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OBJECT NAMES AND PREDICATE NAMES

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Aspects of semantic/syntactic behavior of object vocabulary in propositional/case structures are discussed, including the methods of representation of semantic information on an object name in the dictionary.

The paper discusses the lexicographic description of a vocabulary layer which is often overlooked by linguistic research. These are object lexemes for which even the format of their description in the dictionary has not been defined.

The dictionary representation of a verb is based on its valence structure. On one hand, it is a "framework" of interpretation specifying the predicate definition scheme; on the other, it introduces the necessary syntactic information of a verb. In final analysis, valence structure describes the government of the verbal lexeme and thus connects semantics and syntax in the lexicographic description (compare the notion of the government pattern, the relations of semantic and syntactic valences of the predicate, etc. in the "Meaning → Text" theory [1,2]).

Semantic description of object names has no such defined "framework." All we know about such names is that they are nonpredicate and therefore have no valences. The description of semantics and syntax for phrases such as *the angle alpha*, *the ice cream cup*, *bolt with nut*, etc. can cause difficulty if no valences can be ascribed to object names.

A common view is that all object names are predicate names (see, e.g., [3], etc.); this is especially typical of studies that follow the principles of formal logic. According to this view, one should consider the relationship between the predicate *to be an angle* and its argument *alpha* rather than the syntactic relation between the nonpredicate lexemes *angle* and *alpha*. Linguistically, it is unproductive: if the difference between object and predicate words of the natural language is not modeled at the semantic representation level, how does the contraposition of lexeme classes, such as nouns and verbs, arise at different language levels?

Besides, it is unclear a priori what the phrase *to be an angle* actually means. The valence is introduced as an attempt to represent syntactic connections of the lexeme and is unrelated to its semantic structure. In principle, the syntactic structure of a lexeme is of more interest to its formal-logic than semantic structure. These are valences of a different nature than what is usually implied in the description of a predicate such as *to cut* or *to sew*. Formal logic (and the linguistic methods based on its tools) is concerned with a predicate whose places can be filled by terms, i.e., entities of a different extralinguistic level (referents) rather than the valence of a lexeme which is filled by another lexeme. These relations model just some syntactic and referential properties of the object name but not its lexical semantics. The latter in this case is held hostage by the purely logical approach which cannot move analysis further.

Another solution of this problem is predetermined by theoretical principles of the "Meaning → Text" model. Some noun groups are assumed to be lexicographically connected with predicates. They realize the standard method of filling the valences of these predicates. Thus, *builder* = 'the one who builds'; *building* = 'something that has been built,' so that for the predicate *to build* its first valence is described by the noun *builder* (S_1 of *to build*) and the second valence by *building* (S_2 of *to build*).

This interpretation of the relationship between a noun and the predicate allows one to model simultaneously both semantics and syntax of such nouns as *builder* or *building*. How can one model the relation *builder* → *town*? If the builder is 'one who builds X,' then obviously the free object valence for X in the predicate *to build* (*to build what*) is "assigned" to the name S_1. The verbal noun acquires the ability to inherit some valences of the initial verb. Thus, according to the "Meaning → Text" model, the verbal name *builder* incorporates variables in its interpretation and has valences due to the "semantic derivation" from the predicate (*to build*). The semantic

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structure of the verbal noun is different from that of the predicate: the predicate (e.g., *to build*) corresponds to a structure which has at the top node a predicate (*to build* = '[in a certain fashion] cause the beginning of existence'). The noun corresponds to a structure which has a term at its node (*builder* = 'the one who builds').

Along these lines one readily discovers that this semantic derivativeness with respect to a predicate is characteristic of a large number of object names. Above all, this is true of artefacts. Indeed, an artefact is an attachment, device, or appliance intended for use in some human activity. A predicate describing this activity naturally fits in the structure of an interpretation which is generally the same for all artifacts: *spoon* = 'appliance for eating such that ...'; *armchair* = 'appliance for sitting such that ...'; *umbrella* = 'appliance for protecting persons from rain/sun such that ...'; etc. (we disregard here different kinds of information included in the lexicographic representation of an object name such as its color, size, material, etc.).

Interpretations of most object names thus include semantic variables inherited from those predicates that are semantically linked with these names. In this sense, object names (at least, most of them) are predicate names. This is true not only of artefacts. Names of natural classes such as *farm crops* can be connected with the predicates *to sow* or *to plant*. Names of fruits of these plants are connected with the predicate *to eat* (see, e.g., [4]).

Advantage of this description of object names is the explication of the semantics of these syntax. Consider, for example, the possessivity relation: in a normal pragmatic context *my room* = 'the room where I (usually) live'; *my soup* = 'soup I have cooked' or 'soup I eat.' Formation and interpretation of possessive structures includes some nontrivial rules not discussed herein (see [5] for more detail), but the structure of these rules is obvious: they rely on the fact that the semantic structure of an object name includes a predicate component and semantic variables*.

Possessive relations are an important type of semantic/syntactic relations of object names. Another type of such relations is expressed in phrase structures such as *gun case*, *door lock*, *man with newspaper*, etc.

Semantically, three types of such structures are distinguished. First, the structure describing the part/whole relationship: *clock hands* or *table corner*. These are lexicographically simple structures. The constitutive lexicographic information of *hands* or *corner* is the fact that they are a part of a certain object *X*. The syntatic structure describes a constant semantic relation specified lexicographically. Another type of structure (also theoretically simple) includes various appositions of two generally unconnected objects. Combinations such as *fly on the floor*, *towel on the chair*, *birch with rowan*, *carpet under the sofa* describe methods of relative positions of two arbitrary objects: in the case of *X* on *Y*, two working surfaces of objects are in contact; in the case *X* with *Y*, *X* and *Y* are nearby (close), etc.

The third semantic type of phrases does not express the part/whole relation and does not indicate a simple apposition of two disconnected objects. For example, the combination *shoes with shoelaces* is usually interpreted as *shoes with laces pulled in* (rather than 'shoes with shoelaces lying nearby,' cf. *shoes with boots*, *birch tree with rowan tree*). This is also true of the phrase *pillowcase on the pillow*, which mainly indicates that the pillow case has been put on the pillow rather that it just lies on it. Examples of nontrivial interpretation of phrases are frequent. The lexeme pairs: *cup/saucer*; *door/lock*, *belt/coat*, *key/cabinet*, *bolt/nut*, *needle/thread*, etc. are linked by relations similar to part/whole relationship. However, it is a different relation both from the denotative point of view (the saucer is not a part of the cup) and from the linguistic point of view.

The theoretical problem associated with the description of this type of relations is this: certain pairs of semantically linked object lexemes (i.e., such which describe objects that are participants of a common situation) enter in phrases with prepositions *on*, *with*, *from*, etc. The prepositions in that case acquire a nontrivial semantic interpretation. These pairs can also freely enter in structures with the preposition *to*: *X to Y* (*key to cabinet*). There are also pairs of semantically connected lexemes of a different type: even when they enter in prepositional structures, these have trivial interpretation,** and never the phrase with the preposition *to*.

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*In this case, exceptions prove the rule: in some special pragmantic conditions a phrase such as *my bicycle* can be interpreted not as 'the bicycle I ride' but, for example, as 'bicycle I am repairing' or in some other sense. This means that in this pragmatically marked situation a new occasional pragmatic relation is formed between the participants of the situation, which is stronger than semantic lexicographically established constant relations built into the lexeme *bicycle*.

**A trivial interpretation is one acquired by a prepositional phrase containing two "random" semantically unconnected object lexemes.

Compare on one hand the pair 'shoelaces-shoes' that constitute nontrivially interpretable combinations: *shoes with shoelaces, shoelaces in shoes, shoes on shoelaces, shoelaces to shoes*, etc., and on the other hand the pairs '*hammer-nail*,' '*skies-grass*' with trivial interpretations hammer with nails (='hammer and nails'), *skies on grass* (='skies lying on top of grass') and prohibitions such as **nail to hammer*, **skies to grass*, **ax to wood*, etc.

If in solving this problem one proceeds from the assumption that a lexicographic representation of such lexemes includes a predicate (*hammer* — something used *to drive in nails, piles, posts, ...*; *shoelace* — something used to *tie shoes*, boots, ...), the two types of object names become different in the type of the predicate. For a stative predicate the relationship between lexemes can be described by a structure with a preposition *to* and other prepositional phrases with nontrivial semantic interpretation. Predicates of nonstative "dynamic" kind describe relations in different pairs. Thus, relations in the pairs 'needle-thread,' 'cup-saucer,' 'shoe-shoelace' are described by stative predicates (in final analysis they are reducible to predicates of space localization*; in the pairs 'hammer-nail,' 'floor-rag,' 'skies-grass,' 'brush-ceiling,' etc. the relations are described by dynamic predicates which is reflected in the language behavior.

Interpretations of object lexemes can be constructed in a pattern which contains predicates semantically connected to the object lexeme and inherit the valences of these predicates. This makes it possible to describe semantic/syntactic properties of object lexemes. The semantic difference between object and nonobject vocabulary in this case is expressed not in that object lexemes have no variables in interpretations while predicate lexemes have them but in the fact that for predicates the top node of the interpretation is assigned to a predicate (while in nonpredicate lexemes it is assigned to a term).

This can be naturally incorporated in the semantic structure of verbal names of situations (S_0 in the terminology of the "Meaning → Text" model) because studies of their semantics show that there are significant differences between their semantic structure and the structure of the infinitive. One way to represent this difference would be to assign the top node of the semantic representation S_0 to a semantic terms such as 'process,' 'state,' 'fact' (see, e.g., [6,7] and also the paper by E. V. Paducheva in this issue).

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*Compare the semantically similar (but not identical) stative relation part/whole.