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# Conceptual analysis of terminological unit in the light of modern cognitive terminology

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## Abstract

The purpose of the study is to trace the relationship of the term as a linguistic unit and the concept as a unit of thinking through a conceptual analysis of terms. Since the main method of the cognitive approach is associated with determining the essence and nature of the considered term concepts, the conceptual analysis of terms comes to the fore. The result of the study showed that the term, being a certain layer of the lexicology of the language, is connected with the notion of the concept in such a way that the signs defining its definition are at the same time constituent components of the concept content, a kind of “filling” the frame slots - as the structure of the concept.

**Keywords:** Concept; Term; Conceptual analysis; Frame structure.

## Análisis conceptual de una unidad terminológica a la luz de la terminología cognitiva moderna

## Resumen

El propósito del estudio es rastrear la relación del término como una unidad lingüística y el concepto como una unidad de pensamiento a través de un análisis conceptual de los términos. Dado que el método

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principal del enfoque cognitivo está asociado con la determinación de la esencia y la naturaleza de los conceptos de términos considerados, el análisis conceptual de los términos se destaca. El resultado del estudio mostró que el término, al ser una cierta capa de la lexicología del lenguaje, está conectado con la noción del concepto de tal manera que los signos que definen su definición son al mismo tiempo componentes constitutivos del contenido del concepto. , una especie de "relleno" de las ranuras del marco, como la estructura del concepto.

**Palabras clave:** Concepto; Término; Análisis conceptual; Estructura del marco.

## 1. INTRODUCTION

Changes in linguistic science at the end of the 20th - beginning of the 21st centuries are characterized by the paradigm shift of scientific knowledge taking place in the scientific world as a whole. And in this regard, it is worth noting the special interest of linguistic scholars in the ideas of cognitivism, considering the correlation of language and thinking as an object of study. The cognitive approach to learning a language differs from the traditional one by bringing to the forefront the problems of the correlation of linguistic structures with psychic and mental structures that are reflected in consciousness and absorbing all human experience and knowledge. New principles and methods of cognitive language learning have led to the emergence of such scientific disciplines as psycholinguistics, ethno-linguistics, cognitive linguistics, neuro-linguistics, etc. In the light of the emergence of these areas of linguistics, the emergence of a cognitive approach in terminology and terminology studies was a natural

process, and the allocation of a cognitive direction in the science of terms and term systems was timely and necessary. Terms and terminological systems were studied by such famous Russian and Western linguists as V.P. Danilenko, V.G. Gak, V.A. Zvegintsev, L.A. Kapanadze, T.L. Kandelaki, V.D. Tabanakova, S.E. Nikitina, S.D. Shelov, M.T. Cabre, L. Depecker, H. Felber, F. Gadet, A. Rey, J.C. Sager, G. Rondeau, from the position of a cognitive approach, such as P. FABER (2006), MIRIAM R.L. PETRUCK, (1996), LEICHIK V.M. (2009), GOLOVIN B.N., DEMYANKOV (1994), BOLDYREV (2014), KUBRYAKOVA (1996), STEPANOV YU.S., KARASIK V.I. (2002), POPOVA Z.D., STERNIN I.A. (2007), etc. In Kazakh linguistics, among the works of a cognitive nature, one can note the works of ZHUMAGULOVA B.S. (2009), Sultangubieva A.A., Sabitova Z.K., and the problems of cognitive terminology are dealt with by such young scientists as Isakova S., Kozhaeva M., Azamatova N. The field of scientific knowledge is characterized by complexity and versatility, and its development requires additional cognitive effort. To simplify the perception and further understanding of the surrounding world and the huge amount of information inside it, a person resorts to categorization and structures knowledge (this process is also called conceptualization), integrating concepts into categories. Thus, knowledge acquires a certain structure, which is expressed in the relationship between concepts. The approach to the conceptualization of terms depends on the characteristics of a particular linguistic system (MONTERO, FABER, 2008). The terms encode scientific knowledge in themselves and transmit them through established terminologies. It

follows that the relationships between concepts play an important role in terminology studies, since they are fundamental in understanding any field of knowledge (MEYER et al. 1997, FABER et al 2006, 2007). It is the importance of the assimilation of scientific knowledge and terminology in a structured form that is emphasized by the theory of terminology studies based on frames (TBF) (Terminología basada en marcos) (FABER et al. 2005, 2006, 2007). This theory is based on an adapted version of the frame theory of C. FILLMORE (1982), and contains many of the premises of communicative (CABRÉ, 1995) and socio-cognitive (TEMMERMAN, 2000) theories of terminology studies.

The theory of structuring knowledge is based on the construction of a conceptual network, which reflects structured knowledge in a certain field, and is aimed at the context and practical use of terms (TEMMERMANN y KERREMANS, 2003). For example, the result of applying precisely this new orientation in terminology is the multilingual terminological database from the field of environmental protection Ecolexicon (EcoLexicon: <http://ecolexicon.ugr.es>), compiled by a group of terminologists from the University of Granada (Spain), which is constantly updated by a group of terminological translators. Such databases allow you to effectively and confidently navigate in the ever-changing world of scientific information, behind which are huge layers of experience and knowledge of all mankind.

The variety of different points of view on existing and newly emerging terms (in the modern world due to scientific and

technological development this process is intensive and continuous) causes difficulties associated with determining the place, role and meaning of some terms and terminological systems around which disputes arise ever and again, and their use in terminological research causes a contradiction. A clear orientation in theoretical approaches to the analysis of terminological objects with knowledge of the basics of terminology studies would greatly facilitate understanding of the essence of the term and contribute to a rational choice of methods and principles of analysis when working with terminological systems. The problem of the correlation of thinking and language, and, therefore, language and knowledge, which is stored and transmitted through the language, is one of the main issues of interest to terminologists, so we will try to define the term from the perspective of cognitive linguistics.

In this article, we propose to consider the term in connection with its cognitive properties based on the methods and principles of the cognitive approach. We assume that highlighting the terminological unit in connection with the cognitive structure reflected in the consciousness of a native speaker, it is possible to most constructively describe the patterns of functioning of views on the basic concepts and problems of cognitive terminology studies. In this connection, we rely on the following main points regarding the role of the term in cognition and its reflection as a cognitive structure in human consciousness:

- 1) We assume that the use of a cognitive approach to the analysis of the term, which consists in a complete understanding of the essence of the term and the cognitive structures associated with its

meaning, leads to a deepening of scientific ideas about the processes of formation of the term content. In this regard, conceptual analysis is the main method that can include both the methods of traditional lexical-semantic analysis and the cognitive-heuristic approach.

2) We believe that the concept as a cognitive structure reflected in the language of a native speaker is most effective both in interpreting and processing information received from outside directly in the human brain (frame, protocol, etc.), and for storing and subsequent transmission of this information realized through human verbal and cognitive activity (language unit, speech, text, etc.).

3) We believe that often the connection of the linguistic representation of the concept associated with the concept of the term has a frame model that helps to structure the unit of knowledge in the human mind, and, in turn, is the basis for creating conceptual connections with other units in the future. A conceptual analysis of the terminological unit allows you to identify the most complete and detailed model of the frame structure associated with the content of this concept.

## **2. METHODOLOGY**

In this study, along with traditional empirical methods (observation, comparison, lexical-semantic analysis, structural-functional approach, etc.), methods of a systematic approach, a modeling method were used. All these methods allowed us to study the terms in the process of their functioning in the scientific and



information discourse. The material for the study was the terms of the sphere of computer technology in the Kazakh and Russian languages. All of the above traditional methods and techniques have been used to varying degrees in integration with conceptual analysis. Since the main method of the cognitive approach is associated with determining the essence and nature of the considered term concepts, the conceptual analysis of terms comes to the fore. Conceptual analysis, according to E.S.Kubryakova,

Although it reveals common ground with semantic analysis, it has other final goals. If the latter is aimed at explication of the semantic structure of a word, clarification of its denotative, significative and connotative meanings, then conceptual analysis appears as a search for those general concepts that are summed up under one sign and determine the existence of the sign as a known cognitive structure. The semantic analysis is connected with the explanation of the word, the conceptual analysis goes to the knowledge of the world. (KUBRYAKOVA 1991: 85).

Therefore, to apply conceptual analysis in the study, the concept of conceptual analysis and the methods that contribute to the effective application of the method in the process of researching the term in conjunction with the notion of the concept should be defined.

According to E.S. Kubryakova, a conceptual analysis of naming can take various forms. For example, you can study the concepts and judgments behind the usual specific vocabulary, as well as carry out a

conceptual analysis of keywords of a certain time period. Using the technique of frame semantics, it is quite possible to try to determine which structures of knowledge are behind these or other classes of words. (KUBRYAKOVA, 1990). Understanding the structure of knowledge behind the content of a language unit, it is possible not only to nominate new concepts, but more effectively apply this knowledge in real life situations.

Therefore, conceptual analysis is research for which the concept is an object of analysis. The meaning of the conceptual analysis is “to trace the path of understanding the meaning of the concept and write the result in a formalized semantic language”. (FRUMKINA, 1992). Thus, the result of conceptual analysis is the concept itself. Essentially, this means knowledge of a concept, that is, a concept - knowledge of an object from the world of “reality”, translated into knowledge of the object in the world of “ideal”. (TELIA, 1996). Consequently, the interpretation of the totality of all the meanings contained in the concept and associated with various variants of its language representation is a conceptual analysis.

Another interpretation of conceptual analysis is provided by A. VEZHBITSKAYA (1990). This analysis is based on introspection, an in-depth and targeted analysis of our own linguistic intuition. According to the scientist, most of the semantic information is presented in the minds of various native speakers. The discrepancies in the contents of the intuitive representations of various native speakers are explained in most cases only by the fact that the speakers are not able to deeply analyze and accurately formulate the content of their

own intuition. When studying the semantics of subject nouns, A. Vezhbitskaya suggests looking into himself, and not outside, into the world of objects called words.

To describe the semantics of subject words such as a cup, a bird does not mean to describe the objects that can be indicated by these words, that is, not the conditions and boundaries of denotation, but the “ideal image” of a cup, bird, or in other words, human ideas about a typical representative prototype of each of these categories. Naturally, the “ideal image” corresponding to a certain word, the idea of the prototype of the category given by the word, is in the minds of the speakers (and not in the outside world). Therefore, in order to describe the semantics of the word, that is, the image corresponding to it, it is necessary to examine the linguistic consciousness of the speakers, and not the external world in which there are no these images, but there are real objects. (VEZHBITSKAYA, 1990: 54).

All the above statements allow us to conclude that the meaning of conceptual analysis is a concept - a unit of thinking (category of knowledge, cognition), which, being the cognitive structure of knowledge, is reflected in the consciousness of the subject and is represented through linguistic units in the process of human verbal and cogitative activity.

The terminology of any branch of knowledge is the main means of storage, processing and development of conceptual paradigms in

science. One of the main terms of modern linguistics is the term concept, originally used in cognitive science. It has its strong place, being both an instrument of knowledge and a component of a terminological system that can explain the concept behind it in interaction with thinking, cognition and human activity. The term concept, along with the terms worldview, cognition, cognitive structures, etc., is at the center of the terminological system of cognitive linguistics (Kubryakova E.S., Maslova V.A., Stepanov Yu.S., Mankeeva Zh.A. and other). In foreign linguistics, such scientists as C. Fillmore, J. Focognier, R. Langecker, etc. began to study the concept. Already at the end of the 70s of the twentieth century, the works of V.Z.Demyankov, N.N.Boldyrev, E.S. Kubryakova, N.D. Arutyunova, A.Vezhbitskaya, V.A. Maslova, Yu.S. Stepanov, Z.D. Popova, I.A. Sternin, etc were devoted to the study of the concept in Russian linguistics..

This study will attempt to establish the relationship between the concept and the term as a unit of the sphere of professional communication, as well as determine the appropriateness of using the term concept in the study of terminology and determine the relationship between different interpretations of these concepts. Given the fact that the term concept is used in related scientific disciplines (cognitive linguistics, linguoculturology, cultural studies, history, and many others), it is necessary to find out what is meant by the term concept in linguistic science. It is worth noting that we will consider the concept in connection with the term in the scientific and information paradigm, not including such aspects as

linguoculturological, pragmatic, philosophical, linguopsychological, etc. in our study. Thus, we will consider the term simultaneously in the conceptual framework of science and generally accepted traditions of scientific research, and at the same time, we will take into account the level of information in the light of modern information and communication technologies, which ensures the functioning of terms and combinations of terms in modern conditions of intensive globalization.

So, according to E.S.Kubryakova, the concept is of extreme importance in modern theories of knowledge, and the phenomenon behind it occupies a central place in the mental activity of man, in the processes of conceptualization and categorization of the world. The concept of the name encompasses the linguistic refraction of all kinds of knowledge about the phenomenon behind it - empirical knowledge, knowledge in opinion, knowledge in trust, knowledge in faith, that is, everything that “is brought under one sign and predetermines the existence of the sign as a known cognitive structure” (KUBRYAKOVA 1991: 85), and also makes up the volume and content of the language mark. Therefore, the content of the concept includes the content of the naive notion, but is not limited to it.

The conceptual field of the term concept itself includes many other terms and combinations of terms derived from this term, and their large volume indicates the relevance of the object of study. Studying the derivatives of the term concept, we can notice that this term is core in the term system. For example, the terminological system of a concept includes such derived terms and combinations of

terms: conceptual, conceptualization, conceptualize, concept sphere, concept system, concept field, concept formation, concept forming, macro concept, micro concept, conceptology, concept core, subject concepts; art concept; national concept; linguoculturological concept; representation of the concept; verbalized concept; lexical concept; grammar concept; phraseological concept; idiomatic concept; implementation of the concept; representation of the concept; verbalization of the concept, national concept sphere, etc.(Fig.1)

### **3. RESULTS and DISCUSSION**

According to cognitology's,

Cognitive science, with all the fragmentation of schools, presented the world with a certain unified scientific and theoretical program for studying the human mind and human capabilities and involved representatives of different sciences and entire scientific communities in this study (KUBRYAKOVA, 1991).

It is difficult to disagree with this, since there is simply no other way to “look” into the processes of thought formation or categorization of information coming from the outside into the human brain. It is the language that objectifies the processes of awareness, evaluation, comprehension by a person of information of a different nature coming from outside, including abstract and illusory ones, such as smells, sensations, feelings, etc. For example, sadness or grief, fragrance and kindness are reflected in a person's consciousness

through the same specific cognitive structures as figurative representations of objects: a table and a book, a house and a person, however, the associative field that arises in a person's consciousness is always individual and diverse, as well as connections between concepts. But if common words have certain cognitive images in the minds of the native speaker associated with existing conceptual models (cultural, psychological, individual, etc.), then the terms, having their own specific characteristics, will be associated with those cognitive models that reflect certain professional or scientific informational and cognitive content. For example, programming, computer, input language, coding, information code, etc. are the terms in the field of computer technology, however, an ordinary listener (reader) understands these terms. However, such terms as driver, domain, operating system, moderation, packing algorithm, prokdamp compiler, expressor, bitmap, formatting, self-extracting archive, system file, wrapper program, etc. even if the components of the combinations of terms are clear, they remain for the listener (readers) are incomprehensible, that is, they are not reflected in the consciousness by the cognitive structure, since the information encoded in the definition of these terms is associated with professional and scientific concepts. For example, "A compiler is a special program that translates the text of a program written in a programming language into a set of machine codes" (GOST 19781-83 // COMPUTER ENGINEERING, 1989). The structural components of the definition of this term allow you to "form" in the minds of an unprepared listener (reader) a certain cognitive image in which common words will

become support words for interpreting encoded information: this, special, program, which, translate, text, written, language. Programming, set, machine code. Through the cognitive structures available in the memory of the subject (listener, reader), and associated with the above speech units, a new cognitive image arises in the mind - a cognitive structure that reflects the concept of a **compiler**. Thus, objectifying emerging concepts and peculiar cognitive images (mental, psychic), language gives them meaningfulness and completeness.

The conceptual model of the term compiler is defined by a clearly structured definition and can be represented as the following algorithm:

#### **4. CONCLUSION**

The result of the study is that, considering the term in its connection with the concept reflected in the consciousness, we came to the conclusion that:

Firstly, the interpretational field of the concept and the term associated with it will include cognitive features that interpret certain aspects of the information content arising from it or which is the basis for the production of other information content.

Secondly, in some cases, the concept is understood as an object of analysis, and in others, it is the final result of research carried out using other methods. Studying the term in connection with the concept, we saw that often in the process of conceptual analysis it is precisely the second type that comes to the fore, that is, in the form of



the final result of the study, in which the methods of semantic, etymological analysis, an empirical approach, etc.

Thirdly, if the method of conceptual analysis is traditionally associated with a description of the surrounding comprehensible world, in which linguistic units actually existing in the language are reflected as cognitive structures in the consciousness of the subject, then in the interrelation of the term-concept, we noticed a strict structure of the definitional content of the term. Through the compatibility of structural components, the content of the definition behind the term is symbolized. The compatibility of parts of the structure of the definition is an external manifestation of its deep associative contours, consisting of implicit substantive semantic parameters.

In conclusion, we offer the following "step-by-step" algorithm of actions in the conceptual analysis of terms:

- Given the term-concept relationship, determine the referential situation to which the concept belongs;
- Establish the core of the conceptual content by referring to the relevant terminological dictionaries and reference books;
- Take into account the etymology of the derivative word, from which the term is formed, verbally fixing the concept;
- Consider the definitional features of the term and determine their reflection in the conceptual field of the concept associated with this unit;
- Consider the contexts of the scientific and professional paradigm, including this term and the concept associated with it;

▪ Identify key (supportive, basic) concepts in the conceptosphere (conceptual field) and identify their representation in verbal and cogitative activity through linguistic facts.

Summarizing all of the above, we believe that in a conceptual analysis of a terminological unit, the content of a concept (knowledge, information) is reflected in the consciousness of the subject in the form of a frame model that can include all existing and assumed knowledge about the object.

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