In connection with the functional interpretation of units of substantive scientific knowledge a specification into the concept of their contents is introduced. This specification is to the effect that a part of the content of a substantive unit of scientific knowledge, which is made up of generic characteristics, i.e. characteristics, which are common for all objects of the class out of which the singling out is accomplished, are presented in this unit substantively. The other part of the content of the substantive unit, made up of characteristics of the singled out objects, or their species difference is presented in this unit predicatively.

The interrelations of subtantive units of scientific knowledge, their contents and volumes are expressed in the following triangles:

Fig.4

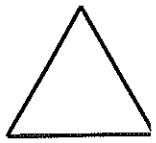

Fig.5

The organization of substantive scientific knowledge is a system of concepts and descriptions, which are connected by their content and by logics. The most important factors in this system are the specific content of scientific concepts and descriptions, and the specific content relations between these substantive units of knowledge. The content aspects of substantive scientific knowledge are stipulated by the laws of scientific fields, which prescribe a certain "picture of the world".

Apart from the specific content aspects, for the formation of substantive scientific knowledge, the ontological and logical aspects are equally important.

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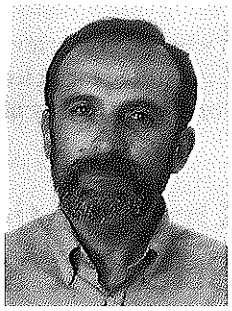

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The Linguistic Units Taxonomy as a Data Organization Problem in the Language Mechanism

The systemic approach to language makes it possible to view the problem of taxonomy of linguistic units as an establishing of a true organization of language mechanisms in the cognitive organs of man. Such an approach permits a conscious transition from the linguistic theory to the construction of artificial intelligence.

The hypothesis offered is to the effect that the language mechanisms in their material form realize those linguistic abstractions (lexemes, grammemes, phonemes, etc.), which support the observed language behavior with a minimum expenditure of physiological resources, of which the time spent on the processing of speech signals is the most important one. This approach permits us to design the procedure of search of taxonomy of linguistic units as an algorithmizable procedure of search of the extremum of a certain indicator of efficiency, which depends on the method of identification, classification, systematization and representation (copying) of speech units in the language mechanism. The procedure of search of optimal identification and classification of sounds of speech was realized in a computer experiment, where the researchers succeeded in achieving not only in attaining the final results, which was close to the usually accepted system of phonemes of the Russian language, but to observe some effects, which modelled the well-known regularities of development of children's speech, when the vocabulary of the machine was successively enriched.