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## TRANSLATION OF ENGLISH MULTI-COMPONENT TERMS WITH HIDDEN ELEMENTS OF MEANING

*The presented article considers one of the most important aspects of the translation of complex English multi-component terms containing elements with so-called hidden meanings. The material was taken from texts related to five different scientific areas and included in the scientific and technical discourse: two of them describe phenomena of official genres (formulas of inventions, instructions for cars operation) and three – processes studied in technical texts (foundry, machine design and instructions for surface coating). The total size of all texts is 250 thousand tokens, i.e. 50 thousand for each specialty. Such a wide range of topics considered within the scientific and technical discourse is used to determine the possible style-distinctive markers which could be the most characteristic for texts of this type of discourse. The purpose of this work is to present possible translation variants for complex English multi-component terms that contain elements with hidden meanings and function in text corpora of various areas of scientific and technical discourse. Distributive-statistical analysis of the texts shows that they widely present the multi-component constructions with complex attributive composites that are used to describe technical objects, phenomena, and processes. The article is based on a gradual increase in the level of complexity of terminological constructions as well as methods of their translation – from the easiest, when the general meaning of a complex phrase is derived from the meanings of its components, to the most complex ones, when not only knowledge of the meanings of all elements of the construction is required, but also a certain logical guess; from constructs with several attributes, to a multi-component chain in which the attribute is embodied. The conclusion is a list of methods used to translate multi-component terminological constructions. It should be noted that most of the examples are taken from text corpora of technical specialties, which are the most striking and unexpected not only in their structures, but also in their semantic features.*

**Key words:** *text corpus, semantic structure, word combination, constituent, attributive phrase.*

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## ПЕРЕКЛАД АНГЛІЙСЬКИХ БАГАТОКОМПОНЕНТНИХ ТЕРМІНІВ З ПРИХОВАНИМИ ЕЛЕМЕНТАМИ ЗНАЧЕННЯ

Представлена стаття розглядає один із найважливіших аспектів перекладу складних англійських багатокомпонентних термінів, що містять елементи з так званими прихованими значеннями. Матеріал було взято з текстів, пов'язаних із п'ятьма різними науковими напрямками та включеними до науково-технічного дискурсу: два з них описують явища офіційних жанрів (формули винаходів, інструкції з експлуатації автомобілів), а три – процеси, які вивчаються в технічних текстах (ливарне виробництво, конструкція машини та інструкції для покриття поверхні). Загальний обсяг усіх текстів становить 250 тисяч слів, тобто по 50 тисяч на кожну спеціальність. Таке широке коло тем, що розглядаються в рамках науково-технічного дискурсу, використовується для визначення можливих стилістичнознавчих маркерів, які можуть бути найбільш характерними для текстів цього типу дискурсу. Метою даної роботи є представлення можливих варіантів перекладу складних англійських багатокомпонентних термінів, які містять елементи з прихованими значеннями та функціонують у текстових корпусах різних сфер науково-технічного дискурсу. Дистрибутивно-статистичний аналіз текстів показує, що в них широко представлені багатокомпонентні конструкції зі складними атрибутивними компонентами, які використовуються для опису технічних об'єктів, явищ, процесів. В основу статті покладено поступове підвищення рівня складності термінологічних конструкцій, а також способів їх перекладу – від найлегших, коли загальне значення складного словосполучення виводиться зі значень його компонентів, до найскладніших, коли потрібне не лише знання значень усіх елементів конструкції, а й певна логічна здогадка; від конструкцій з декількома атрибутами до багатокомпонентного ланцюжка, в якому втілюється атрибут. Висновок є переліком способів перекладу багатокомпонентних термінологічних конструкцій. Слід зазначити, що більшість прикладів взято з текстових корпусів технічних спеціальностей, які є найбільш яскравими та несподіваними не лише за своїми структурами, а й за семантичними особливостями.

**Ключові слова:** текстовий корпус, семантична структура, словосполучення, складова, атрибутивне словосполучення.

**Statement of problem and literature review.** Corpus linguistics includes not only the development and compilation of text corpora to create the text sets, but also the analysis of the most frequent lexical and grammatical units functioning in them.

This work is devoted to the description of multi-component terms – a grammatical phenomenon that is widespread in texts in almost all areas of scientific and technical discourse (Swan, 1984; Ляховицька, 1974; Мороховський, 1984; Musaeva, 1976). If fixing complex attributive constructions is a fairly simple (albeit labor-intensive) task, then their equivalent translation is extremely difficult due to the complexity and polysemy of the components, resulting in the

problem of recognizing their meaning (Почепцов, 1976; Сенніков, 1986).

And first of all this concerns the multi-component combinations (phrases) translation with obscure and unclearly motivated meaning or with “hidden components of meaning” (Сенніков) and with “increment of meaning” (Musaeva, 1976).

Many researchers note that the combinability of lexical units is not random or free, but semantically motivated (Munteanu, 2011). On the one hand, the nature of compatibility is determined by many extra-linguistic factors arising from knowledge about the world around us, and on the other hand, from the verbal formation of thoughts based on the

compatibility of linguistic units. Thus the study of lexical compatibility contributes to the reconstruction of ideas about individual fragments of the world in the minds of native speakers which is one of the most outstanding tasks of linguistic science.

The most important characteristic of an attributive phrase is the close connection between its components which express a single (albeit dismembered concept) concept or idea.

Attributive phrases express certain properties and qualities that characterize a particular object and are the basis for a person's knowledge of this object, because a person knows an object by the totality of its qualities and properties. The real world is formed precisely by various qualities, therefore attributive phrases are necessary means for categorizing the world, classifying and differentiating objects of the world.

At present along with theoretical descriptions of the features of attributive phrases, research is being conducted in the practical sphere of applying theoretical developments in such a complex and necessary area as scientific and technical discourse. It is quite popular among scientific theorists and practitioners, especially among translators, for whom the correct translation of complex attributive phrases is of fundamental importance. However this is not the only social sphere in which attention is paid to attributive phrases. Education and training of relevant staff of translators and experts in the field of determining, for example, the semantic space for compiling a future text corpus of any technical specialty, or lexical layers into which the lexical composition of a probabilistic-statistical model can be divided, etc., are realized in many technical universities.

The phrase as an object of research has many aspects of a polemical nature, discrepancies in types, models and other characteristics.

The authors dealing with attributive combinations mark that the interrelation between an attribute and kernel can be of different characters (СВОН): qualificative when the attribute is presented by adjective or noun in common case; possessive when attribute is expressed by possessive pronoun or by noun in possessive case; process-qualifying (with an attribute expressed by a participle), quantitative (the attribute is expressed by numerals, indefinite pronouns such as 'some, any, several, few, all'), indicative (when the attribute is presented by demonstrative pronouns). In this work, the authors join the opinion of linguists who classify attributive phrases according to precisely this principle.

**Goal of the article.** The purpose of this work is to present possible translation variants for complex English multi-component terms that contain elements with hidden meanings and function in text corpora of various areas of scientific and technical discourse.

To achieve this goal, it was necessary to do the following:

- 1) compile several text corpora in which this type of terminological constructions function;
- 2) select all multi-component terms from them to choose the most bright;
- 3) analyze all possible variants for their translation.

**Base material.** The material was based on the texts on several different specialties that are the parts of scientific and technical discourse. Two of them relate to official genres (formulas of inventions, instructions for cars operation) and three to technical areas (foundry, machine design and instructions for surface coating).

The reason for such a variety of specialties was the decision to highlight integral/differential components of the analyzed constructions in order to subsequently refer to them as the possible style-distinctive markers which are characteristic for scientific and technical discourse.

The total size of all texts is 250 thousand totals, i.e. 50 thousand for each specialty.

Table 1

**Frequency of use of complex multi-component terms in scientific and technical discourse texts**

Specialty	Amount of multi-component terms in each of specialty	Share of multi-component terms in the specialty to all units used, %
Instructions for surface coating	507	20
Foundry	652	27
Machine design	1073	44
Formulas of inventions	129	5
Instructions for cars operation	99	4

Total: 2460

In order to describe, classify and determine the principles of translation of complex multi-component structures, the authors selected vivid, obvious examples.

Distributive-statistical analysis of specialty texts showed that they widely represent multi-component constructions with complex attributive composites, which are used to describe technical objects, phenomena, and processes. For example: *high-tensile materials – високоміцні матеріали; fast-acting clamps – швидкодіючий затискач; hot-rolled steel – гарячекатана сталь; dust-control filters – пилозатримуючі фільтри; flame-sprayed coatings – покриття, що напилюється полум'ям покриття; off-road trucks – вантажівки-позашляховики.*

The most desirable and convenient for translation are cases when the general meaning of a complex phrase is derived from the meanings of its components, although the combination of words in certain meanings sometimes leads to the creation of a new semantic unity, for example, *high-efficiency*

*furnace* – високопродуктивна доменна піч’, где *high* – високий’, *efficiency* – к.к.д., ефективність; *cold-working operations* – операції холодної обробки, где *cold* – холодний, *working* – обробка; *computer-controlled flight* – керований комп’ютером політ, где *computer* – комп’ютер, *control* – керувати, контролювати.

The peculiarity of the last attributive construction is the inverted word order compared to the sequence of words in the English phrase.

Let us consider cases when determining the semantic content of a multi-component term presents some difficulties, which especially increase if the general meaning of a complex phrase changes, is rethought in comparison with the meaning of its components and acquires certain connotations. This requires analysis of the semantic structure of a complex construction, identification of associative connections as well as a logical guess or special knowledge about the subject of the nomination. For example, if one of the components of the attribute composite is multi-meaningful and refers to the so-called “false friends of a translator”, then the problem arises of choosing the appropriate meaning of its components, for example, *full-film lubrication* – цільноплівково мастило; *three-port valve* – триканальний клапан, где *port* – порт, отвір, канал, люк.

Translation of constructions is no less difficult if one or both of its components are terminological in nature. In this case the entire phrase is a single concept and is translated by one term. Such a translation is possible only if you have highly specialized knowledge about the object or technological process being defined. For example: *red-hardness* – ефект червоностійкості, where *red* – червоний, *hardness* – твердість and the combination of the two components presents the term ‘червоностійкість’; *190-proof ethanol* – етиловий спирт 190-ї проби, where *proof* – міцність, проба, and the whole construction denotes certain properties of a chemical element; *red-dogging tackle* – спосіб, тактика захоплення, where *red* – червоний, *dog* – захоплення, кліщі, затискач, and the entire phrase denotes a special method of capturing.

The next case under consideration is the determination of the semantic content of an attributive composite when one of its components is an incomplete word (preposition, postposition, adverb) which changes the meaning of the leading, motivating component. For example, in a composite *online inspection* – контроль на конвеєрі, the preposition “on” makes the location of the action more clear. Let us compare the word-combination *line inspection* – огляд конвеєра, in which a composite without preposition is used. This change in the meaning of the original component when adding a connecting word is especially visible in the example of complex words-neologisms: *in-house line* – свій, власний, конвеєр. Thus the word combination *house line* can be translated as конвеєр

у приміщенні, конвеєр фірми, etc., but it is only the composite *in-house* has the meaning ‘власний’.

In the same way the meaning of the leading component is changed by the postposition, for example, *meter-in system* – система з контролем входу потоку актуатора. The postposition ‘in’ – всередині expands the meaning ‘вимірювач, лічильник’ and the entire composite acquires a terminological meaning characterizing the system with measuring the actuator’s flow.

Next, we will consider multi-component terms, which include complex attributive composites with one or both components representing the abbreviation or truncated words. Although many abbreviations have either equivalents or regular correspondences known in the language of translation, their recognition is hampered by the usual form and an overly large list of abbreviations and symbols. For example, to find correspondence to a terminological structure *high-rpm driving* – привід з високими обертами обертання, the decoding of the composite *rpm-revolutions per minute* – обертів за хвилину is necessary. In the word combination *pneu-hydro valves* – пневмогідролічні клапани, the second component – *hydro-hydraulic* – can be easily recognized, but the first one – *pneu-pneumatic* – requires some logical guess.

Even more logical guesswork is required to identify the semantic structure of multi-component terms consisting entirely of non-nominal components. When translating such complex constructions, the meanings of the omitted components with which the components of the term are usually combined must be taken into account. For example, the semantics of the phrase *on-off operations* – операції включення та вимикання, is withdrawn from the verbal combinations or compound verbs, for example, *turn on* – включати, *turn off* – вимикати.

An even higher degree of difficulty for equivalently conveying the meaning of a term in the target language is represented by complex phrases with a multi-component composition, special “syntactic constructions”. Here an algorithm for recognition of the semantic content of an attribute composite is required. For example, to adequately translate the composites in the construction *gate-to-drain capacitance* – ємкість сбросів we need not only a correct choice of the meanings of multi-meaning components, for example, *gate* – засувки, вентиль, клапан, штрек, затвор, шлюзні ворота, сітка, ґрати; *drain* – дренаж, канава, впускний отвір, споживання струму, but also the determination of correlation, syntactic relationship between the constituents, in particular, *gate-to-drain* denotes ‘mesh that keeps flow’.

It is even more difficult to determine correspondence of the words in original and target languages in cases when in constructions with similar “syntactic” connections, all components are



rethought and a complete nomination is formed. An example of this is the multi-component term *state-of-the art technology* – *заснована, впроваджена технологія*. It is obvious that in this phrase the meaning of the attributive composite is not equal to the simple sum of its component meanings – *state* – *стан*, *art* – *мистецтво, майстерність*, and it is rethought from the literal meaning – *технологія на рівні майстерності*”.

Adequate translation becomes even more difficult when a complex attribute is only an element of a multi-component definition chain, for example: *currenttrans former-based earth leakage detector* – *детектор витоку струму на землю, що діє на основі трансформатора*. The difficulty of translation here lies in finding connections between components. The meanings of the individual components of the syntagma (phrase) are clear: *current* – *струм*, *transformer* – *трансформатор*, *base* – *засновувати(ся)*, *earth* – *земля*, *leakage* – *витік*; *detector* – *детектор* (dependent member), but the sequence of translating them is difficult.

The next example of a multi-component term that is difficult for decoding is the discrepancy between the linear order of even international morphemes and their compatibility in the target language. Here, in order for the meaning of complex attributes to be perceived, it is necessary to understand that in the attributive composite there is an expansion of the

semantic volume due to the emergence of a figurative meaning. For example, the phrase ‘piggy-back’ pair, in which the composite with the configuration ‘*свиняча спинка*’ is metaphorized, and in which the unusualness of the expression is indicated by quotation marks. The lexicographical source gives both the literal meanings of the constituents *piggy* – *свинка, поросенок*, *back* – *спина*, and the stylistically coloured lexical-semantic variant of the composite *piggy-back* – *бортовий літак*, (жарг.). But in the researched texts the subject concerns a two-wire circuit block.

**Conclusions.** Thus, the reasons for the above-mentioned difficulties of equivalent translation of multi-component terms in English can be classified as follows:

- 1) polysemy of the components of the attributive composite;
- 2) the terminological nature of the components of phrases;
- 3) changing and expanding the meaning of the original component due to the meaning of the second component;
- 4) multi-component composition of terminological structures; abbreviations, truncated forms of components;
- 5) increase in meaning due to incomplete morphemes;
- 6) rethinking the meaning of a complex word;
- 7) metamorphic transfer of meaning.

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