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ADJECTIVES SEEN THROUGH THE PRISM OF NOUNS AND VICE VERSA

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Semantic analysis of attributive structures "qualitative adjective + object name" is made. The semantic properties of nouns are defined which are essential in lexicographic descriptions, particularly in automatic text generation.

1. We discuss qualitative adjectives and interpretation of combinations of these adjectives with object nouns. The background of such studies is found in Vendler's "The grammar of goodness" [1], which is concerned with combinations of nouns with assessment adjectives such as *good*, *beautiful*, *comfortable*, etc. Vendler's idea* is that the scope of such adjectives that can be treated as operators covers a predicate external to the noun rather than the noun itself. Thus [1, p. 534]: "The property of *being comfortable* relates to an object through a certain action in which the object participates."

Studies of object nouns indicate that what Vendler considers an "external" predicate is in effect the base of the semantic representation of the object noun. A *comfortable home* is interpreted as a home where one can live comfortably not because the speaker refers to a situation associated with predicate *to live* but because the word *home* describes a certain "structure or facility accommodated to be liveable" and predicate *to live* is always implied in the word *home*. In a rigorous semantic description, "implied" means (in terms of predicates and arguments) that the interpretation of most object nouns** includes a predicate that typically describes a standard method of *use* of the object concerned.*** When interpreting syntactic structures with the word *home*, one often relies on the semantics of the predicate "built into" the semantic structure. One is reminded of possessive structures, such as *our home* ~ "home where we live," and Vendler's example with assessment predicates like *comfortable*, *good*, etc.

Yet, the range of adjectives that interact semantically with the predicate built into noun is much wider than it may seem to the reader of Vendler's paper. For many qualitative adjectives,**** interpretation of the phrase *Adj X* can vary depending on the standard method of use of the object identified by word *X*. Compare, for example, *squeaky floor* = "floor which squeaks when one walks on it," *squeaky door* = "door which squeaks when one opens

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*Other sources can also be cited. In particular, Vendler mentions Aristotle.

**We do not consider here the few exceptions to this general rule mentioned by Vendler, such as names of animals (*pavian*) or such words as *man*, which are beyond the scope of the present study.

***Compare the system of semantic derivation of nouns from verbs in the "meaning ⇔ text" model: the name of an action or state (S0), the name of the first actant (S1), the second actant (S2), ... [2,3]. An advantage of this description is the fact that valencies of the initial predicate are inherited by semantically derivative object nouns. This makes it possible to adequately interpret syntactic actions of object nouns (see, e.g., [4]).

****Qualitative adjectives are usually considered a morphological term: adjectives that can form degrees of comparison. Yet, the semantics of these forms varies for different semantic groups of adjectives. Thus, the semantics of the phrase *a fat piece* ~ "piece containing a lot of fat" is essentially conversive to the semantics of phrases with relative adjectives, such as *blood cells* ~ "cells contained in the blood." The possibility of comparison degree in the former case (and its impossibility in the latter) is easily explained: *fatter* means that the amount of contained fat is greater. Obviously, the nature of the degree of comparison of semantically qualitative adjectives, such as *deep*, *narrow*, and *sharp* is different: it is linked directly to graduation of characteristics.

or shuts it." Compare also *warm soup* = "soup warm to taste," *hot bottle* = "hot bottle warm to touch," *warm sand* = "sand hot to touch" (but not to taste!), *warm water* = "water warm to taste or touch" (*The moose was drinking warm water heavily*; *Slightly warm water was flowing from the faucet*).*

2. We now consider different kinds of examples. What is the meaning of *tough* or *strong*? Generally, the meaning of these adjectives can be described as "resistant to deformation," where *tough* means stability to deformation, which causes an object to disintegrate into parts,** and *strong* means resistant to deformation caused by weight (gravitation). Compare *tough furniture* (= "does not fall apart after prolonged use"), vs. *strong furniture* (= capable of withstanding heavy weight"), *tough* (**strong*) *nut*, *strong* (?*tough*) *roof*, *strong* (?*tough*) *bridge*, *tough* or *strong* (especially when used as a coat hanger) *antlers*, *tough* (*strong*) *rope*, etc. Why doesn't one say, ?*strong watch*, ?*strong dishes*, **strong hot bottle*, **strong spectacles*, etc.? Stability to deformation in the case with *tough* and *strong* must be a constant property of the object related to its normal function. For example, a *nut* is in a certain sense intended to be cracked (and eaten). A *tough nut* is one which is hard to crack. A *bridge* is intended to be walked and driven upon, and so in the course of its function it constantly experiences gravity forces and is, so to speak, strength-tested. A *strong bridge* is one that can sustain very heavy traffic. In principle, one can say that a "tough bridge" consists of certain parts and that its structure is so good and reliable that in the course of its function it will never fall apart (compare *tough furniture*). One cannot say, however, **strong nut*, because a nut is not intended to sustain a physical load, weight, or gravity. This also applies to a watch, spectacles, a dish, or a hot bottle. All these objects in principle can break or fall apart, but not in the course of normal function. It happens accidentally, and such damage violates the normal "career" of these objects. For this reason, if one tries to understand a phrase such as *tough spectacles*, one has to invent a distinct pragmatic context. For example, imagine a situation where one is dropping spectacles or throwing plates on the floor — in short, doing something unsuitable with these objects. Phrases with *tough* and *strong* are then perceived as occasional and marginally correct.

Tough and *strong* are not exceptional. These are just two examples illustrating the rule of interaction of the meaning of qualitative adjectives of a certain semantic type with the meaning of the object word. Rules of semantic interpretation of such phrases are connected with individual lexical properties of respective nouns, and especially with the type of predicate contained in the latter's semantic representation (see above). In a general form, one can present them as an adjectival combination *Adj X* [= *Adj X P*(*X*)] ~ "In the course of functioning *P*, object *X* is subjected to a certain action and manifests property *Adj*." Compare *hard*, *firm*, *flexible*, and many others. In particular, a *hard object* is an object which is touched in the course of use and which renders resistance. Therefore, *hard* means *hard to touch*. Compare *hard rock*, *hard bottom* (= which is felt as "hard" when walked upon), and *hard beef* (e.g., *frozen beef*) vs. *tough meat* (with respect to things that are edible, *tough*, unlike *hard*, is perceived as "hard to taste and not to touch"). In a normal situation, one cannot say ?*hard wall*, ?*hard lamp*, ?*hard book*, because the normal method of functioning of these objects does not include a "softness" test. In this relation, the pair *soft furniture* vs. **hard furniture* is interesting. If *soft* is a quasiantonym to *hard* and an antonym to *tough*, one understands that *soft furniture* is interpreted as "furniture soft to sit or lie upon." As to "hard furniture" — cabinet, wardrobe, desk, etc. — this class of objects has different functions, and their use is unrelated to the sense of touch.

A similar disruption of symmetry applies to the pair *deep-tall*. From a certain point of view, these adjectives are semantically similar: one denotes a large size (larger than normal) of the external vertical surface of an object; the other denotes a large size (also larger than normal) of its internal surface if the object is a vessel. If the vessel has a certain surface comparable to its inner surface, then *tall* and *deep* measure almost one and the same characteristic but on different sides: outside and inside. Thus, a "deep container" in a normal situation would also be *tall*. Yet, measurement of depth and height in the language is also subordinated to a functional idea, like the

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*Degree of "functional" anthropocentrism (after Wierzbicka [5]) in these examples and, in particular, the adjective *warm* is considerable. It is untrue, for example, that all things that can be eaten are warm to taste. This interpretation does not apply either to *warm apple* or *warm banana* or even *warm bread*. The important point here is the fact, before eating such things, one takes them by the hand and feels them, and so "tactile" interpretation takes precedence.

**Exceptions include some vegetables, the human body, and certain body parts. Compare *firm beet*, *firm cabbage head*, *firm cheeks*, etc. The nearest synonym to *firm* combined with nouns of this semantic group is *resilient* rather than *strong*, because the method of deformation for these objects is different from that in the main group.

softness or *hardness* test. Thus, one can speak of *deep* (but not tall) *plates* — from which one ladles soup with a spoon, dipping it to the bottom, but a *tall* (but not deep) *glass* or *tumbler* which one holds in one's hand and drinks from, so that the inner surface of the vessel is functionally immaterial and, as it were, does not exist. Compare also *deep galoshes* (one puts high boots in them) and *high boots*, for which functionally the size of the outer surface that protects legs from mud and water is more important.

3. Finally, we consider another aspect of interpretation of adjectival phrases which also is related to the covert predicative property of an object noun. We again consider the word *tough*. A certain class of objects can break or fall apart in the course of their functioning. These are tools and mechanisms. Nevertheless, none of these objects can be described as *tough*: **tough hammer*, **tough rake*, **tough tractor*, **tough machine*, etc. In all such cases, one speaks of *reliable*, or, simply, "good." This is because *tough* applies only to objects that sustain a certain action rather than those which execute an action. This is also true for *strong*, *hard*, *soft*, *flexible*, *elastic*, *wobbly*, *bitter*, *sweet*, *rough*, *sticky*, *viscous*, *dense*, *brittle*, *clear*, and many other qualitative adjectives. They are, as it were, passive, because the general pattern of their interpretation (see above) is ultimately reduced to this condition: "If in the course of functioning, the object is acted upon in a certain fashion, it manifests property *A*." Obviously, no tool fits into this interpretation pattern (due to its specific "role" element), as seen from the examples with the word *tough*. An important lexicographic corollary is the suggestion that, in addition to role-based classification of verbs, one needs a role-based classification of nouns to be able to construct grammatically correct combinations with different semantic groups of qualitative adjectives.

As can readily be seen, the first class of nouns (active or agent-like nouns) contains tools and mechanisms.* They are first actants of a verb built into their semantics (see [3]); *needle* ("a thing that pricks"), *hammer* ("a thing that drives nails"), *knife* ("a thing that cuts"), etc. The adjectives that describe these object nouns are also names of, so to speak, agent-like features: they characterize the potential success of an action executed with the aid of the tool: *sharp* ~ "such that if it cuts or pricks it does so well [i.e., rapidly, easily, evenly, etc.]," *clear* (*bell*) ~ "if it rings, it can be easily heard."**

Objects that describe "passive" names have nonactive roles in a situation of use standard for them: *Door*, "a thing that is opened and shut," *floor*, "a thing that is walked upon," *home*, "that place wherein one lives," etc. As we have seen, there is a separate class of adjectives which take into account the specific semantics of such nouns. The phrase ?*sharp door* can be interpreted with much difficulty (in an utterly pragmatic context): in a normal situation, a door does not cut anything but is itself an object of physical action of an entirely different kind.

4. Peculiar "semantic collisions" not provided for the above rule may arise in the language. This is possible, because many nouns do not have a rigid semantic structure with a distinctive active/passive polarity.

Thus, a rock is a thing that has no distinct function. A rock can be sharp, meaning that it can cut or pierce something. A table should not be sharp (as with a door). Compare ??*sharp table*. However, the phrase *sharp table edge* is possible. The table edge has no distinct function either, though it is more likely to be passive: a *sharp edge* is an edge against which one can cut oneself. Simple semantic rules are even less applicable to noun phrases such as *sharp elbow*, or *sharp nose*. In these cases, the concept of shape (which is essentially secondary) is dominant for functional *sharp*.

This is also true of the adjective *strong*: it can occur with a name of substances, as in *strong tea* (*perfume*, *vodka*, *broth*, and some others; compare also *strong frost*). Semantically, this is an unusual group for *strong*. The objects in question — names of substances — are not subjected to deformation in the course of their use. Thus,

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*Obviously, activeness is taken in a conditional sense, because the real agent is the individual performing actions and using these objects as tools. Generally, in situations of cutting, sewing, etc., interpretation of these object words (knife, saw, etc.) assign to the agent-like function of these things a role which is in a way more important than that of the individual (compare the natural metonymic transfers *the knife cuts*, *the needle sews*, etc.; especially, *the knife cuts well*, *the needle sews well*). The individual in such an interpretation of a situation, made as it were from the point of view of the tool, is assigned a different role: a person in a certain sense interested in execution of the action: *sharp* ~ "cutting easily, requiring minimal effort on the part of the individual."

**We deliberately disregard semantic details of interpretation of nouns and adjectives (these are semantically approximate schemes).

standard functional interpretation is impossible. Lexicographically, we have two different meanings for *strong*;* the second meaning (~ "having a high degree of density/intensity") is generated by the change in the combinability scope of the adjective. Compare opposition for adverb *strongly*: *beat strongly*, *pasted on strongly* vs. *hoped strongly*. The difference is determined here again by the semantic type of the predicate that falls within the operation scope of the adverb.

In this sense, adjectives of the *good* group analyzed by Vendler are an exception: in principle, they possess no selectivity for nouns, and their own semantics are so broad and neutral that they can combine with practically any noun, absorbing not only their functional semantics but also their contextual pragmatics.

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*Obviously, these different meanings may be backgrounded by a certain semantic invariant; finding this invariant and explaining the modification mechanism is a separate problem.