

Semantic representation of referentially specialized verbal predicates using formalized language

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The principles of study and description of the relations of verbal predicates with the arguments, the dependence of the morphological, semantic, and syntactic features of the arguments on predicate semantics have been extensively discussed in the literature (Croft 1998, Dowty 2000, Grimshaw 1990, Jackendoff 1990, Jackendoff 1993, Levin 2015, Levin & Rappaport Hovav 2005, Van Valin 2005, Wechsler 1995, a. o.).

The relevance of this paper is determined by its relation to the fundamental problem of interaction of the paradigmatics and syntagmatics of language units, in particular, the necessity to study the role of an object in the structure of an expression and stems from the lack of comprehensive semantic and functional studies of verbal predicates with their objects based on the Ukrainian, Polish, and English languages separately and in contrast.

We interpret the verbal predicate as a component of a speech situation that indicates the properties of the arguments and determines their quantitative and qualitative set within the limits of the expressed statement, with the verb being its word sign. The object is interpreted as an inactive substance with an action directly aimed at its creation, modification, or destruction, therefore, the study of object relationships is not limited to transitive verbs only.

The research characterizes verbal predicates based on referential-taxonomic classes of object names where each class represents a particular physical property of the matter. The research materials are made up of referentially specialized verbs in modern Ukrainian, Polish and English, selected from monolingual dictionaries and comprising 156, 145, and 152 units, respectively. The identification of the units under study uses lexicographic information of the onomasiological type.

The analysis allows identifying such functional-onomasiological groups (FOG) as Fluidity, Hardness, Gaseousness, Flowability/Fineness/Granularity, Viscosity, Elasticity/Spinnability, Softness, External shapes, and Weight parameters. The research has proved Fluidity to be the most numerous group (29.5% of all the units in Ukrainian, 24.1% in Polish, and 23% in English). The lowest number of verbal predicates has been registered in the Gaseousness group (2.6%, 5.5%, and 4.6%).

It has been found that the interpretation of verbal lexical units in the monolingual dictionaries of the Ukrainian, Polish, and English languages is accompanied by onomasiological remarks that inconsistently and not to the fullest extent refer the user to the appropriate reference class of object names. An object specifier may be absent or represented by a generic name, thematic or synonymic row, a generalized or indefinite unit, a specific unit, etc.

We aim to develop the semantic representation using formalized language that reflects the object properties and, therefore, denotes referential specialization of verbal predicates. Semantic metalanguage was selected as the basis for such representation (Jackendoff 1990).

To illustrate the above, let us consider some typical predicate-object models written in formalized language:

Fluidity FOG verb representation model (*литути, відлитути, точити; lać, cedzić, kropić; pour, ladle, drain, etc*):

(1) [event CAUSE ([action MOVE ([thing X], [property LIQUID])]]]

Flowability/Fineness/Granularity FOG verb representation model (*сіяти, трусити, протрясати; siać, przewiewać, sypać; flick, rake, scatter, etc.*):

(2) [event CAUSE ([action MOVE ([thing X], [property POWDERY]))]]

External shapes FOG model of verb representation (*котити; тоczyć; roll, etc.*):

(3) [event CAUSE ([action MOVE ([thing X], [property ROUND]))]]

Weight parameters FOG verb representation model (*буксирувати, волокити; zdmuchiwać, ciągnąć; heft, jog, etc.*):

(4) [event CAUSE ([action MOVE ([thing X], [property HEAVY / LIGHT]))]]

Viscosity FOG verb representation model (*мазати, ліпити, шмарувати; tynkować, pastować, gipsować; clean, smear, gaum, etc.*):

(5) [event CAUSE ([state BE ([thing X], [property VISCOUS], [place ON]))]]

Elasticity/Spinnability FOG verb representation model (*бинтувати, обвивати, обмотувати; owinąć, owijać, oplatać; muffle, kink, twist, etc.*):

(6) [event CAUSE ([state BE ([thing X], [property WEAVABLE], [place AROUND]))]]

The use of semantic metalanguage facilitates the description of the structure of syntactic constructions, aspects of sentence meaning and is an advance towards solving the issues of computer analysis and synthesis of natural language.

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