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THEORETICAL PREREQUISITES FOR COGNITIVE AND LINGUISTIC RESEARCH OF A BRANCH TERMSYSTEM

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Key words: *term, terminology system, frame, machine building, cognitive approach.*

This paper is focused on fundamental theoretical terminology concepts such as “term”, “terminology system”. The prerequisites for terminology investigation in terms of system and functional analysis, as well as cognitive aspects, have been grounded.

In cognitive approach, “the term” is considered to be a result of some specific cognitive human activity. It was defined that general frame structure of “Construction Machinery” terminology system is determined by its peculiar concept-based field. Each frame or subframe has its complex multilevel structure, which is reflected in machine building categories and concepts. It is necessary to note that frames are open-ended. As a result, terms can appear and disappear in a term system. However, it doesn’t lead to any changes in paradigmatic relations of terminology system. Six basic frame

groups in modern “Construction Machinery” terminology are not singled out automatically, but according to internal system, characteristics are based on presentive and logical relations of concepts and categories in this field.
It was also found that frames do not just replace one another or appear from scratch. Their emergence occurs on the basis of already existing topical unities, which is a consequence of the dialectical process of developing extralinguistic reality. The specialization and differentiation of frames included in the terminology system occur, because the production industry specializes itself. Therefore, the number and composition of frames within the terminology system cannot be constant.
It was essential to point out the nonclosure and openness of the borders of frames that manifest themselves in the free withdrawal or influx of terminological units, which, however, does not lead to changes in the paradigmatic organization of the terminology system.
It is concluded that conceptual model can be used as a basis for further development and ranking of machine building terminology.

ТЕОРЕТИЧНІ ПЕРЕДУМОВИ ДОСЛІДЖЕННЯ ГАЛУЗЕВОЇ ТЕРМІНОЛОГІЇ В ЛІНГВОКОГНІТИВНОМУ АСПЕКТІ

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Ключові слова: *термін, терміносистема, фрейм, будівельне машинобудування, когнітивний підхід.*

Стаття присвячена основним теоретичним поняттям термінознавства – «термін», «терміносистема», обґрунтуванню передумов дослідження базових питань, пов'язаних із визначенням терміна як основної одиниці спеціальної номінації. Інтерес до термінології зумовлюється не лише соціальною значущістю цього класу номінативних одиниць як засобу мовного представлення та кодування концептуальних знань конкретних сфер діяльності людини, але й тим, що термінологія – наймобільніша частина лексики, що відображає рух науково-технічного прогресу.

Було зазначено, що роль термінів у науковому пізнанні цілеспрямовано визначає нещодавно сформований напрям – когнітивне термінознавство, у рамках якого визначається когнітивна функція термінів, установлюється зв'язок розумових процесів із процесами вивчення дійсності та передачі знань. У статті підкреслюється, що в рамках когнітивного підходу термін розглядається як результат спеціальної когнітивної діяльності людини. Значущість когнітивних ретельних пошуків зростає в разі звернення до не досить досліджених у лінгвістичному аспекті терміносистем.

Застосування до дослідженого матеріалу методики фреймового аналізу дозволило збудувати концептуальну модель одного з розділів будівництва – терміносистему найменувань будівельних машин і механізмів. Було встановлено, що з усіх засобів представлення знань найбільшого поширення набуло поняття фрейму. Установлено, що загальна структурація фрейму терміносистеми «Найменування будівельних машин і механізмів» зумовлена специфікою концептуальної області, яка репрезентується. Кожен фрейм і підфрейм має складну ієрархічну структуру, що відображає концептуальний зміст понятійного апарату будівельного машинобудування.

Було також виявлено, що фрейми не просто замінюють один одного або з'являються на порожньому місці. Їх виникнення відбувається на основі вже наявних тематичних єдностей, що є наслідком діалектичного процесу розвитку екстралінгвістичної реальності. Також відбуваються спеціалізація та диференціація фреймів, що входять до термінологічної системи. Ось чому кількість і склад фреймів у терміносистемі не можуть бути постійними. У статті важливо було відзначити незамкненість і відкритість меж фреймів, які проявляються у вільному вході та виході термінологічних одиниць, що, однак, не призводить до змін парадигматичної організації терміносистеми.

Зроблено висновок, що концептуальна модель може бути використана як основа для подальшого розвитку та ранжування машинобудівельної термінології.

Introduction. This Paper continues our research devoted to implementing the idea of the frame representation of terminology systems and description of the conceptually lexical content of specific frames.

The aim of this study is to describe the frame of the terminology system "Denominations of Construction Machines and Mechanisms", which was done by the conceptual and discursive analysis.

Therefore, **the object** of this study is the terminology system "Denominations of Construction Machines and Mechanisms". In this connection, **the subject** becomes evident: due to the fact that the terminology system of construction machinery in English has not been practically studied against the backdrop of linguistics, and even more, from the point of view of the cognitive approach, the relevance of this research seems to be undoubted.

Main body presentation. In the conceptual and discursive study of the term, as in our previous papers [1–2], we proceed from the analysis of its contextual environment – the phenomenon of internal and external valence, compatibility, identification of all the features and patterns of incorporating the term into the text, as a result of one or another discourse, and detection of cognitive and onomasiological structures that stand behind the terms representing them. The greatest characteristic of terms can be obtained on the basis of discourse reflecting the entire knowledge base, including the professional experience of those engaged in production activities.

It is known that the effectiveness of research largely depends on clear understanding of scientific concepts to be operated in the process of work. Therefore, it is no coincidence that when studying the

language of science and technology, they primarily find out the following: what is meant by the concept "terminology", "terminology system", "term"; what specific features are inherent in the term as a lexical unit of the language of science and technology; what is a lexical composition of the language of scientific and technological literature, etc. We start with a brief review of the state of these issues by considering the basic concepts of terminology science: terminology, terminology system and term.

The analysis of modern terminology-specific literature allows us to conclude that at present there are no principal disagreements in understanding the terminology as a system, being a combination of all denominations of scientific and professional concepts that reflects and objectively fixes connections existing between them. As the most intensively developing part of the vocabulary body, the terminology represents a subgroup that gives the largest number of new formants [4].

W. Ebert notes that the word "terminology" currently has two meanings. The first one is a set of "terminologized industry-based lexicon", and the second is a linguistic discipline that studies terms of the science and technology language [5, p. 227].

Terminologists believe that the terminology of each science is a system being distinct from the terminology of other sciences not only in the content of notions expressed in terms, but also in purely linguistic features (word-formation models), and different attitude toward semantic processes. Another essential feature of the terminology is deemed to be the presence in its composition of several correlated terminology systems, which have their own laws and rules of formation and functioning [6].

It is commonly known that in modern terminology science there are two opposite opinions of the peculiarities of shaping the terminology system. In the terminology system, some linguists see the result of the conscious intervention of scientists and professionalsin the spontaneously formed set of terms of one or another sphere of knowledge and production. Others believe that the language of the terminology system "develops under the same laws as the entire vocabulary". We will highlight the main linguistic criteria for evaluating the industry-based terminology systems.

The terminology system is characterized by the following:

1) it is not a simple collection of words, but a system of words and word-combinations connected with one another in a certain way at the conceptual, lexical-semantic, word-formative and grammatical "levels" [1–2];

2) in the semasiological structure of included words, it reflects the certain links and relations objectively existing in the circle of named objects and concepts [4];

3) it has a dynamic character, since it directly depends on the development of scientific knowledge;

4) it is real and objective and does not depend on the aspects of its vision and methods of its description [3].

Based on these criteria, we define the terminology system being studied as a set of terms naming construction machines and mechanisms, and each term is directly or indirectly connected and correlated with one another.

In linguistics, there are already many definitions of the term, which indicate its specific features. Although, a number of linguists state that at present there are still no sufficiently firm views on the term, and definitively established harmonious theory of the term formation and term usage is not yet in existence. It is also emphasized that the problem of peculiarities of the term has not been resolved so far in all its complexity and scope.

The concept "term" in linguistics was shaped at the beginning of the 20-th century. A review of scientific papers devoted to this concept indicates that until the mid-1950's of the 20-th century the term was very often considered as an unusual phenomenon of the common-literary language. A new outlook on the term, which is distinguished by direct penetration into the essence of the term, and into the specifics of its functioning in special texts and special casual conversation, refocused the attention of researchers primarily on the properties of the term representing external markers that differentiate it from other units of the language, i.e. characterize the term as a subject matter of the special field of research known as terminology science. Such main external property of the term and terminology is their belonging to special areas of human activity or professional speech of certain groups of people. This idea is the key for defining the concept "term" by the majority of linguists, regardless of their approach to the study of terminology.

In modern linguistic literature the following distinctive features of the term are usually in the foreground: expression (reflection) of a scientific and technological concept or correlation with it; presence of a specific definitive function, belonging to a certain terminology system; unambiguity and motivation within the terminology system; expressive neutrality; performance of cognitive and information function; the term is systemic as an element of the terminology system and as an element of the language system; delineation, rigor and definitiveness of the lexical concept of the term.

The definition of the role of terms in scientific cognition is purposefully dealt with by a recently formed direction – cognitive terminology studies. A cognitive function of terms is determined in the framework of cognitive terminology studies and it

establishes the connection of thinking processes with processes of the study of reality and transfer of knowledge.

The term in its contracted form presents the content of a special concept and its properties. The subject of thought limited to a certain field is always behind the term, or, according to some linguists, "a clear and precise structure of knowledge is behind each term".

The terms, being motivated and possessing a clear internal form, have the greatest cognitive value. The conceptual motivation of the term finds its expression in both the definition and terminological structure of the term, in which certain term elements and term models are used. By using the definition, the term is introduced into the definitional system of industry and, by means of the terminological structure, into its logical-conceptual model.

Emphasizing again that the term is a result of special cognitive human activity and a result of intellectual processing of information, we note that the study of processes of the language information processing becomes a leading task of the cognitive-communicative direction in terminology science.

The above-cited review of approaches existing in linguistics within the meaning of unique features of the term and difference in viewpoints on the main issues related to terminology, reveal the multifaceted nature of terminological essence. It confirms the idea expressed by V. M. Ovcharenko [6] to study not only the term formation, but also the term usage, that is, how real terms function in real texts and in their professional application.

The problem of search for appropriate knowledge representation structures used in language communication processes has always remained one of the most relevant problems in cognitive linguistics.

The concepts "frame", "scheme" and "scenario" are interpreted in scientific research in various manners and the concept of a frame is the most commonly used one.

In Ch. J. Fillmore's works, the frame is associated with the structure of semantic field. The scientist calls the groups of words, held together in the recipient's mind, by the frame, since they are motivated, determined and mutually structured, meaning some conceptual whole (conceptual basis of knowledge), which can be represented by any of individual words [3].

These ideas have been further developed in studies of many authors, who proved that the linguistic meaning of a word directly depends on a certain image shaped in a human brain and being behind such word.

According to V. M. Leichik and other scientists, the frame reflects knowledge of a certain area of reality and represents it in the form of a structure organized specifically [4; 7].

Thus, the cognitive approach to the description of a specific terminological system is associated with a frame structure, i.e. representation in the form of frame, where specific multilevel relations are formed, and whose blocks are filled in with particular information about this terminology system. The language design depends on the conceptual structure of the term and its place in the system.

In common with any industry-based terminology system the terminology system of denominations for construction machines and mechanisms primarily needs to establish certain linguistic characteristics that allow presenting it as a special nominative subsystem of the language. The most significant thing for the overall characteristic of terminology under study is linguistic parameters that are a manifestation of consistency, namely: presence of nest-forming terms, terms-synonyms and terms-opposites. To determine specific features of the terminology system, it is also important to identify a model of its formation, which characterizes the place of terminology of denominations for construction machines and mechanisms (TDCM) in a number of adjacent terminology systems.

As our studies have shown, the formation of the terminology system being analyzed is based on a "heterogeneous model", that is, its emergence is a result of interaction of several initial terminology systems nominating concepts of those branches of knowledge and spheres of human activity, where a new sphere of human activity has arisen.

The field under study can be presented as a confluence of discourses: scientific knowledge and applied knowledge obtained as a result of experimental research. This circumstance is the most directly reflected in paradigmatic characteristics of special concepts representing the given sphere of human activity and, consistently, in paradigmatic characteristics of corresponding terms.

The commonality of the TDCM terms in some features and divergence in other ones involve each of the terms in a variety of relations, uniting them into microsystems of various levels. The structuring of topically related concepts made it possible to represent topical associations of denominations of these concepts in the form of basic frames.

Our classification is rooted in the feature "by type of work performed (purpose)". It is on the basis of this feature that six basic frame associations are singled out in the terminology system under study.

Frames do not just replace one another or appear from scratch; their emergence occurs on the basis of already existing topical unities, which is a consequence of the dialectical process of developing extralinguistic reality: as the production industry specializes itself, the specialization and differentiation of frames included in the terminology

system occur. Therefore, the number and composition of frames within the terminology system cannot be constant, i.e. given once and for all.

It is also necessary to point out the nonclosure and openness of the borders of frames that manifest themselves in the free withdrawal or influx of terminological units, which does not lead to changes in the paradigmatic organization of the terminology system. The extraction of six basic frame associations in the modern TDCM does not occur arbitrarily, but in accordance with internal properties of the system, taking into account subject-logical relations of the conceptual framework of the branch of knowledge itself. This makes it possible to outline quite clearly the boundaries of each frame of the terminology system and determine the commonality of their word-formation and semantic signs.

Each basic frame has its own generic industry-wide term: an earth-moving machine, a lifting-and-shifting machine, a hand-held machine, etc. It should be noted that there are no single-word terms in the modern TDCM to denote industry-wide concepts. These concepts are called only with the aid of compound terms. It is particularly remarkable that compound terms, denoting generic and specific industry-wide concepts, are formed on the basis of the term "machine", which acts as a core component of the compound term.

All listed basic frames are not homogenous; they consist of several smaller subframes of terms in the form of hierarchically organized microsystems, their number is different in composition of basic frames and depends on the number of differential signs in the meanings of generic industry-wide terms.

It is worth mentioning that the industry-specific term "machine" (which is general technical) in the terminology system under study performs functions of the core component in 178 terms-phrases (crane drilling machine, vibrating machine, soil-tamping machine, vibratory tamping surface mounted machine, etc.).

Subframes are based on key terms having the meanings, whose distinctive features determine the internal structure of the group.

The classification of denominations of loading-and-unloading machines can be presented according to the "principle of operation", where one of signs is included in the concept of "loading-and-unloading machine". This sign receives a formal language expression by the following: 1) borrowing new terms to denote the concept of "bucket conveyor" – elevator or for the concept of "helicoid conveyor" – screw; 2) creating terms-compound words with a clipped first component of international nature – electroloader, autoloader; 3) creating terms, phrases of appositive type – crane-loader, truck-loader; 4) forming terms – phrases – special electric loader, universal electric loader, single-bucket excavator with loading equipment, universal single-bucket loader. Other signs of this concept receive a similar linguistic expression (airslide, airbox, air installation, etc.).

Supportive terms have the high word-formation activity serving as core components in terms-compound words and terms-phrases.

Analyzing the lexical composition of each microstructure in the "Construction Machinery" general frame shows that the main methods for the formation of terms are semantic, morphological and syntactic, and in individual specific microsystems they are presented in different proportions. Depending on the topical branch of knowledge represented by a particular frame structure, the sets of features-concepts implemented through onomasiological signs also vary.

It should be emphasized that the concept-based model of construction machinery can be considered as a basis for further development and arrangement of the terminology under study.

Conclusion. The study showed that the frame "Denominations of Construction Machines and Mechanisms" is a rather complex hyper-hyponymic structure (organization). The conducted research convinces that the study of terminological systems and terms, from the cognitive point of view, allows us to present the existing body of special knowledge in all the variety of their inherent connections and relations. Therefore, we see **the prospects for further research** in applying this methodology to other terminology systems of the construction industry in the English and Ukrainian languages.

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