

ON THE SEMANTIC INDETERMINACY
OF DENOMINAL ADJECTIVES*

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1. Argument

In his review of Levi (1978), Newmeyer (1979) rejects her generative semantic description of denominal adjectives as presented there, and postulates a lexical-interpretive approach to such morphological structures¹. His suggestion derives mainly from the inadequacy of Levi's theoretical framework; we believe that a lexical-interpretive analysis of denominal adjectives is also motivated by their semantic intricacies, which are unaccountable in a meaning-based theory like Levi's. Such theories assume that denominal adjectives are ambiguous between a fixed set of definite senses. However, the perusal of available semantic classificatory matrices proposed for English and Polish denominal adjectives clearly demonstrates that a complete and a coherent list of meanings rendered by them is unattainable². A plausible explanation of this fact is that the morphological structure of denominal adjectives gives only a general outline of their meaning, their actual reading being regularly determined by the interaction of this structure with linguistic and pragmatic context. It is the purpose of the present paper to indicate what constitutes the context for denominal adjectives, and that context does contribute to the interpretation of such adjectives. The paper also includes an outline of a lexical-interpretive approach to denominal adjectives.

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¹ In actual fact, Newmeyer's criticism and postulates relate to the so-called complex nominals, i.e. morphosyntactic constructions of the form $[\text{Adj}_{\text{denominal}} \text{N}]_{\text{N}}$ and $[\text{N} \text{N}]_{\text{N}}$.

² Evidence and a detailed discussion of this issue have been included in Post (1986).

2. *Types and role of context*

The meaning of denominal adjectives is determined by two factors: (i) their morphological structure, and (ii) their syntactic attributive function. Denominal adjectives represent a combination of a noun (e.g. *child*, *lalka* 'doll') with a suffix (e.g. *-ish*, *-owaty*): *childish*, *lalkowaty* 'dollish'. It follows from their morphological structure that the relation between such adjectives and their heads actually holds between the base noun and the head noun, e.g. *mąż brodaty* 'bearded man' describes the connection between the head noun *mąż* 'man' and the base noun *broda* 'beard' plus the semantic and/or syntactic modification brought about by the suffix *-aty*. The validity of this observation has been recognized by many Polish and English scholars (cf. Heinz 1956, Gawelko 1976, Kastovsky 1974, Levi 1976, 1978).

In actual usage, denominal adjectives express a wide range of specific meanings, or more specifically, individual adjectives may enter into a number of different relationships with various head nouns, and accordingly convey different senses. For example the adjective *stalowy* 'steel' in *drut stalowy* 'steel wire' denotes material; in *przemysł stalowy* 'steel industry' a complex relationship is denoted: 'branch of industry dealing with the production and processing of steel'; in *stalowe nerwy* 'nerves of steel' similarity is expressed. Currently, there are two views on this issue. One group of linguists, like Levi (1978), claim that denominal adjectives are ambiguous between multiple but manageable number of senses. Adherents of the second view, Heinz (1957b), Booij (1979), to which we also adhere, maintain that in fact the number of senses is endless because their meaning is context dependent, and the number of contexts possible for denominal adjectives is in principle infinite. But what precisely constitutes the context for denominal adjectives? To begin with, we assume after Heinz (1957a: 98) that there are basically two types of such contexts: (i) immediate context (*kontekst bliższy*), i.e. the head noun; (ii) further context (*kontekst dalszy*), i.e. the rest of the utterance. Since the indispensability of the head noun in the interpretation of denominal adjectives has already been illustrated above, we shall not go into any further details now, but return to this issue in section 3 below. Instead we shall concentrate on further context and its contribution to the interpretation of the adjectives involved.

The examples given below, taken from Kurkowska (1953: 86–7), illustrate the relevance of one type of further context, i.e. of the printed text, in establishing the intended sense. Consider the adjectives *brązowy* 'of bronze' and *rogaty* 'with horns'. If we restrict the analysis to their immediate contexts, i.e. to their head nouns, *dyskusja brązowa* 'bronze discussion', *rogaty bankiet* 'banquet of horns', what we can safely say is that the discussion is somewhat related to bronze, and that the banquet is somehow related to horns. The

intended nature of these connections, however, is not clear. The situation changes radically when the two NPs occur in their utterances, i.e. their printed texts:

- (1) W swej książce *Brązownicy* Boy określa dyskusję nad tym czy Mickiewicz ma być dla nas żywym człowiekiem, czy posagiem z brązu — dyskusja brązowa.
'In his book *Brązownicy* Boy labelled the controversy over the question whether we should treat Mickiewicz as a living human being or as a statue made of bronze, a bronze discussion.'
- (2) Love [...] zamierza zaprosić [...] przedstawicielki [...] krowiej rasy na bankiet [...]. Ma podobno duże kłopoty z zaangażowaniem kelnerów dla tego rogatego bankietu.
'Love intends to invite a representation of cows to a banquet. They say that it is rather difficult for him to find waiters for this horn banquet'.

It appears that in the interpretation of denominal adjectives we also apply non-linguistic knowledge. In the following two sentences, taken from recent volumes of the *Newsweek* magazine, we find the adjective *hawkish*, which outside of any context would be most likely associated with the meaning of similarity resemblance: 'like a hawk, like that/those of a hawk'. However, when used, this meaning commonly associated with denominal adjectives derived from animal bases will be of no help in the interpretation, as is evidenced by the following examples:

- (3) Major oil companies finally balked at paying Libya's hawkish prices, forcing Kaddafi to slash his rates in order to keep the oil money flowing in.
- (4) The dismissal of Gene Rostow, a hawkish Democrat who wasn't hawkish enough for some Republicans, left Reagan's arms-control apparatus badly shaken.

In order to interpret the adjective *hawkish* in the first sentence one has to know that the English speakers associate conventionally with the kind of bird denoted by the base noun *hawk* such stereotyped characteristics as merciless, robber, etc. The interpretation of *hawkish* in the second example requires a still different kind of knowledge, i.e. one has to know a good deal about political life and political affairs in the USA. To recognize the intended sense of *hawkish* one has to be familiar with the distinction made between "hawks" and "doves", the former term normally being associated with the Republicans and the latter with the Democrats. Finally, the interpreter should know that to be a "hawk" implies that one is a hard-liner, tough, radical and conservative in dealing with political matters.

The kind of information needed to assign appropriate senses to the adjective *hawkish* in the above examples is evidently a non-linguistic knowledge, i.e. world knowledge, and as such can be regarded to provide the psychological context in the sense of Ogden and Richards (1923) (cf. also Kreckel 1981).

A somewhat different example of the role of context in the interpretation of denominal adjectives can be found in Levi (1978: 160). In a financial column of the *Chicago Sun-Times* the NP *vehicular vermin* appeared. Out of context it can be assigned a locative interpretation like 'vermin in vehicle'; in the proper context, however, the locative sense was anomalous, given the fact that the subject of the column was a proposed automobile plant to be built in the United States, and the full sentence was:

- (5) If VW decides to gestate its vehicular vermin here, they would come from anywhere.

The use of *vehicular vermin* in the sense 'vehicles which are vermins', and its interpretation depends not only on the context provided by the printed text, but also on the reader's extralinguistic knowledge that VW cars are often referred to as bugs. Without this extralinguistic knowledge, it is unlikely that the readers of the column were able to associate with *vehicular vermin* the interpretation that the writer had presumably intended.

Two conclusions follow from the preceding paragraphs. One is that, as regards the type and number of relationships holding between the head noun and the base noun of the adjective, denominal adjectives are a vacillating category³. But there is also another dimension of vacillation of the denominal adjective, i.e. vacillation between the meaning of relation on the one hand, and the meaning of quality on the other⁴. It can be observed that in extreme cases, the semantics of the same denominal adjective, in different contexts, i.e. with different head nouns, may take one of the extreme semantic values, i.e. may

³ The term *vacillating category* is due to Heinz (1956).

⁴ The vacillation of the denominal adjective between the meaning of relation and the meaning of quality has been thoroughly explored in Heinz (1956, 1957b). Heinz claims that due to the morphological and syntactic properties, the meaning of denominal adjectives is in fact a function of an interplay between two conflicting forces which he calls "the object trait" (moment przedmiotowy) — the awareness of denominal derivation, and "the qualitative trait" (moment jakościowy) — the output of the derivation is an attribute. Upon such an interpretation the denominal adjective as a category, vacillates between the semantic function typical of the inflectional case (i.e. relation), and that of an unmotivated (underived) adjective (i.e. quality). As predicted, certain denominal adjectives are close in meaning to inflectional forms of nouns and certain prepositional phrases, i.e. the typical means used to express the meaning of relation, e.g. *place robotników* 'workers' wagons' vs. *place robotnicze, butelka ze szkła* 'bottle made of glass' vs. *szklana butelka*, while others come close to unmotivated adjectives, e.g. *mężne serce* 'brave heart' vs. *mąż* 'man', *owocna praca* 'fruitful work' vs. *owoc* 'fruit', *serdeczne powitanie* 'warm welcome' vs. *serce* 'heart'.

appear either with relational meaning (e.g. *problem religijny* 'problem of religion', *criminal law*) or with the qualitative meaning (e.g. *religijny człowiek* 'religious man', *criminal action*).

The second inference is that the semantic indeterminacy of denominal adjectives and their heavy reliance on context for the recognition of the intended reading qualifies them as contextuals *par excellence*. According to Clark and Clark (1979) contextuals are expressions (i) which possess an indefinitely large number of potential senses (their sense is shifting); (ii) whose interpretation depends on any occasion on the context (iii) which require cooperation between speaker and listener. We believe that even in the light of the sketchy discussion in this section, it is justified to treat denominal adjectives as contextuals.

3. Establishing relational meaning of denominal adjectives in a lexical-interpretive framework

We have indicated that the main difficulty of interpretation of denominal adjectives results from the fact that they acquire their specific meaning in context. The multitude of meanings attributed to denominal adjectives is incompatible with meaning based approaches to such adjectives, which demand that from a finite number of diverse semantic sources a single surface pattern be derived, i.e. $NP[Adj N]$. Since it is in principle impossible to specify a finite set of relations, a semantic base loses motivation. The actual case is that an enormous number of potential semantic relations can be mapped onto this surface structure. As a corollary, a syntactic base and a lexical-interpretive analysis are motivated. Below we offer an outline of such an approach.

A lexical-interpretive approach should involve (i) generating denominal adjectives in the lexicon through word formation rules; (ii) generating $NP[Adj N]$ structures directly by PS rules; (iii) mapping these structures onto various meanings expressed by denominal adjectives.

Of the lexicalist theories of word formation, the categorial word formation model elaborated and applied to Polish and English adjectives by Szymanek (1981) is compatible with the semantics of denominal adjectives. This theory rejects Aronoff's (1976) thesis "one affix — one rule", and assumes instead that word formation rules are of two types: (i) (semantic) rules of derivation, and (ii) rules of affixation. The former specify the general semantic content of the derivative, the latter define semantic, phonological and morphological constraints on the insertion of affixes. Within the categorial model it is possible to treat denominal adjectives as members of a single class of derivatives for which a single semantic rule of derivation specifying their categorial meaning can be formulated. According to Szymanek (1981), the categorial content

of denominal adjectives as specified by the rule of derivation corresponds to 'connected with what is denoted by the base noun'⁵. This methodological premise, which proved useful for word formation of English and Polish derived adjectives (cf. Szymanek 1981) is also legitimate for our purposes.

The immediate context for denominal adjectives is provided by the head nouns that they modify, the fact acknowledged by Polish and English grammarians. Accordingly, the interpretation of denominal adjectives should consider entire NPs containing them. In a lexical-interpretive framework such NPs will be generated in the base. Their general semantic content corresponds to 'N_{head} is connected with what is denoted by the base noun', and it is assigned to such phrases by a projection rule of attribution, more or less like the one that Katz and Fodor (1963) discussed for such constructions. The above is the entire semantic content that WFRs and base rules endow with all attributive NPs containing denominal adjectives. Let us now demonstrate how other devices of grammar enable to specify the relational meanings of denominal adjectives.

It is a common practice in English and Polish accounts of denominal adjectives to identify their specific readings either with the semantic relationships that hold between the head noun and the base noun, or various case relations, or syntactic functions. Typically, in such works semantic classes of adjectives such as possessional, material, of designation, agentive, temporal, locative, subjective, objective, etc. are found (cf. for example Ljung 1970, Gaertner 1938, Grzegorzewska 1979). Most of these relationships reflect various perceptual and cognitive categories, and therefore their relevance for the interpretation of denominal adjective-noun collocations cannot be denied. We would prefer, however, to describe the relational meaning of denominal adjectives in more restrictive terms, and our suggestion is to do that in terms of (i) grammatical relations such as subject, object, etc., and (ii) thematic relations such as Agent, Patient, Theme, etc.⁶.

⁵ As Szymanek (1981) admits, his categorial content derives from Heinz's (1957b) suggestion as to the semantic content shared by all denominal adjectives.

⁶ In keeping with the lexicalist tradition, we assume Jackendoff's (1972) partial semantic interpretation view according to which the semantic interpretation of an expression is not a single representation but a collection of information of various sort about different aspects of meaning of this expression. In Post (1986) we argue that the minimum semantic interpretation of denominal adjectives should involve (i) their categorial meaning; (ii) relationship holding between the head noun and the base noun of the adjective; (iii) their relational meaning. It can be seen that we distinguish between the relationship linking the head noun and the base noun on the one hand, and the relational meaning on the other. In this respect, our proposal differs from earlier works in which these two aspects are treated jointly as a single semantic phenomenon identified as the meaning of the denominal adjective. For arguments against such a view see Post (1986).

The immediate advantage of our proposal is that it offers means of expressing relational meaning of denominal adjectives in terms of a fixed set of grammatical and thematic relations, generally recognized and relevant to other areas of grammar. Thus it will be possible to state precisely the relational meaning of denominal adjectives modifying deverbal substantives⁷. For example, in the collocation *presidential refusal* the relational meaning of the adjective *presidential* can be defined as 'subject of the verb stem of the head noun *refusal*', as far as grammatical relations are concerned, and 'Agent of', as far as the thematic relations go. In *musical criticism*, the relational meaning can be specified on these two levels as 'Object of' and 'Theme of'.

Our suggestion is compatible with rules, principles and representations of a lexicalist grammar such as EST. In keeping with the basic tenet of lexicalism, we shift the burden of indicating the semantic/syntactic parallelism of denominal adjective+noun collocations and corresponding sentences from the syntactic component to the lexicon. In other words, we dismiss the view held by transformationalists that the collocations involved and their related sentences originate from common underlying structures, and assume instead that the lexicon can handle this parallelism adequately.

Implicit in our discussion of the phrase *presidential refusal* is the claim that the deverbal noun *refusal* somehow inherits syntactic and semantic properties of its base verb *refuse*. It seems to us that such a possibility has been recognized in grammar. For example, Roeper and Siegel (1978) claim that in the course of deriving new words WFRs can affect the subcategorization frame of a lexical entry in three ways: (i) frames can be inherited from the base word used as input; (ii) frames can be deleted with the addition of certain affixes; (iii) frames can be added by redundancy rules. The pair *destroy-destruction* is given by Roeper and Siegel to illustrate the first case. The same idea is expressed in Jackendoff (1975) and reflected in some of his semantic redundancy rules, for example, the semantic redundancy rule relating *-al* nominals to their base verbs:

$$(6) \quad \left[\begin{array}{l} +N \\ +NP_1's \text{ } ((P)NP_2) \\ (NP_1's \left\{ \begin{array}{l} \text{ACT} \\ \text{PROCESS} \end{array} \right\} \text{OF}) \\ Z\text{-ING } NP_2 \end{array} \right] \longleftrightarrow \left[\begin{array}{l} +V \\ +NP_1 \text{ } ((P)NP_2) \\ NP_1 \text{ Z } NP_2 \end{array} \right]$$

(Jackendoff 1975: 650)

⁷ On analogy to compounds (cf. Marchand 1969) they can be labelled as verbal-nexus collocations, as opposed to nonverbal-nexus collocations such as *musical clock*, *Markovian solution*, etc.

The two lexical entries related by the rule show that it is not only the subcategorization frame that the derived word inherits from its base word, but also the functional structure, i.e. that aspect of the semantic representation where the relations between predicates and their arguments are stated. For our purposes we assume after Bresnan (1978) that the NPs have constant interpretation in terms of grammatical functions and after Jackendoff (1972) that the NPs in the subcategorization frame are coindexed with arguments in functional structure⁸.

It follows from the above that the deverbal nouns and their base verbs allow related syntactic and semantic environments. In denominal adjective+noun collocations it is the denominal adjective that occurs in these environments. Because in such phrases the relationship actually holds between the head noun and the base noun of the adjective (cf. section 2 above), it should be justified to assume that the connection of the adjective *presidential* with the noun *refusal* is the same as the connection of the noun *president* and the verb *refuse*. This assumption is supported by the argument-linking principle (cf. Lieber 1983), which facilitates the completion of the interpretation of the adjective *presidential*. According to this principle, these lexical items which have argument structure must be able to satisfy these arguments in any tree into which they are inserted, be it syntactic or lexical tree. The well-formedness of the phrase *presidential refusal* proves that the head noun *refusal* has satisfied its argument structure, and therefore, the denominal adjective *presidential* should fill one of the NP positions in its strict subcategorization frame, and also one of the argument positions in its functional structure. Selectional restrictions confine these positions to 'Subject of' and 'Agent' respectively.

One of the merits of our proposal is that it explains how the relational meaning of denominal adjectives is actualized in the context of the following head noun. According to our suggestion, the intended relational meaning of the denominal adjective is determined by the argument options of the stem verb. The substitution of the stem verb, or rather of the deverbal head noun, with another deverbal noun adjusts the relational meaning of the same adjective to the argument potential of the underlying stem verb, e.g. *presidential refusal*: 'Subject of', 'Agent' versus *presidential election*: 'Object of', 'Theme'. On the other hand, we are also able to state explicitly how the deverbal head nouns provide the context for denominal adjective attributes. Since the head inherits the argument structure of its underlying verb stem, the context provided by such nouns can be defined as the set of grammatical and thematic relations permitted by the stem verb.

⁸ Naturally, there are other ways to associate NPs and thematic relations, but they are irrelevant from the point of view of the problem discussed. For a survey of such systems and a proposal cf. Zabrocki (1981).

We will terminate the present paper with the claim that the mechanism proposed above can be extended to such phrases as *tidal wave*, *marginal note*, etc., i.e. phrases whose head nouns are non-derived lexical items. In our opinion, the interpretation of such collocations will consist of two methodologically identifiable stages. At the first stage of interpretation, a predication will be established, the two arguments of which will be constituted by the head noun and the base noun. Depending on the interpreter, the predication will vary as to its complexity and type. It will range from prepositions and verbs to series of subordinate clauses. The second stage of interpretation will involve the assignment of grammatical and thematic functions to the head and the base noun, respectively. All this along the lines suggested in the previous paragraphs⁹.

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⁹ A detailed discussion of the interpretation of both verbal-nexus and nonverbal-nexus collocations has been included in Post (1986).

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