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Concept understanding in cognitive linguistics and cognitive terminology science

Larissa Manerko

*High School of Translation and Interpretation, Lomonosov Moscow State University
Russia*

Correspondence to: wordfnew@mail.ru

Abstract. The referential approach of a language sign has dominated in linguistics throughout the 20th century. Interpretations of concept and meaning were introduced in accordance with the classical way of categorization, independently of human mind and linguistic usage. The well-known principles of terminological description both in the Russian and Western Terminology Schools became one term – one meaning correspondence, term strictness, shortness and the existence of definition.

The shift to cognitive and functional perspective of linguistic knowledge in the 70s of the 20th century shaped the linguistic science closer to human thinking and goals of communication. Linguistics became anthropocentrically oriented, psychologically grounded and aimed at discursive mechanisms interwoven with interlocutors' understanding of the world. Concept in cognitive linguistics is defined as “an operative unit of consciousness” corresponding to a particular sign, it refers to categorization and conceptualization in the on-going process of interaction.

Concept in Cognitive-communicative Terminology is presented as an unstable knowledge entity potentially reified in the new communicative situation. General and specialized knowledge evolving in professional discourse are biased with cognitive mechanisms and embodied cognition of an individual. The variability of concepts in specialized discourse is underlined by human intentions, type of discourse and contextual grounding.

Keywords. Concept, terminology science, Languages for Special purposes, cognitive linguistics, specialized discourse, cognitive models, categorization, conceptualization, conceptual integration, cognitive map.

1. Introduction

A linguistic meaning and a concept are regarded to be the central issues in the language science. The efforts to treat them in every detail are associated with the desire to reveal their peculiar nature and to construe the existing body of content according to the intellectual movement in the history of linguistic thought.

A word meaning is an object of quite a number of interpretations exploring it in diverse ways. Because of a considerable array of interrelated senses it is presented as “the “holy grail” not only of linguistics, but also of philosophy, psychology, and neuroscience [...] Understanding how we mean and how we think is a vital issue for our intuitive sense of ourselves as human beings” (Jackendoff 2002: 267). With the development of linguistic science the word meaning is bringing us closer to the understanding of the second very important entity called a concept, with which the word meaning and many other linguistic notions become inseparable.

The concept is fundamental, controversial and problematic of the relatively short history of linguistics as a discipline. It implies the focus shifting to the wide complex of knowledge-oriented sciences.

The objective of my paper is to present a contemporary treatment of the concept in Cognitive linguistics and Cognitive Terminology science, starting with the sources of this ontological entity in structural trend of linguistics and Terminology. Even today we address various approaches

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in the study of this phenomenon, because “[...] we do not know everything about the nature of language and thinking, language and society, language and life” (Alexandrova 2011: 7).

In order to address one of the most important issues playing a significant role in philosophical and scientific inquiry my objective is realized in certain steps, according to which the article is structured as follows.

Firstly, two distinct scientific approaches in linguistic and cognitive literature, according to which the notion of a concept is explicated, are shown. It should be emphasized as far as these tendencies are concerned that both of them and their findings are crucial in explanation of linguistic activity of an individual.

Secondly, discussing each of these perspectives of linguistic knowledge I would like to show the interaction of ideas in linguistic theory and Terminology science development. The last responds to socially and professionally determined interaction, technological and academic challenges.

Thirdly, the target of the thorough investigation of concept nature and its structure meets the requirements of terminological units being part and parcel of English professional communication and language for special purposes. To better illustrate the peculiarities of distinct concepts I have to face perceptual and conceptual sources of naming while working with cognitive models linked with imaging systems being at the disposal in cognitive linguistics.

2. Concept description in traditional linguistics

As is well known, the traditional viewpoint on the relations between some referent, designation and its concept was formulated by the German philosopher Gottlieb Frege and later developed in linguistics as a referential approach to a language sign. Such a description takes into account the conventional relationship between an object in reality, a symbol and its form in accordance with the semantic triangle schema relations.

This framework presupposes an objective world, on the one hand, and human thinking, on the other, that is described as a system of logical relations between various notions (“ponyatiye”) in the Russian logico-philosophical tradition and concepts in the Western tradition (Leitchik, Shelov 2003: 86; Wright 2003). The concept is the basic phenomenon represented symbolically inside the mind of a human being and contrasted to a language unit in fig. 1 (based on Evans, Green, 2006; Evans, 2012). The abstract character of the meaning and concept is defined as a set of features according to a classical principle of categorization.

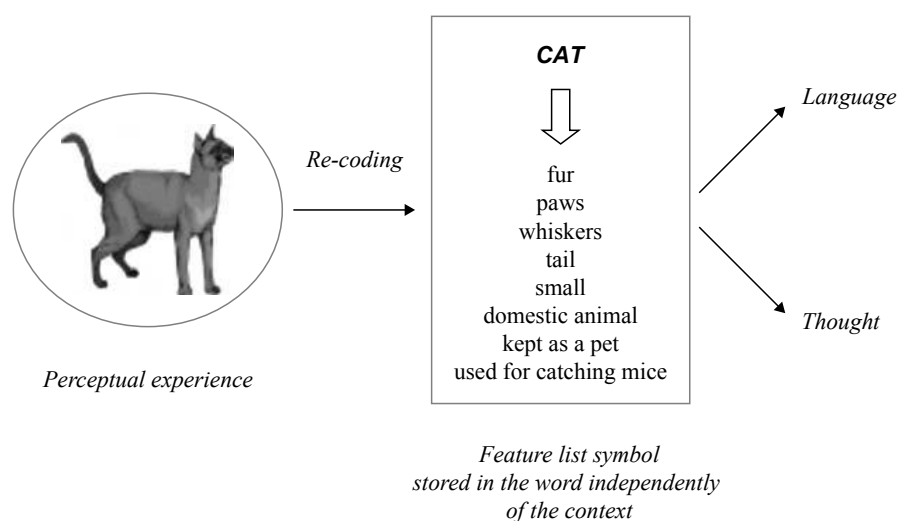


Figure 1. Feature representation of the word meaning “cat” (Evans, Green, 2006; Evans, 2012)

For example, the meaning of the word “cat” is intended by denotation and refers to “any cat” or “the class of cats” outside the particular context. This guiding principle can be illustrated

by a set of features associated with the separate image. These features include the relatively fixed and stable descriptions of fur, paws, whiskers and tail as elements of our knowledge of the particular referent. The definition of the word in the dictionary as “a small domestic animal with soft fur kept as a pet and used for catching mice” also penetrates into the object function and anchors the word within the class of particular objects. Figure 1 depicts a bundle of semantic features also called semantic markers that are able to penetrate into our understanding of a cat as a unique entity belonging to a class of cats. It occurs that it is difficult or even impossible to adequately characterize some particular sense of a linguistic expression on the basis of such features in a particular contextual environment. Moreover, this approach presupposes singleness in concept – word and word – thing correlations. And some scholars try to avoid the Saussurian belief that “an objective world” is “[...] independent of and regardless of human observation and experience” (Temmermann 2000: 3).

Nevertheless, this approach influenced greatly the development of well-known principles of terminological description both in the Russian and European Terminology Schools.

3. Concept understanding in Terminology science

The findings of the Russian traditional terminological school concern the understanding of a term and concept. They include several points:

- The term is defined as “a special word” (Lotte 1961) or “a word in the specific function” (Vinokur 1939). Later on it was accepted by terminologists that a term may be expressed not only by a separate word, but also by a word-combination;
- Term properties include the following features: one term – one meaning correspondence, paying attention to the strictness of the term, its shortness and the existence of definition (Lotte 1961);
- Terms serve as designations of specific concepts of science and technology, they appear “as a result of knowledge accumulation and appearance of special notions and concepts” (Leitchik, Shelov 2003: 90).

In Western tradition of Wüster and then Felber a concept is regarded as a unit of thought, which “[...] exists independently of the term, the meaning of which it is. A term is assigned deliberately to a concept after due consideration whether this term corresponds to the concept in question” (Felber 1984: 103).

It is necessary to mention that from the study of terms and concepts the Russian Terminology science (“terminovedeniye”) turned to the notions of “terminology” and “terminological system”. These investigations brought them to the fore of linguistic and terminological studies contrasted to each other. It was stated that terminology corresponds to the result of the naming process, because its language units “are very far from being strictly systematic” (Leitchik, Shelov 2003: 92), while a terminological system occurs “at a rather advanced stage of knowledge development” constructed on the basis of “logical form of world understanding” (Lotte 1961). It explains regularities of objects, processes and other phenomena as “a system of corresponding concepts composed within a subject field”, knowledge or activity. It is completely isomorphic to the system of concepts (Leitchik, Shelov 2003: 92).

The Western traditional Terminology Science elaborates that a subject field or a subsection of a field is mentally accessible only if the concept field is structured. This structured concept field is referred to as a system of concepts (Wüster 1991: 9-15), while terminology description should be based on logical and ontological relations.

The main achievements in the seventies of the 20th century succeeded in identifying and describing concepts and terms. They address the idea that “the concept is therefore an element of thinking” (Galinski, Picht 1997) and the better input to the description and definition of the nature of the concept is brought by language (Jackendoff 1993: 16). The simplest concept is

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represented by a word, the more complex ones are revealed on the basis of phrases and sentences. For the better demonstration of the relations between terms and concepts the term “language for special purposes” was elaborated as “a composite set of linguistic phenomena occurring within a definite sphere of communication and limited by specific subjects, intentions and conditions” (Hoffman 1979: 16).

4. The role of perceptual and language information in cognitive and functional linguistics

The shift to cognitive and functional perspective of linguistic knowledge (Manerko 2006) happened at the end of the 70s of the 20th century. It shaped the language science in a new way: it brought its notions closer to human thinking and goals of communication. This perspective is provided by the attention to two main functions. The first is the cognitive function which is presented as “language links with cognitive processes, with all ways of getting, working up, keeping information about the world in its correlation to linguistic forms” (Koubriakova 2004: 37). The second one is the communicative function, it explicates how and in which context a linguistic unit is performed.

In this cognitive-oriented methodological imperative language is described as an essential part of the human conceptual system, which resides in the minds of the speakers of that language (Dirven, Vespoor, 1998: 14). The word is not thought as some kind of objective reality existing “in and for itself”, it is shaped by our cognitive function including human perception, ability for categorization and conceptualization, interwoven with interpersonal experiences of human interaction.

Linguistics takes into account all the sides of human factor in the language: its subjective, anthropomorphic and anthropocentric character. Because of this modern linguistic science has become anthropocentrically oriented, psychologically grounded, and aimed at discursive mechanisms intertwined with interlocutors’ understanding of the world.

For example, in cognitive linguistics scholars try to show the most relevant features accumulated in the word meaning linked with many other entities in the development of the whole piece of human interaction. The sensory image, which is the basis of the common perceptual grounding of cognition, can be accessed through lexical concepts in certain contextual environment in fiction and professional discourse.

In fiction the sensory imaging is able to outline the subjective experience biased with emotions and feeling of literary heroes. It is constructed on the comparison between the object of observation and the thought of some fictional character presented by the author. For example, in the well-known story “Cat in the rain” by E. Hemingway the image of a small kitten under one of the dripping green tables during the rain is compared with the feelings of the main heroine, who is also uncomfortable in the world. E.g.:

The American wife stood at the window looking out. Outside right under their window a cat was crouched under one of the dripping green tables. The cat was trying to make herself so compact that she would not be dripped on. (Ernest Hemingway. “Cat in the rain”)

This implicit comparison is employed by the aesthetic impact influencing the reader and combined with cognitive and communicative functions.

In terminological discourse the perceptual and other body-based states come to be captured by procedures elaborated in cognitive-communicative Terminology Science. It is necessary to note that the essence of a terminological unit - a word or phrase - and its specific nature is re-considered on the basis of the wide knowledge accumulation in a scientific text and this is a bit different perspective of analysis employed in cognitive-communicative Terminology, where all traditional issues are viewed differently (Manerko 2007; Novodranova 2007; Manerko, Novodranova 2011).

5. Methodological procedures in search for concept understanding in Cognitive Terminology science

In general, cognitivists are guided by a large body of knowledge, which language units provide access to through a number of given instances of use. To show how the concepts are different in their nature and how their representation in the mind is associated with a number of cognitive and other mechanisms revealed in professional discourse, I'm going to focus on the features beneath the actual usage of a terminological unit. For this aim all the possible cases of cognitive modeling from simple to complex ones will be the subject of further terminological and of course conceptual description. These examples and illustrations may clarify the concept understanding in cognitive Terminology science of today.

5.1. Cognitive-onomasiological models

Let's take a terminological compound-word "a cat-fish" from a zoological sphere. We get acquainted with its definition corresponding to "a large fish without scales, with feeders round the mouth". Both the definition and the word integrate linguistic (which language appears to rely upon) with non-linguistic (conceptual) knowledge. In this case both elements of the unit in our minds represent "the highly detailed, extensive and structured knowledge" we access to in order to categorize these two entities we encounter in our daily lives.

In the term *cat-fish* our attention is focused on the category entity of fish. It is schematized in figure 2 as an onomasiological basis for naming and sensory-motor area of the brain activity. The common cultural knowledge provides the individual memory processing in the communicative act, for which the most appropriate semantic features are indicated. To distinguish a kind of fish among the class of the same entities the outer appearance in the sign is selectively chosen. It represents the colour of cat's fur and shape of receptors resembling whiskers to narrow the word meaning of the compound. Metaphor unites a source and a target domain in our mental image and it is depicted in the onomasiological sign of the formula.

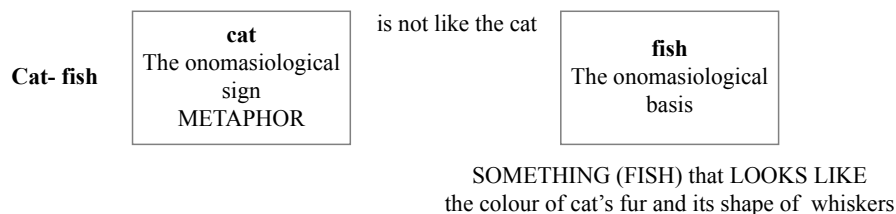


Figure 2. The onomasiological model of "a cat-fish"

But we should remember that the semantic information is as an unstable knowledge entity, it is reified every time in the new communicative situation in particular contexts. Further on different semantic features of this kind of fish are selected, they help to represent various senses, for example:

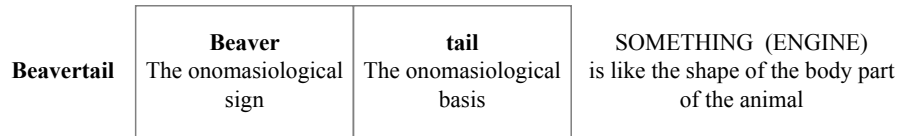
- the choice among other species of the object class in the texts: *My fish stock includes a mixture of tetras, barbs, rasboras and recently two Pictus catfish* [BNC CGH 842]; *Lots more carp in general lake with tench, crucians, bream and large catfish* [BNC K3X 67];
- the colour of the cat's fur and that of the fish is compared: *From the same family as the Giraffe Cat, there is the African spotted catfish (Parauchenoglanis sp.)* [BNC CGH 392];
- the shape of the taste receptors: *But as catfish are described as 'swimming tongues' with taste receptors all over their bodies, this may mean that other fish are less stimulated* [BNC C95 883]; *Use scavenger fish to clear up any leftover food, large catfish offer the best solution* [BNC FBN 211];

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- and the place of its habitat: *This catfish is widespread in South America, being found in many of the Amazonian waterways* [BNC C97 926]; *Synodontis schall is a widespread Catfish found in the rivers and lakes of West, Central and East Africa* [BNC FBN 771].

In the other example with the *beavertail* (see figure 3) the sensory image filters out the shape of the body part of the animal (beaver), which is projected through the similar pieces of knowledge. But it refers to the generic situation of the other area of usage, in which we need to compare motor boating features of an engine and especially its form. In the cognitive-onomasiological model the referent, that is “something (engine) characterized by its part” presupposes metonymic relations.



METONYMY + METAPHOR of the whole complex unit

Figure 3. The onomasiological model of the word “a beavertail”

The whole complex is metaphorized in a communicative act, because the interpretation of the model is never truly context-free. We can only actually interpret complex linguistic forms by constructing the uses of such forms to convey the meaning.

It is evident that both terminological units of *cat-fish* and *beavertail* involve a certain number of semantic components pertaining to a relatively stable, social and cultural knowledge, on the one hand, and personal experience of a human being, on the other. Such knowledge is able to reflect mental and psychological resources of our mind. This more or less fixed knowledge is also “dynamic in nature” (Koubriakova 1996: 90), because perceptual states are activated in service of the conceptual system. This kind of “knowledge we draw upon in order to perform a range of other higher cognitive operations including conceptualization, inference, reason and choice” (Evans, 2012: 17). These cognitive operations are aimed at an off-line processing reflected by language means (Barsalou 2012). In the course of communication all these cognitive functions “correspond to a particular sign, which refers to the membership inside some class of things in reality viewed through conceptualization and categorization” (Koubriakova 1996: 90). The dynamic and at the same moment relatively stable process of conceptualization permits Elena Koubriakova to define the concept as “an operative unit of consciousness” (Koubriakova 1996: 90).

5.2. Conceptual integration

To illustrate the nature of the concept in terminological description the method of conceptual integration introduced by Gilles Fauconnier is used. This linguist combined mapping between three kinds of mental spaces: one generic, 2 input spaces, and one blended space (Fauconnier 1999). For the purposes of my analysis this method will be simplified, because it represents two input spaces and one blended space. But conceptual integration is combined with the theory of conceptual metaphor by G. Lakoff, which includes the knowledge about the target and source domains of knowledge about objects intertwined with the ability of a man to associative implications. They are linked with the borrowing of an entity and transformation of the previously known information.

The analysis of the compound terminological unit *ugly duckling stage* from the LSP of dentistry (Dudetskaya 2007: 9) corresponds to “a development stage in the mixed dentition when the central and lateral incisors may be flared, with the crowns distally and with diastema present before the maxillary canine teeth erupt” (Dorland medical dictionary 2003: 1748). The method of conceptual integration includes three stages (Manerko, Novodranova 2012):

1. The extraction of distinctive features of the object in reality is represented in input space 1 of figure 4. The semantic components of the meaning of a well-known tale

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hero “ugly duckling” are presented in the definitions of the language units, e.g.: *ugly* is unpleasant to look at and hideous, *duckling* – a young duck, and *ugly duckling* – plain or stupid child who grows up to be attractive or brilliant;

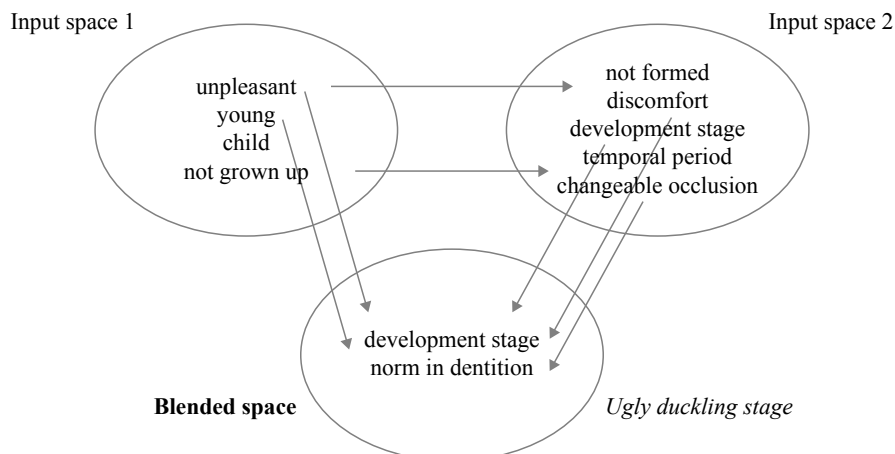


Figure 4. The representation of conceptual integration in *ugly duckling stage*

2. The further development of the conceptual content on the basis of semantic features of both concepts is presented in input space 2. Here we find the features biased with the tale character and physiological development of the child’s teeth. This stage of analysis is associated with the description of conceptualization, which is “[...] one of the most important cognitive processes of a human being, it consists in thinking of the appearing information and leading to the formation of concepts, conceptual structures and the whole conceptual system in the mind of a human being” (Koubriakova 1996: 93). The process of conceptualization is closely linked with categorization and leading to stage 3:
3. This stage includes the choice of the language means, when a nominative unit is chosen according to its lexico-grammatical and syntactico-grammatical characteristics tied to the motivation and purpose of naming in some special context.

It is quite obvious that all the previous examples involve the sensory image representation and complexity of compositional meaning in terminological units. Contrasted to perceptual systems of concept representation we should remember that the greater stock of symbolic units in professional discourse encodes the more abstract character of semantics.

5.3. Conceptual domains

Words with the more abstract character of meaning are rather frequent in terminology. They constitute dynamic representations in our conceptual system incorporating semantic properties of terms with the nature of knowledge they provide access to. The concept of such units is represented schematically in our mind.

By way of illustration, consider the well-known example of a *bisect* from mathematics “a divide into two, usually equal parts”. Our understanding of this object is relativized with respect to a larger body of knowledge, for example a triangle, without which it could not be properly understood: *The new road will bisect the town* (Cambridge International dictionary 1995: 129). In *diameter* “the (length of) straight line which goes from one side of a round object to another, through the centre of the object” the schematic knowledge is referred to the entire circle with respect to which its meaning is derived, e.g.: *The diameter measures twice the radius*, *The pond is six feet in diameter* (Cambridge International dictionary 1995: 359-360).

Crucial to the understanding of conceptualization in terminological units is the system of forming images. According to Leonard Talmy these imaging systems accommodate “definite organizing

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principles”. One of them is the dependence of conceptualization on a category domain (Талми 2000. Vol. 1:76) or conceptual domain (Langacker 1991: 17). This dependence highlights our human ability to correlate representations of some concepts in our mind in connection to other mental entities for its characteristics. R. Langacker specifies this idea by the following words, “Any facet of our knowledge of an entity is capable in principle of playing a role in determining the linguistic behavior of an expression that designates it (e.g. in semantic extension, or in its combination with other expressions” (Langacker 1991: 4).

To show how it works one more example from geometry – a *hypotenuse* – is readily incorporating a *right triangle*, incoherent without it, but selecting it as a base for the distinctive prominence characteristic of a profile. The expression’s semantic value does not reside in either the base or a profile individually, but rather in the relationship between the two provided by the INCLUSION link of the profile into the base (Langacker 1991: 6).

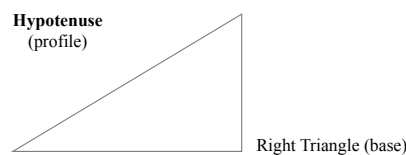


Fig. 5. The image schema of *hypotenuse*

We can easily find that that this dependence upon the conceptual domain is presupposed in any contextual usage: *The sine is the opposite over the hypotenuse* [BNC FMJ 153]; *He spoke of a mathematics of colour, Wittgenstein, a Farbmathematik: one knew saturated red or yellow, once experienced, as one knew the nature of a circle or the square on the hypotenuse* [BNC FET 2174].

Very briefly and generally, this means that the analysis of terminological units from LSP of geometry such as *bisect*, *diameter*, *hypotenuse* reveal that word meanings are related to more complex knowledge structures. Their analysis employs the relationship between schematically distinguished image of the object and its conceptual domain based on proposition. The whole process of concept understanding is associated with higher conceptual structuring including abstraction and reasoning. These processes are reflected in the schematized character of imaging represented in the concept and of course specified by the word meaning.

5.4. Perspectivization in image and discourse

Returning to the seminal work of Talmy it is necessary to point out two other elements in the imaging systems. These are “perspectivization” and “distribution of attention” (Талми 1999. № 6). Our Russian scholar Shemyakin introduced two terms similar in content to Talmy’s terms in 1935. They are “route maps (карта-путь)” and “abstract map-observations (карта обозрение)” (Manerko, Berdnikova 2011).

Route maps are dynamic and able to represent links between objects. They keep topological space features. Such maps are created and subject to changes in the active interrelation of the person with the surrounding reality. Route mapping is based on perspectivization. According to L. Talmy it “[...] is easier to characterize in terms of visual perception: here we place our “mental” view to observe some designated structure” (Talmy 1999. № 6: 88). The navigation between objects represented by the chain of thematically connected words along the certain path of thought movement becomes transparent to the reader (or listener) in discourse, because each item presupposes category domains as parts of our experience.

The perspectivization of visual images is clearly revealed in the extract from the book by American scientist Richard Feynman “Surely you’re joking, Mr. Feynmann”. Here is the passage shortened a bit to provide a clearer imagery of the thematic set of units:

Within a week I was in the cafeteria and some guy, fooling around, throws a *plate* in

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the air. As the plate went up in the air I saw it wobble, and I noticed the red medallion of Cornell on the plate going around. It was pretty obvious to me that the *medallion* went around faster than the *wobbling*.

I had nothing to do, so I start to figure out the motion of the *rotating* plate. I discover that when the angle is very slight, the *medallion* rotates twice as fast as the wobble rate -- two to one. It came out of a *complicated equation*! Then I thought, "Is there some way I can see in a more fundamental way, by looking at the forces or the dynamics, why it's two to one?"

Then I thought about how *electron orbits* start to move in *relativity*. Then there's the Dirac Equation in *electrodynamics*. And then *quantum electrodynamics*. ...

The diagrams and the whole business that I got the Nobel Prize for came from that piddling around with the *wobbling plate* (Feynman 1995).

In the superphrasal unity of the text the existing perspective of the "mental" view of the specialist in physics is provided. The whole description is the objective situation, in which the sight of the physicist slides from the plate to the medallion of Cornell University. Words like *plate* and *medallion* easily project two main categories of dishes and symbols Richard Feynman is talking about, with hierarchical and at the same time prototypical relations in each of them. These relations are depicted in figure 6, where each of the mentioned words is specified in relation to the category domain.

Further on in the analysis each of the categories will be represented in connection to the facts, which are described. The whole picture points at the links between the concepts and domains pertaining to them.

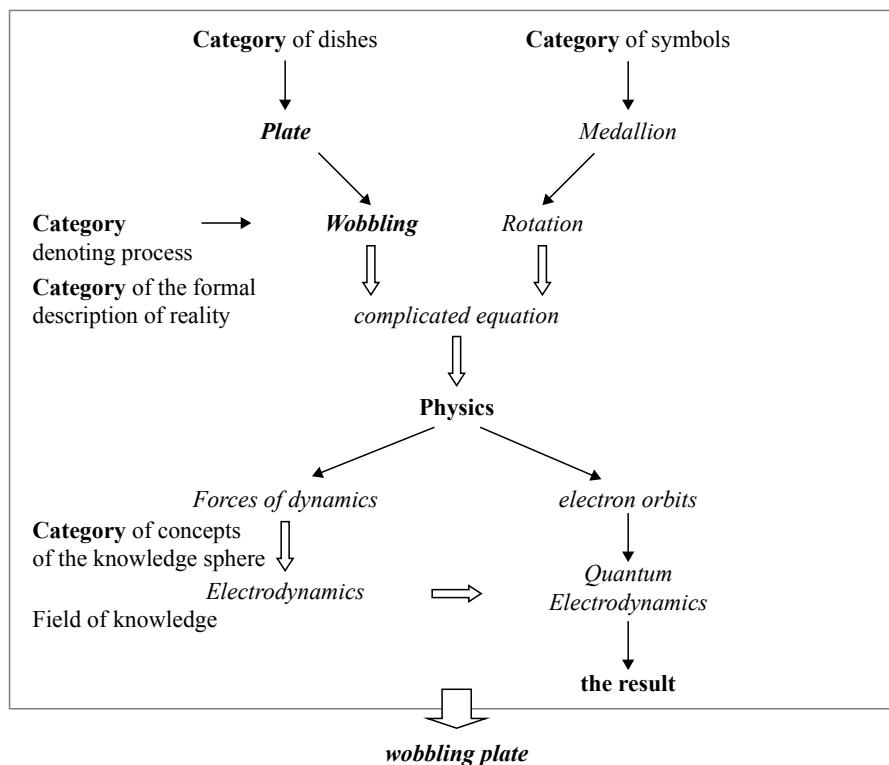


Fig. 6. The set of links and categories explicating the relationships between concepts in the analyzed piece of discourse

The scientist thinks about wobbling and rotating of these objects as physical phenomena. The observation of these processes easily incorporates abstraction and reasoning as the basis of alternative images in the construal of the perceived scene. After that the formal language of equation representations of these movements appears to be more salient than other properties of objects. Each time the brain of the scholar turns to new things trying to distinguish the most necessary categorical representatives at more and more abstract levels of identification, finding

figure and ground alignments that serve his individual experience organization.

Terminological expressions in the given abstract are linked with each other by inner images and implications. Images are operated by conceptual knowledge associations appearing in the scientist's "mental" vision and point at the complexity of individual thought in the particular situation. The author proceeds to new fields of discoveries in the theory of relativity and then quantum electrodynamics. The most striking in the examined passage is the word-combination *a wobbling plate* in the last sentence, which becomes a term-creating element of discourse.

The terminological wording of this extract provides the evidence that the concept creation that should be understood through the prism of cognitive operations with dynamic elements of human consciousness. The newly created terminological unit serves a window to human thinking within the most prominent categorical entity chosen by the speaker interrelated with other ones.

5.5. Cognitive map as the result of knowledge management in LSP studies

The other type of the imaging system more complicated than the previous ones is the "distribution of attention" (L. Talmy) and "map-observation" (Shemyakin's term). Both designations fix a rich combinatorial system of object descriptions based on their metrical features, simultaneous representation of relations and, location of objects that direct our attention. For the purposes of terminological research it's better to use the term "a cognitive map" involving a more complicated schematic representation of some particular sphere of knowledge. This term is borrowed from cognitive psychology, but in papers of L. Manerko and V. Novodranova and investigations written under their supervision it helps to access knowledge and term understanding for the aims of LSP studies.

Being based on propositions between conceptual elements this framework structure takes into account all the possible relations between pieces of human experience reflected in various sources including dictionaries, encyclopedias, textual and corpora materials. The cognitive map gives the outlook of the domain management and relations based on taxonomy with essential and distinctive characteristics, cause-consequence, propositional and other peculiarities. Here it is necessary to say that the *cognitive map* represents some particular language for special purposes furnished by the corresponding special sphere of knowledge, the characteristics of which are biased with knowledge area at some stage of its development and the importance for the professionally and culturally determined groups of a particular society. In the schematic image we can find "the organization of the system of science, constructed on the most important elements of conceptual system and principles of organization" (Novoranova 2007 (1): 139).

We can find various image representations of LSP in terminology science of today. For example, in the paper of Inga Massalina (Massalina 2009) the conceptual and language picture of the world of the concrete knowledge domain of the navy activity is introduced. The material corresponds to professional norms and adequate usage of language means designated to keep human knowledge and experience according to the purposes of special knowledge organization, its development and communication. The LSP of the Navy is divided into five strata or sublanguages. Every stratum includes specialized language of a concrete group of users or a particular context. These are sublanguages showing aspects of fundamental (theoretical) or experimental naval science, its applied techniques, material production, reconstruction, and of naval information system. They are represented in the framework *horizontally*. Each item of the stratum is also subdivided *vertically* according to the taxonomy of lexical units existing on each level of categorization in the field of professional activity.

The other example of the cognitive map construal was introduced by Tatiana Orel, who examined the terminological system of telecommunications in English (Orel 2005). In her paper it is shown that the cognitive map exists in the consciousness of communicators as a basic knowledge providing the representation and perception of information. The unity of general and scientific world image is based on "[...] all the existing types of relationships between different

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concepts” belonging to 11 categories. Each category accommodates several layers associated with the hierarchical description and cognitive-onomasiological modeling based propositional formulas. This framework is three-dimensional, multi-component, rather complicated in structure. It is characterized by the fuzziness of its borders, flexible organization because of its dynamic character (Orel 2007). This analysis offers a principled explanation for a striking organizational feature of the English system of telecommunications, namely its transformation into 3 subsystems reflecting pragmatic aims of its usage. Each of these subsystems is represented by the frame structures requiring the demands of the creator of telecommunications technologies, its user or the mediator who offers services in this sphere of activity.

To put both examples of the cognitive map construction in a nutshell, it is important to distinguish several successive steps for its representation:

- the marking-out of the key concepts, which shape the subject matter of special knowledge;
- the pointing out of the main conceptual features altogether with the analyzed language signs;
- the uniting of the same concepts into certain categories. This step helps to represent the sphere of knowledge and its links with other conceptual domains;
- the representation of concrete fragments and the whole structure of some science in the form of schemas or frames.

All these steps in the study of conceptual spheres of human consciousness give the opportunity to see the image of the most complicated relations in various parts and whole terminological systems. The concept is presented relative to conceptual category domains, many of which refer to the pragmatic, functional and other factors influencing the discursive activity of a human being. And this is the most obvious contribution of cognitive-communicative Terminology pertaining to the language and cognitive description of knowledge.

6. Conclusions

All the steps of our understanding of concepts and terminological units engaged in professional discourse and LSP studies involve certain essential points. They are necessary to be mentioned as a final observation.

1. Cognitive linguistics introduced a new approach to the understanding of different notions. It brought inter-disciplinarity, widening of the methodological outlook and knowledge ways of description in the on-going process of interaction. It influenced Terminology Science, which made it possible to acquire the status of a scientific discipline and include the vocabulary of LSP as a specific subject matter. The LSP theory is now able to definitely pace its way on the basis of cognitive Terminology Science. It has become possible to illuminate the founding features of LSP allowing to show its nature from the cognitive and communicative point of view.
2. Cognitive Terminology science widens our outlook on the construction of human specialized knowledge. It is important that it takes into account the following: 1) human multi-aspectual understanding of the reality based on the interrelation of general and specialized knowledge evolving in professional discourse and activity field; 2) cognitive mechanisms and operations exploited in discourse, 3) evaluation of the term through the theory in which it works, its reflection in naming and terminological system construction, 4) representation of the embodied cognition of an individual.
3. A concept is a very complicated phenomenon of human consciousness. It is a knowledge entity represented by a number of semantic features potentially existing in human mind, but in Cognitive Terminology science it is described as dynamic in

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nature, because of the changing level of life, science and technology, it is flexible to the range of author's associations necessarily appearing in the process of professional communication. Besides that a concept is an unstable entity enriched by various extra-linguistic, pragmatic and individual factors appearing in discourse. So, in the new communicative situation it is reified according to the needs of the speaker (author) and listener (reader).

4. The variability of concepts in specialized discourse is underlined by human intentions, type of discourse and contextual grounding. The concept may reflect sensory and schematized images, perspectivization in human understanding of reality, the focus of personal attention and its shift to other conceptual domains through metonymy, metaphor and other kinds of associations, framework and network structure and other on-line and off-line cognitive mechanisms influencing its organization. But in all these cases the concept is based on categorization and conceptualization in the mind of human being involved in professionally oriented communication.
5. Terms are regarded to be the main linguistic representatives of LSP. Their cognitive understanding has become the core achievement in cognitive Terminology, where a term is defined as a verbalized result of professional cognition, a relevant linguo-cognitive means of orientation in the professional sphere of communication. The result of cognition in this or that special sphere of knowledge or activity is realized in a term and structures of special knowledge defining its cognitive nature.

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