative dictionaries.

5) stylistic (the choice of one or another version of the translation of the term is determined by the style and genre of the text being translated) (Karaban, 2002: 403).

**Conclusions.** The dynamic development of the computer terminology system in the conditions of the modern globalization of the world and constant innovative processes in computer technology cause the need to expand terminological research and in particular, to improve methods of translating the English terminology system into Ukrainian. Intensification of innovation processes, together with globalization processes in modern society, contribute to the enrichment of the terminological system of the Ukrainian language with words and phrases related to the field of technology. When translating compound terms and terms phrases, special attention should be paid to the correct definition of the core of the phrase understanding the sequence of translation, and the success of the translation of terms not recorded in special sources of information.



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