

On Some Basic Methods of Analysis of Content and Structure of Lexical-Semantic Fields

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Abstract—In the paper, two basic methods of analysis of the meaning of lexical units and a general structure of lexical-semantic fields are considered. The main subject is to understand the essence of the componential analysis method and the field approach. The analysis of their definitions provided by various researchers, their main terms and notions, as well as prospects of these methods are presented. The methodology of the research is the analysis of various types of scientific papers dealing with history, theoretical basis and practical application of the componential analysis method and the field approach. The authors also present the evolution of the point of view on the role of these methods in the study of the meaning of lexical items, classification of semantic units and structure of lexical-semantic fields. The result of the research is a thorough analysis of essence, features, basic notions and prospects of the methods. The scope of the results is various kinds of scientific research works concerning the study of lexical meaning and issues of classification and arrangement of different kinds of semantic components, as well as the general structure of lexical-semantic fields.

Keywords—*componential analysis; seme; field approach; meaning; integral seme; differential seme*

I. INTRODUCTION

The study of lexical-semantic fields is one of the most relevant issues of modern linguistics in both Russia and foreign countries. In this paper we are going to consider two methods of analysis that proved to be the most efficient for studying the content and general structure of lexical-semantic fields. One of them – the componential analysis method – is used by linguists around the world to study the lexical meaning of a word by decomposing it into basic components. Another method – the field analysis, or field approach – is particularly useful in terms of studying the general structure of lexical-semantic field, i.e. its hierarchy and basic types of relations between lexical units within it.

II. COMPONENTIAL ANALYSIS

A. Introduction of the method

One can hardly overestimate the importance of the componential analysis method for semantics research. In I. Kobozeva's opinion, a "method of componential analysis is one of basic methods for description of lexical meaning" [1]. One of the reasons for this is that a meaning as a collection of semes possesses a certain hierarchy instead of being an unorganized array. Obviously, system relations between semes make it possible to use the componential analysis method effectively: "Advocates of the componential analysis method either explicitly or implicitly stick to the initial theoretical presumptions, according to which a dictionary is not a simple collection of linguistic units but a somehow organized unity with its own structure, elements of which (words and their separate meanings) are interrelated and interdependent" [2].

E. Gulyga and E. Shendels also state the idea that semes make up a system; they say that "semes build up a hierarchy rather than a horizontal line. So we're dealing with the issue of system relations between semes" [3]. A. Shaikevich goes on and offers a slightly different point of view: "The transition from syntagmatic (textual) to paradigmatic (system) relations is very significant in terms of description of a language" [4]. And I. Arnold is more laconic about this issue: "Componential analysis <...> relies on paradigmatic relations within the language system" [5].

B. Definition of the Method

Various researches provide slightly different definitions of the componential analysis method, but all of them possess common features that are easy to see. For example, A. Kuznetsov says, "In general componential analysis may be defined as a method used to research the content-rich aspect of meaningful linguistic units; this method is developed within structural semantics and its goal is to decompose the meaning

of a word into smallest semantic components” [2]. O. Seliverstova says essentially the same: “We understand the componential analysis method as a procedure of splitting the meaning into constituents” [6].

A. Kuznetsov explains the essence of the componential analysis method by pointing out that “it is based on at least two presumptions: 1. meaning of each unit belonging to a certain level of linguistic structure (in our case it is a word) consists of a set of semantic features; 2. the whole lexis can be described by means of limited and relatively small number of these units” [2]. These two presumptions are mentioned by other researchers. For instance, I. Kobozeva also speaks about representing the meaning of a word as a combination of atomic semantic components. N. Stadulskaya mentions practically the same: “The componential analysis method is based on the thesis that the meaning of a word is an organized structure consisting of numerous basic units (semantic multipliers, semes, differential units)” [7]. In their turn, I. Sternin and M. Salomatina make a point that “seme semasiology which originates from the achievements of structural linguistics is based on the vision of a seme as a component of meaning; seme semasiology describes the meaning by means of the seme – as a certain organized combination of semes of different kinds” [8].

The vision of the meaning as a collection of some basic components can be found in the research work by M. Nikitin as well: “Componential analysis is directly connected to the structure of lexical meaning and is based on the supposition that all meanings, except for those coinciding with basic notions, consist of the components, that is, they contain simpler notions that are bounded into the integral meaning structure. When it comes to meanings, notion as part of other notion-meaning is usually called a seme” [9].

As we see, the notion of seme quite often can be found in definitions of the componential analysis method. This leads us to the conclusion that it is one of the basic notions of this method and, along with some other notions, requires analysis that is more detailed.

Before we get down to the notion of seme we need to clarify the terms as both Russian and foreign researchers give a great deal of various definitions of basic elements of meaning, and not all of them are equal to each other: “Basic meaning of lexical unit <...> is defined in many ways and has various names” [3].

For example, Y. Karaulov introduces the notion of ‘semantic multiplier’: “A semantic multiplier is usually a basic unit of content plane; as these units combine, they set the meaning of every word of the language” [10]. Y. Karaulov explains: “Various terms – a semantic component, a differential semantic feature, a seme, a semantic marker, a semantic classifier, a lexical function, a basic meaning – are used to denote the notion of the semantic multiplier within different models describing language semantics” [10].

The notion of semantic multiplier can be found in the number of scientific works by other researchers, along with other denominations: a semantic parameter, a semantic primitive, an atomic meaning, a content shape [1], etc.

In order to proceed with our research, we need to pick up one of these terms. We are likely to accept the opinion of I. Kobozeva who said that “the term ‘seme’ seems to be the most convenient for us” [1]. We can also quote the facts noticed by E. Gulyga and E. Shendels: “Of all the denominations of basic meanings in lexicology and grammar, the term ‘seme’ turned out to be the most commonly used <...>. Obviously, it is because of etymological connection with broader notions such as ‘semantics’, ‘semasiology’, ‘semanteme’, etc.” [3].

Once we are done with terms, it is time for us to take a look at the very notion of seme. So, “a seme is a basic constituent of the meaning of the word or other lexical unit which reflects features of the denotatum differentiated by the language” [5]. M. Nikitin comes up with another definition: “A seme is a semantic feature as a non-nominated part of meaning” [9].

C. Types of Semes

Researchers distinguish several types of semes. Among them are integral and differential semes, and we consider them to be the most relevant for our research: “Sememes (semantic components) may be integral and differential, core and peripheral” [7]. I. Sternin and M. Salomatina go on: “When we compare semantically similar words, we can always distinguish sememes that are common for all the words being compared. Such sememes are called integral sememes. Sememes that separate the meanings of the words being compared are called differential sememes” [8].

I. Sternin and M. Salomatina also use the notion of a microcomponent to describe the integral and differential sememes: “Sememes are microcomponents of meaning, i.e. there are the components which differentiate or integrate separate meanings of words” [8].

In order to specificate their idea, I. Sternin and M. Salomatina introduce a very important notion of archiseme: “Differential sememes reflect the separate features of an object, define the archiseme concretely and classify the object of denomination as belonging to some type of objects” [8]. Indeed, if we represent the semantic structure of a term field as a tree graph, we shall see that it’s the archiseme that forms its ‘root’; this ‘root’ will eventually ‘branch out’ into more specific notions by means of differential sememes.

A more extensive definition of the nature of differential sememes can be found in the scientific work by O. Seliverstova: “We consider a feature to be differential no matter if it is the only feature which differentiates the meanings of at least two lexical units. The feature may be recognized as differential if it contains the information about the differential properties represented in at least two variants (e.g., feature of gender which falls into two meanings – male/female). Moreover, the information about these separate variants should be present in different designata” [6].

O. Seliverstova also provides a similar definition of integral sememes: “We see an integral feature as an element of information which is common for at least two lexical units and which belongs to a higher level of hierarchy as compared to those elements of meaning that make these lexical units differ

from each other, i.e. differential elements of these units should be used more frequently than the general element of meaning which integrates them” [6].

We may conclude the analysis of the above-mentioned material by citing the words of I. Sternin and M. Salomatina: “After we distinguished differential and integral semes, we can represent the meanings of the words being compared as sets of semes” [8].

D. Limitations of the Method

Like any other method of scientific research, the componential analysis method has its limits so it should be applied properly. Some researchers began to try to apply this method not only to a separate term field but to the language system as a whole. The presumption that the meaning of every linguistic unit can be broken down into simpler components resulted in the idea of a strictly structural, combinatory approach to analysis and synthesis of meaning.

Needless to say that the idea of describing the meaning of every word, the whole diversity of lexis by means of a system consisting of the limited number of universal meaning components seems to be quite promising. But Y. Karaulov is very skeptical about it: “Such characteristic of semantic multipliers naturally brings us to the idea that once we form the complete set of these basic ‘atoms’ of meaning, it will give us the key to many fundamental and applicative issues of linguistics. But in reality, we have got a long way to go before we achieve any practical solution of this problem. We do not have even a nearly complete set of these elements so far” [10].

Indeed, such ‘mechanistic’ approach to analysis of meaning appears to be inadequate, mainly because of the fact that every modern natural language is a priory an ‘open’ system. Cognition of the world is a continuous process that makes it impossible for any united and once-and-for-all established system of semes to occur. If such system occurred, this would mean that the process of cognition became ‘frozen’ and limited by a single theory of world order.

The problem of such strictly structural approach to analysis of meaning is obviously the fact that its advocates try to extend phonological principles to the seme structure. Indeed, the principle of combining of a limited number of differential features of phonemes thus obtaining a finite number of language phonemes works out really well in terms of the expression plane. This approach, however, cannot be applied to content plane because the infinite multiplicity of the world around us can be described and classified only into the infinite number of ways; it leads us to the idea that lexical meanings that reflect the world should be endlessly diverse as well. Cognition is illimitable and every language, as it expresses the meaning, is just a projection of this meaning and therefore is limited like any other projection. In other words, a person represents the infinite world using limited means.

A. Shaikevich also thinks that the attempts “to describe the entire lexical-semantic system or at least any large section of it” are inadequate [4]. He points out that “information in such dictionaries is organized according to some rigid logical schemes that appear to be artificial models which have very

little in common with assumed ‘natural’ systems of the language” [4].

As we conclude the above mentioned we once again would like to stress out the fact: in our opinion, the strictly structural approach described above is too artificial and limited to be adequately applied to such complicated system as natural language.

E. Prospects of the Method

We should point out that the method of componential analysis possesses its potential and prospects. For example, I. Arnold makes a point that “development of the principles of componential analysis is still in progress. The method looks promising as it can be combined with the principles of cognitive linguistics thus creating communicative lexicology; the method of componential analysis can also be useful in terms of analysis of the seme composition of the word according to the field approach <...>. As it originates from the data provided by numerous vocabularies, it can facilitate the process of improvement and perfection of definitions found in explanatory dictionaries and the lexicography theory” [5]. The author goes on: “Enhancement of the method for exposure and description of semes will help us to penetrate the semantic nature of words that reflect the knowledge gained by a human in the course of his social life” [5].

We can also cite O. Seliverstova who says, “... there are fair reasons for using the componential analysis method and there are tasks that cannot be solved without it” [6]. Perhaps, one of the reasons for that is the fact that “application of the method to the research of semantic fields appears to be the most effective” [2].

III. FIELD APPROACH

A. Introduction to the Method

Linguists around the world have been discussing the idea that any natural language can be quite naturally represented as a collection of lexical-semantic fields with connections of certain types both within and between them.

At the same time, the field structure is not considered as something unnatural, an artificial structure (a model) created solely for research purposes, but rather the objectively existing organization of language vocabulary: “Field structure, field nature is the immanent property of the language system as a whole, and it can be considered as one of the most general language universals” [11]. I. Arnold holds to the same opinion: “The result of adaptive development of language is field structure of all groups of linguistic units accepted in linguistics (no matter what criteria are used to form these groups – parts of speech, thematic belonging, functional and semantic features) as well as their variability” [5].

Consequently, more and more researchers have begun to realize the importance of the field approach as one of the most effective methods of representation and description of language: “One of the relevant issues of Russian linguistics is to determine and describe the field structure of language because lexis as a system is an assemblage of lexical-semantic

fields” [12]. I. Sheina has another point of view: “The research of lexical semantic fields is essential for exposure of the linguistic basis of intercultural communication because the field is the principal structure which organizes the thesaurus of language” [13].

Application of the field approach leads to a methodological problem: do lexical-semantic fields exist objectively in the language system or are they just encoded by the linguists according to some integral features for analytical purposes only? In the beginning of the 20th century, Ferdinand de Saussure wrote in one of his scientific works: “Other sciences operate with predetermined objects that can be examined at different angles; there is nothing like that in linguistics... In linguistics, an object does not determine the point of view; quite on the contrary, we can say that in this case it’s the point of view that creates the very object” [14].

Two different approaches to this problem eventually appeared: the ontological and the operational. Advocates of the ontological approach believe that the science should explain “the real nature of the object of research” [15] while those who are in favor of the operational approach insist that the research model is nothing but the effective way to represent the object of research. According to the ontological approach, the model should reflect the original object not only in the beginning and the end of description but on the intermediate stages as well; according to the operational approach, getting the closest correlation of the function of the original object and its model is enough. I. Melchuk upholds the half-way view of the problem: on the one hand he wants to see the intermediate results coincide, but on the other hand he fairly believes that a model “doesn’t enable anyone to draw any reliable conclusions about the real nature of the matter” [16].

In our opinion, this problem can be solved by means of the dialectical approach only. Just like in any other complex polymetric system, units of natural language are connected with each other by numerous relations of different kinds. Connecting units according to different types of relations causes different structures to occur. The mentioned structures objectively exist; they overlap each other thus forming the superposition of structures. Once a researcher sets himself a task, he marks out one single structure in the object of analysis and studies it in partial isolation from other structures. It does not mean that this researcher built the object of analysis himself; it only means that he encoded some fragment of the object and turned it into the subject of research.

All this makes some linguists believe that there is a possibility of “using the field not only as the object <...> but also as the method of research” [13]. But we think that we should make things clear from the methodological point of view: a method is something we use to study an object. In our opinion, equation of the object and the method is wrong, as it means that the object is studied by means of itself. In fact, it is the field analysis what serves as a method, not the field itself. We choose the field analysis as a research tool because it appears to be the most useful in terms of solving one of the most relevant tasks of modern linguistics – modelling the lexical-semantic structure of term system.

B. Origin of the Method

The researchers considered as the founders of the semantic field theory are Jost Trier and Gunther Ipsen: “The notion of semantic field was introduced by German linguists J. Trier and G. Ipsen in the first half of the 20th century. The person who made special contribution into the semantic field theory was German linguist L. Weisgerber” [17]. Furthermore, there are other foreign (H. Ostgoff, G. Meyer, H. Sperber) and Russian researchers (G. Shur, A. Ufimtseva, F. Filin, A. Kuznetsova, V. Kodukhov) who contributed significantly to the development of this theory. We should also mention the achievements of Yuri Karaulov.

C. Definition of the Method

The notion of the field was ‘imported’ into linguistics from other branches of science, both adjacent and quite distant. It means that the linguistic conception of this structural formation should be clarified. We are going to analyze a number of definitions of the ‘field’ notion in paradigm of linguistic research.

The first definition we are going to deal with is the most general and laconic one: “A linguistic field is an arbitrary nonvoid collection of linguistic elements” [5]. We should stress out that the author does not characterize the field as semantic, lexical-semantic or some other. Certain terms of this definition remain unspecified as well.

M. Krongauz gives a more detailed and nuanced definition: “A semantic field is a collection of words with same semantics or, more precisely, words that have a nontrivial part in their interpretation” [17].

I. Kobozeva defines a semantic field in a similar way: “In modern linguistics, a semantic field is defined as an assemblage of linguistic units possessing similar meanings that reflect conceptual, objective or functional similarity of the designated phenomena” [1].

In our opinion, the most complete definition of semantic field is given by N. Kazakova: “Main mission of a semantic field, its basic function are to provide an appropriate linguistic reflection of a certain part of reality outlined by the field name (its conceptual content) and nuanced by its elements in the most thorough manner” [18]. We find this definition to be the most appropriate for us as such distinctive features of semantic field as coverage of a certain subject area and the most precise expression of designated objects (terms) are mentioned in it.

The lexical-semantic field is an organized and arranged structural formation. Of course, we cannot treat a natural language as a completely ‘canned’ system because it contradicts the concept of language as an open system. However, we can speak about some well-represented regularities and system features: “The field approach to the description of lexis is based on the generally recognized postulate about consistency, interrelation and interdependence of lexical units” [19].

Indeed, every semantic field “is a kind of the system with all its features, i.e. something whole consisting of parts that

are connected with each other by means of certain system relations” [20].

We find the following point of view quite interesting and important: “The semantic field is closely connected with the idea of system nature of lexis which reflects the system nature of human knowledge about the world” [21]. While the first part repeats what has already been said above, the second one expresses the idea that many linguists have in their minds but rarely speak or write about.

As it has been mentioned above, lexical-semantic field possesses distinct and definite structure. Just like any other field, it consists of a core and a periphery. The meaning of every lexical unit of the field includes an invariant which is called archiseme: “Every lexical-semantic field has its own archiseme, i.e. a meaning component common for all the elements of this field” [12].

Another essential aspect characterizing every semantic field as the structural formation is that there are certain relations between its elements: “In reality, when we speak about a semantic field, we mean not only the collection of words but also semantic relations between them” [17].

M. Krongauz also points out that “when dealing with language as a kind of the semiotic system, one should distinguish paradigmatic and syntagmatic relations (paradigmatics and syntagmatics), i.e. semantic relations in language and text” [17]. G. Shur comes up with the similar idea: “Of all the approaches, the paradigmatic and the syntagmatic (syntactic) ones are the uppermost” [22]. The paradigmatic approach was developed by Jost Trier and Leo Weisgerber while the syntagmatic approach was proposed by Walter Porzig.

Something applicable to the language as a whole can be applied to a lexical-semantic field as well: “Every lexical group within the field system exists only in interaction with other groups which shows us that there are complex paradigmatic and hierarchical relations between all the elements of the field” [20].

D. Basic Types of Paradigmatic Relations

Now we are going to look through the list of some most common and relevant paradigmatic relations between lexical units within lexical-semantic field. M. Krongauz believes that “the most essential from the semantic point of view types of paradigmatic relations are synonymy, antonymy, noncompatibility, hyponymy and some others” [17]. I. Kobozeva calls these types of relations ‘the semantic field correlations’. Here is our list:

- synonymy;
- hyponymy/hyperonymy; according to the Charles Fillmore’s classification, this type of relations is called ‘taxonomy’ and is defined as “a collection of words forming a hierarchy” [23];
- noncompatibility; according to Charles Fillmore, this type of relations is actualized in a so-called contrastive array: “Some words naturally form small groups;

knowing the meaning of one of the words belonging to this group, one can easily understand the meanings of other words within this group” [23]. In other words, these are the groups of two, three and more words marked out according to some differential seme [24]. We shall call these groups ‘the semantic oppositions’;

- ‘whole-part’ correlation; this type of semantic relations is also known as meronymy [23], or partonomy according to the Charles Fillmore’s classification [23];
- antonymy [1].

IV. CONCLUSION

We have considered the two most efficient methods of study of lexical-semantic fields. Just like any tool be used for the purpose intended, each of these methods provides the best results in the certain area of application [25]. We would like to note that M. Krongauz is absolutely right, saying that “there is no generally accepted hierarchical classification of notions, and there is a reason for it. It seems like there is no ‘the only true’ classification of notions as a matter of principle” [17]. Indeed, the choice of the representation method for the lexical-semantic structure of language in general or any of its fragments depends primarily on the certain task set by the linguist.

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