The semantic structure of a word can be considered as a dynamic system constantly experiencing the influence of intra-linguistic and extra-linguistic factors which are as a rule unambiguously revealed only in a specific speech environment within the context. Thus the analysis of the context makes it possible to predict the further development of the language system itself since the frequency of using one or another lexical-semantic variant (LSV) in polysemantic words can become a determining factor for changing its (a word) semantic structure.

The most important differential feature of LSVs included in the semantic structure of a word which characterizes the peculiarities of their (LSVs) functioning is lexical compatibility. The interpretation of famous scientists states that lexical combinability is the realized ability of a word to selectively combine with other words in the speech chain in accordance with their lexical and semantic fullness.

The proposed work, on the basis of the consideration of the most frequent word functioning in the text corpus, aims to provide a description of mechanism for comparing LSVs implemented in the context with the dictionary definitions fixed in the normative dictionary.

The work is based on text material that deals with one of the fields of scientific and technical discourse – “Acoustics and Ultrasonic Technique” (ACUT). Through a continuous analysis of the ACUT text corpus the author has established that the word “system” is the most frequent unit among nouns. It was chosen as an object of the research. The analysis makes it possible to determine the extent to which the semantic structure of the word “system” reflected in the language is actuated in speech, i.e. in the text.

Technical texts can be quite attractive for research since many theoretical scientists argue that in technical texts the semantic structure of words undergoes significant narrowing, i.e. loses its elements – (LSVs). So the research made can be considered as verification which confirms or denies such a statement.

The following scientific journals of Great Britain and the USA served as the material for the creation of the ACUT text corpus: The Journal of Acoustic Society of America, IEEE International Conference on Acoustics, Speech, and Signal Processing. The total size of the text corpus is 200 thousand tokens.

The noun “system” LSVs are studied in two aspects – the one of the language and the one of speech, i.e. the lexical-semantic variants of the word “system” identified in the texts are compared with the definitions fixed in the dictionary entry of one of the most authoritative normative dictionary of the English language – Webster's [2] and then the results of comparison are considered.
First a list of vocabulary definitions is analyzed in the order recorded in Webster's dictionary. Then all lexical-semantic variants which implement the semantic structure of the word “system” in the ACUT text corpus are presented in its entirety. The LSVs are confirmed by the corresponding examples found in the corpus.

So the dictionary entry of the noun “system” contains the following 10 definitions:

1) a set or arrangement of things so related or connected as to form a unity or organic whole; 2) the world of the universe; 3) the body considered as a functioning organism; 4) a set of facts, principles, rules, etc. classified or arranged in a regular, orderly form so as to show a logical plan linking the various parts; 5) a method or plan of classification; 6) a regular orderly way of doing something; 7) a number of bodily organs acting together to perform one of the main bodily functions; 8) an arrangement of rocks showing evidence as through fossils, of having been formed during a given geological period; 9) a group of transportation lines under a common owner; 10) in chemistry, a group of substances in or approaching equilibrium.

The list of lexical-semantic variants reflecting the semantic structure of the noun “system” in the ACUT text corpus is as follows:

a) installation, e.g. Additional characteristics of synthetic aperture system and a further comparison with non-synthetic aperture sonar systems;

b) device, e.g. Once the device units have been measured, for instance, loudspeaker system development can be proceeded by computer aided design of crossovers without resource to physical construction;

c) communications, e.g. The main objective of the research was to assess the compatibilities of adaptive arrays for communication systems in real environment;

d) set, e.g. This property of self-cohering arrays alters the design and manufacturing problems of large arrays. It may prove to be the factor, which eventually permits the construction of huge systems;

e) apparatus, e.g. The echosounds system is useful in studying the properties of the atmospheric structure;

f) computer, e.g. However, experimental data obtained from tests performed on an experimental analog processor indicate that the variance expression – properly integrated – correctly characterized the performance of the analog system as well;

g) coordinate system, e.g. The Graph addition Theorem is used to transform the total field into the coordinate system of each cylinder;

h) method, way, e.g. The problem of dynamic range in the impulse measuring system is highlighted by considering the spectral equivalent of the short pulse, shown in Fig.5;

i) command of the fleet and Naval Forces, e.g. Support for the project came from the Navel Sea Systems Command, the Navel Material Command and the National Science Foundation.

The comparative analysis of the dictionary definitions and lexical-semantic variants found in the ACUT text corpus has showed the following:

- dictionary definition 1) “a set or arrangement of things so related or connected as to form a unity or organic whole” which obviously represents the etymologically original meaning of the noun “system” is used in the ACUT text corpus but it is only in the fourth place in its frequency usage, and is actualized by the LSV d);

- dictionary definition 2) “the world of the universe”. Between dictionary definitions 1) and 2), one can find a certain semantic coincidence. Some dictionaries even note the absence of this element (definition 2) in the dictionary entry of the noun “system” since definition 1) completely replaces it. The lexical-semantic variant corresponding to this definition is absent in the researched ACUT text corpus;
- dictionary definition 3) “the body considered as a functioning organism”. Here one can also note its certain semantic coincidence with definition 1). In the ACUT text corpus this dictionary definition corresponds to the lexical-semantic variants a), b), e), f).

It can be noted that all three presented definitions have a common semantic (conceptual) basis and can be reduced to one, namely “a group of related parts working together” (9). Lexical-semantic variants that correspond to these three definitions in the text corpus can easily be replaced with each other or brought together into one invariant which combines the meanings of definitions 1), 2), 3). However in practice all the phrases in which the indicated LSVs are marked deal with certain lexical clichés included in the terminological system of the specialty “Acoustics and Ultrasonic Engineering” which clearly correlates with each of these three dictionary definitions, and this fact requires that all these definitions are necessarily included in the semantic structure of the noun “system”.

And again the author would like to point to a partial coincidence in the contents of definition 4) “a set of facts, principles, rules, etc. classified or arranged in a regular, orderly form so as to show a logical plan linking the various parts” and definition 1). However some semantic differences in the aspect of content give reason to consider the lexical-semantic variants c), d), related to definition 4), as independent elements of the semantic structure of the word “system”. In addition to the above examples for c), d), one more example is presented – “This system of equations will have a non-trivial solution only if the determinant of the coefficient is zero”.

Definitions 5) “a method or plan of classification” and 6) “a regular orderly way of doing something” in Webster's dictionary have almost identical semantic meanings, in the texts of AUZT they are found as LSVs g) and h), respectively.

The contents of dictionary definitions 7), 8), 9), 10) provide for the patterns of lexical compatibility which are not typical for the lexical units of the considered ACUT text corpus. And the lexical-semantic variants that describe these definitions are not found in the analyzed corpus. In any case, within the 200 thousand tokens that were under the analysis in this work.

So, on the foundation of analysis results of the high-frequency noun “system” the author can state that the thesis of a natural sharp narrowing of the semantic structure of a word which is characteristic for the texts of scientific and technical discourse and which was put forward by many theoretical linguists is not confirmed. The results of the analysis also have showed that in the text corpora of technical specialties ACUT the semantic structure of the word “system”, although it does not cover all the definitions presented in the language system, is quite branched.

Moreover, one of the LSVs – i) “command of the fleet and Naval Forces” – is not fixed in the Webster's dictionary entry, although it is present in the researched text corpus. This indicates the possible appearing of a new semantic element in the dictionary definition list of the noun “system” that reflects this LSV.

References: