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THE FORMAL AND SEMANTIC STRUCTURE OF MORPHOLOGICALLY SEPARABLE NOUNS[1]

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0. Today, the claim originated by F. de Saussure that language is a particular device for conveying information is a truism. The basic problem resulting from such an understanding of language is determining principles on which particular information (a particular conceptual structure) is assigned with a given meaning which carries the information (a given phonetic representation) by language.

For F. de Saussure language is a system of signs and sign is a two-sided element, composed of mutually inseparable parts: the concept and its phonetic representation. Thus, language can be treated as a set of elementary signs and grammar, i.e. a set of rules combining elementary signs in complex meaningful units. Soon, however, it became clear that the relations between the conceptual (semantic) area of language and the formal (phonetic) area are of a more complex nature (Karcevskij 1929).[2] To enumerate just the simplest

[1]The present article is an extended and modified version of the paper delivered for a scientific conference organized in December 1971 in Zawoja near Krakow by the Department of Grammatical Structure of the contemporary Polish Language (the Institute of the Polish Language of the Institute of Literary Research of the Polish Academy of Sciences). I would like to thank Irena Bellert (docent, PhD), Andrzej Bogusławski (docent, PhD), Renata Grzegorczykowa (PhD), Stanisław Karolak (PhD) and Janina Puzynina (docent, PhD) for many valuable remarks which enabled me to at least partially eliminate the flaws of the first version of the article. Of course, the flaws of this version are solely mine.

[2]The universal character of lack of unambiguous correspondence between the form and the content of sign is emphasized by Kuryłowicz's (1963: 47).

cases: different contents may have the same linguistic form (homonymy), the same content may be represented by different linguistic forms (synonymy, cases of suppletion, e.g. *rok* "year" — *lata* "years"), a more complex content structure may be represented by a simpler linguistic form (e.g. *wódka* "vodka" is an emotionally neutral word, while *wóda* — is synonymous but has a pejorative meaning). Attempts to rescue the conception of language as a dictionary of elementary signs (morphemes) and a set of rules for combining them resulted in the appearance of such notions as e.g. "a minus morpheme" (Harris 1942 : 171) (which could be illustrated by e.g. *wóda*).

Such difficulties lead to treating the content (semantic) area and the formal (phonetic) area of language as relatively independent in more contemporary linguistic works (Arutiunova 1968). The relation between the two areas is "the enormously complex conventions of correspondence between arrangement of phonological material and meanings" (Hockett 1968: 71). The scientific apparatus of traditional structuralism is not sufficient to describe this key (for linguistics) relation.

1. In the late 1950s a new theory of language emerged called generative grammar (Chomsky 1957). There are a few various generative models of language now (dependency grammar (Hays 1964; Robinson 1970), stratificational grammar (e.g. Lamb 1966), tagmemics (Platt 1971), the model developed by a group of Czech linguists in Prague (Sgall 1968; Sgall, Hajičová 1970), applicative model (Shaumyan, Soboleva 1968)[3]) from which undoubtedly the most elaborate is the model called transformational-generative grammar.[4] Disregarding the significant differences between particular models, their common feature is the fact that the models are formalized and treat the grammar of natural language as a device (an automaton, or more precisely — a series of mutually bound automatons understood in terms of cybernetics) that enables to determine, by means of a finite number of rules, "the infinite set of well-formed sentences and assigns to each of these one or more structural descriptions" (Chomsky 1964: 9).

The so called standard version of transformational-generative grammar, presented by N. Chomsky in *Aspects of the Theory of Syntax*, is a generative model of language that consists of three components: SYNTACTIC, SEMANTIC and PHONOLOGICAL. The syntactic component consists of the BASE and the TRANSFORMATIONAL subcomponent. The base generates, by means of a set of REWRITING RULES of the type $X \rightarrow Y$

[3]And its widely modified version: Shaumyan 1971.

[4]The foundations of the model were presented in Noam Chomsky's (1965) *Aspects of the Theory of Syntax*.

— Z ("rewrite, substitute the string of symbols X with symbols Y — Z"), abstract syntactic schemas which determine grammatical categories of particular sentence elements, as well as grammatical relations that occur between these elements within the sentence. What is obtained after substituting appropriate morphemes ("LEXICAL ENTRIES") for the slots opened by particular grammatical symbols is the notation of the DEEP SYNTACTIC STRUCTURE of a given sentence. Deep structures obtain semantic interpretation and then are decoded, by means of a series of transformational rules, into SURFACE SYNTACTIC STRUCTURES. The latter are structural notations of sentences in which e.g. the indicators of any morphological exponents of syntactic relations in the sentence are present (e.g. indicators of the syntax of agreement). Surface syntactic structures obtain a phonological interpretation.

Thus, within this model, the central place is occupied by the syntactic component which links particular semantic structures with their phonetic representations (links information with meaning) by means of a set of rules.

2. A series of newer approaches that originate from transformational-generative grammar assume semantics and not syntax as a starting point in language description. Syntactic rewriting of rules are substituted with rules that are the extended predicate calculus (Lakoff, Ross 1968; Bach 1968; McCawley 1970b).[5] These rules generate acceptable semantic structures of the utterance, whereas there is a tendency to treat them as universal semantic structures, independent of a given language.

An interesting version of generative grammar is the so called case grammar developed by Charles J. Fillmore (Fillmore 1968). On account of the relation between the argument and the predicate, Fillmore distinguishes a few types of arguments within the sentence (to distinguish the type of this relation he uses the unfortunate, in this context, term "case;" I shall

[5]Lakoff, Ross 1968; Bach 1968; McCawley 1970. A distinct model which deserves consideration here is being developed by Irena Bellert (1972), on the other hand research on the semantics of natural language conveyed by Andrzej Bogusławski and his papers delivered at conferences organized by the Department of Grammatical Structure of the contemporary Polish Language (the Institute of Polish Language of the Institute of Literary Research of the Polish Academy of Sciences); in Zawoja, 1971 — *O treściowych składnikach wypowiedzenia* [On content components of the utterance], in Jadwisin, 1972 — *Nazwy pospolite przedmiotów konkretnych i niektóre właściwości ich form liczbowych i połączeń z liczebnikami w języku polskim* [appellative names of concrete objects and some properties of their numerical forms and their collocations with numerals in the Polish language]. Also, the generative model developed by Czech linguists working at the Charles University in Prague (Sgall 1968; Sgall, Hajičová 1970) take semantics as the starting point.

still use the term "semantic role" to distinguish the type of the relation of the argument and the predicate). In the work referred to here, Fillmore differentiates the role of the agent of the action, the instrument (a tool) of the action or state, a living being (the patient) that receives a given action or state, the result of the action, the object of the action, a place (the location) and a being for whom the action is taken (the list is not to be considered exhaustive). The conception of the semantic roles of arguments, with specific modifications, is also accepted by linguists who work within other generative models of language (Shaumyan 1971; Chafe 1970; Platt 1971).[6]

The case grammar (at least in the version presented in Fillmore's article referred to above) is a mere draft of the particular model of language. A few important problems require further elaboration: especially unclear are the criteria differentiating predicates (here encompassing verbs, while in Fillmore — "traditional" verbs and adjectives) and arguments (here called nominal phrases; for it is known that also "nominal predicate phrases" can occur in the function of the predicate. This model is not fully consistent — it is a compromise between the generative description of language whose starting point is with syntactic structures (the distinction between "verbs" and "nominal phrases", the way of distinguishing the internal structure of nominal phrases) and the description of language whose starting point is with semantic structures (the introduction of different "cases" — semantic roles).

It seems, however, that despite these objections (and others, e.g. treating both verbs *see* and *show* as elementary predicates, in spite of a clearly more complex semantic structure of the latter, which encompasses, among others, the meaning of the verb *see*), Fillmore's model is a valuable tool to analyze the semantic and formal structure of linguistic utterances. However, Fillmorean "deep structures" cannot be treated as basic linguistic structures, but as structures that are results of applying some transformational rules[7] to semantic structures which are more basic and described by means of predicate calculus that is extended on account of special properties of natural

[6]Shaumyan 1971; Chafe 1970; Platt 1971. A similar direction, though inconsistently, is taken by Pieter A. M. Seuren (1969) *Operators and Nucleus: A Contribution to the Theory of Grammar*, Cambridge: Cambridge University Press. The term "semantic role" itself is adopted also here as in Bellert, Saloni (1973); also Bellert 1972: 92-103.

[7]Some of these rules, among others, would cause the segmentalization of complex semantic structures, that is, the clustering of some derived (transformed) semantic structures into syntagmatically inseparable elements of the deep structure of the sentence (into sets of semantic and syntactic features).

language.

In the following paragraphs I attempt to present a description of relations between the semantic and formal (morpheme) structure of certain types of motivated nouns, assuming as a starting point the case grammar though in a detail modified version.

2.1. I assume the following set of semantic roles of arguments (the semantic roles which are insignificant from the point of view of an analysis of derived nouns, which can be, however, distinguished in a more detailed description of the semantic structure of the utterance of natural language, are omitted in this set):

Ag — the agent of the action named by the predicate (usually, a living being, but also a natural phenomenon, a mechanical device, e.g. *The WIND broke the tree*, *The TRACTOR pulls the plough — The HORSE pulls the plough*);

Pt — the carrier of the state, or the object that receives the action caused by the agent, or the object that undergoes a process, e.g. *THIS BIRCH is high*, *JACK sleeps*, *A horse pulls the CART*, *The GRASS grows*;

Exp — the living being that has specific sensuous or intellectual experiences, e.g. *JOHN freezes*, *It seems to JOHN*, *a* CAT *smells a mouse*, *JOHN knows the way*, *JACK remembers about it*, *the teacher teaches CHILDREN*, *MARY likes cats*;

Ben — the being for whom the action is taken, or a being that benefits from the existing state (named by the main predicate of the sentence), e.g. *John gives ME the book*, *A letter to EVE was written*, *The house belongs to YOU*, *JOHN has a pencil*;

Res — the object that is a result of an action or process, e.g. *The HOUSE was built in two years*, *A shoemaker made SHOES*;

Instr — the instrument or the tool that is used to do the action, e.g. *To pound nails with a HAMMER*, *To clean teeth with TOOTHPASTE*, *To ride a HORSE*;

Loc — the place where the action described in the sentence takes place, e.g. *He works in a MINE*, *She walks THROUGH the FOREST*, *It is warmer THERE*;

Temp — the piece of time that defines how long or when the action takes (took) place, e.g. *She read the WHOLE NIGHT*, *They met ONE HOUR AGO*, *It is 3 YEARS OLD*, *It has lasted for 3 YEARS*;

Ob — the neutral object that elaborates on the meaning of the predicate, e.g. *The wagon weights 15 TONS*. I would also include here expressions that occur to the right of the verb (in the surface structure) in sentences

with the so called symmetric predicates of the type *x is similar to y*, *x is the same as y*, *x connects with y*.[8] In my opinion the structure of sentences of this type is: the predicate — the patient — the object.

Probably, even on account of the needs of the description of word-formation facts discussed in this article, the set of semantic roles of arguments proposed here will turn out to be insufficient. However, I hope that as an attempt to apply a specific generative model to describe these facts, the article may have a useful role in the situation when issues of morphology in general, and word-formation in particular are the least analyzed set of issues within generative grammar.[9]

2.2. What can occur as arguments in deep structure are names and descriptions (Reichenbach 1948); what correspond to the latter in the Polish language are nominal phrases, nominal phrases with restrictive relative clauses or motivated nouns (Judycka 1971). In the course of this article I shall discuss descriptions that are represented in the Polish language in surface structure by deverbal and denominal motivated nouns.

Basing on the distinction between the syntactic and semantic derivation introduced by Jerzy Kuryłowicz (1960), there are three types of derivation singled out today: transformation, mutation and modification (Dokulil 1962).[10] Transposition consists in a change of the syntactic function of the lexeme (a shift to a different part of speech, e.g. *biały* "white" — *biel* "whiteness" — *bieleć* "to whiten"), mutation consists in a change of the connotation of the motivated word in relation to the motivating word (e.g. *las* "forest" — *leśnik* "forester," *kawa* "coffee" — *kawiarnia* "coffee house"), modification consists in narrowing the scope of the motivated word in relation to the motivating word (e.g. *dom* "house" — *domek* "small house") or giving the motivated word an emotional overtone (e.g. *nos* "nose" — *nochal* "big nose,

[8]Despite Bellert (1972), and Platt (1971), but in concordance with Fillmore's conception, I assume that in the deep structure an argument with a given semantic role (a given "case") can occur with a given predicate only once. This assumption not only simplifies transformations of appropriate deep structures into surface structures, but (more importantly) remains in concord with the so called theme-rheme distinction. However, the term "symmetric predicates" is justified here as both arguments may change their roles when the perspective of the utterance (the theme-rheme distinction) is changed: *y is similar to x*. However, in the first case, something is asserted about *x* when it is compared to *y*, in the latter case — the other way round.

[9]One of the most eminent representatives of transformational-generative grammar Halle writes: "In spite of its obvious importance morphology [...] has up to the present remained relatively unexplored" (1974).

[10]Also, Heinz, though using a different terminology, introduced the distinction at first for nouns in (1957). And also, independently, Günther, Günther (1960).

conk," *Ewa* "Eve" — *Ewusia*, which is a tender version of the name *Ewa*).

From the point of view of the semantic analysis of natural language presented by Reichenbach (1948), nominal phrases with nouns that are the result of transposition correspond to event arguments (e.g. *catching fish* is an event argument of the sentence *(somebody) catches fish*); nouns that are the result of mutation correspond to descriptions (definite or indefinite — depending on the context use), e.g. *hunter* = somebody who hunts (an object which is the agent of the action *hunts*), *blood-donor* = somebody who donates blood (an object which is the agent of the predicate *donates* and the patient *blood*). Last but not least, it seems that nouns that are the result of modification of the type *domek* correspond to more complex descriptions of the form $(\eta \mathrm{x})\varphi(\psi(x))$: something that is a *small* object which is a *house*.[11]

Using any of the mentioned semantic structures goes beyond word-formation. For an event argument of e.g. *(somebody) catches fish* in specific contexts is also *that (somebody) catches fish*, *to catch fish*; the indefinite descriptions that correspond to the noun *hunter* are e.g. *a person who hunts*, *somebody who hunts*. The descriptions semantically equivalent to the noun *domek* "small house" can be *a house which is small*, and also *a small house*.

Thus, transposition consists in the transformation of a sentence into a nominal phrase, while mutation and modification — univerbization of the structure consisting of a linguistic sign which indicates a class of objects (a living being, person, object, part of space, part of time) and the phrase that assigns a specific property to a given object (e.g. being the agent in relation to *hunt*); the phrase can always be substituted within deep structures by a restrictive relative clause of the type *(somebody) who hunts*.

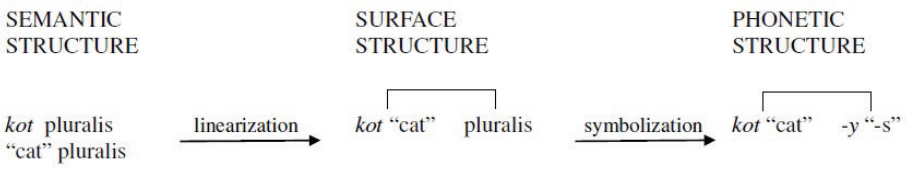
2.3. Before I proceed to the presentation of a specific model of description of the grammar of the word-formation subsystem, I would like to signal three types of approaches to the issue of elementary (so to speak initial) structuralization of content (the structuralization of relations between objects of the world that is the subject of linguistic utterances).

In the standard version of transformational-generative grammar this problem solved through the introduction of: a) "pre-terminal strings" which determine the grammatical categories of elements of the deep structure of the sentence and the syntactic relations between these elements, b) "lexical entries" (substituted for the slots opened by particular categorical symbols of the pre-terminal string) which consist of a set of syntactic features that

[11] An analysis of semantic structure of e.g. hypocoristic expressions of the type *kawusia* — which is a tender version of *kawa* "coffee," etc. would be more complicated, for it would involve introducing pragmatic operators.

determine the collocations of each lexical entry with other elements of the type; each such set of syntactic features is assigned with a specific phonological representation. Thus the notation of the deep structure of the sentence consists of a string of linearly ordered elements whose mutual relations are determined by the so called "derivational tree" or "bracket notation." Part of these elements (lexical morphemes) has specific phonological representations assigned already in deep structure, while part (grammatical formatives) has phonological representation assigned in further stages of generating the sentence.

What is the starting point in the model of generative semantics of Chafe (1970)[12] are complex semantic structures which undergo linearization (that is, the elements become ordered linearly), and only linear strings of elements undergo symbolization (that is, have their phonological representation assigned). For example:



However, James D. McCawley's (1970a) hypothesis seems to be the most attractive. It takes the description of semantic structures and applies the extended predicate calculus as the starting point. Besides the ordinary type of transformations, McCawley also has PRELEXICAL TRANSFORMATIONS, and one of their effects is "to group semantic elements together into word-sized units" (1970a: 291). Such an approach to the problem allows us to explain cases when semantic structures that are identical (or of the same degree) are sometimes expressed by means of morphologically-simple unmotivated words, sometimes by means of morphologically-complex words, and sometimes by means of word phrases (cf. *łania* "hind" — *samica jelenia* "the female of deer," *gołębica* "a female pigeon" — *samica gołębia* "the female of pigeon").

In the course of this article I shall adopt McCawley's hypothesis and assume that the lexical elements that occur in the notations of deep structures proposed here (the elements that represent lexical categories which appear in the notations of the internal structure of arguments) are admittedly

[12] A similar approach can be found in e.g. Postal (1970).

the effect of specific prelexical transformations, however, on a given level of the notation of syntactic-semantic structure they constitute elementary (inseparable) units.

3. I treat the model by means of which I would like to describe certain types of relations that exist in the word-formation system as part of a model of the grammar of the Polish language. However, I focus here on selected issues of word-formation.

A generative model of language would consist of a set of grammatical rules and a dictionary (however, see 2.3. above). Both the set of grammatical rules and the dictionary would have a complex structure.

3.1. In the proposed approach the set of rules would consist of four components — subsets of rules which would be included one by one in the course of generating a given linguistic utterance. The first subset of rules determines the types of deep structures (syntactic-semantic structures) possible in the language; the remaining ones would function as translators that translate structural notations of utterances, which were generated by the previous component, into structural notations of a new type. The output strings of a given subset of rules i are at the same time input strings for the next subset of rules $i + 1$ ($1 \leqslant i \geqslant 3$).[13]

I. The syntactic-semantic component, which is presented here in a simplified version, transforms the distinguished initial symbol Σ (= the utterance + the attitude of the speaker to the utterance content) into strings of symbols that determine types of syntactic-semantic structures possible in the language. This component needs to include e.g. rules:

(G 1) $\Sigma \rightarrow M\ S$[14]

where M — the indicator of the speaker's attitude to the content expressed in S; S — the utterance (without the indicators of the speaker's attitude to the utterance content); in the course of the article I shall use the term SENTENCE to distinguish S.

The structure of the sentence (understood as above) is determined by the rules of the type:

(G 2a) $S \rightarrow P_i N_{Ag}$ (e.g. *somebody comes*)

[13]The terms "input," "output," "input string," "output string" used here are understood in accordance with the meanings assigned to them in cybernetics.

[14]This and the following generative rules of the type, in accordance with the notation adopted in linguistic works, stand for a relation between a main category (the symbol to the left of the arrow) and categories directly subordinate to the main category (the string of symbols to the right of the arrow). A rule of the type $X \rightarrow A\ B$ can be read as follows: "rewrite symbol X as the string of symbols $A\ B$" or "substitute category X with category A and category B."

(G 2b) $S \rightarrow P_j N_{Exp}$ (e.g. *John freezes*)
(G 2c) $S \rightarrow P_k\ N_{Ag}\ N_{Pt}$ (e.g. *a boy chops the wood)*
(G 2d) $S \rightarrow P_l\ N_{Exp}\ N_{Pt}$ (e.g. *a cat smells a mouse*)

(the symbols used are: P — the predicate, N — the argument; the subscript next to P indicates a type of the predicate — see below, the subscript next to N indicates the semantic role of the argument).

Possible types of sentence structure depend on: a) the number of obligatory and facultative arguments that occur with a given predicate, b) what semantic roles of arguments are required by a given predicate. For example, a predicate expressed in surface structure by means of the verb *bić* "to hit" obligatorily requires N_{Ag}, N_{Pt} (each of these arguments may not occur, in specific conditions, in surface structure — then the agent or the patient of the activity is indefinite) and facultatively N_{Instr} (and alternatively other arguments). The predicate represented by *mieć* "to have, posses" obligatorily requires N_{Ben} and N_{Pt}, etc.[15]

It is worth noticing here that the (obligatory and facultative) occurrence of an argument with a specific semantic role together with a given predicate is always equivalent to establishing a set which needs to contain the object whose name occurs as the argument:[16] what can substitute N_{Exp} is only a name of a living being; N_{Instr} — a name of an inanimate object (concrete object or substance); N_{Loc}— a name of part of space. Thus, even in the sentence *John hit Jack with something*, the pronoun *something* is an idefinite description: (ηx) inanimate object (x).

Returning to the possible types of sentence structures: types of sentence structures possible in a given language depend on the classes of predicates which occur in the language and which are distinguished on the basis of the above mentioned criteria. The number of rules of type (G 2) correspond to the number of classes of predicates.

Component I also needs to determine the internal structure of predicates and arguments. It is known that in different context uses the same expressions can occur either as predicates or as arguments (Pelc 1971). In the work repeatedly referred to here, Bellert shows that what can occur in the function of argument in the sentence are only the phrases that are bound with a quantifier (Bellert 1972: 40; Sampson 1969).

[15]See an attempt to classify Polish verbs from a similar point of view in Irena Bellert (1972, appendix); for English verbs appropriate information can be found in Platt (1971); cf. also Fillmore (1968), Chafe (1970).

[16]The necessity to highlight this fact is due to Stanisław Karolak whom I would like to thank here.

In the course of this article I shall ignore the problem of internal structure of the predicate, in order to determine the basic types of arguments. Because in concrete utterances, motivated nouns may occur either as definite or indefinite descriptions (that name either individual objects or sets). I shall not deal with the problem of quantifiers that bind arguments. The rules that determine the basic types of syntactic structure of arguments can be presented as follows:

(G 3)

$$N_x \rightarrow \begin{cases} \text{a)} & Npr_X \\ \text{b)} & [Nom'\ S'\ ]_X \\ \text{c)} & S_X \end{cases}$$

where x stands for a type of the semantic role of the argument;

Npr — an individual name (a proper name in its primary function, personal pronoun, demonstrative pronouns in a deictic function)[17].

Nom — a general name, e.g. *person*, *child*, but also the so called indefinite pronoun that occurs as an indefinite description (cf. above).

S_X — an event argument that occurs in the sentence in the semantic role X.

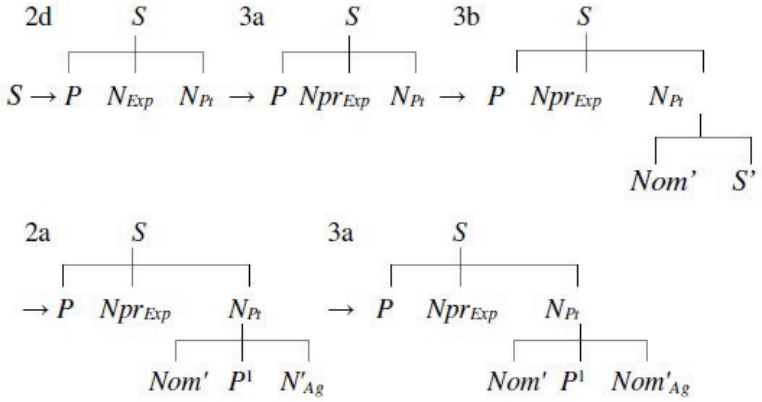
The sign *'* next to symbols S and *Nom* in (G 3b) signal that one (or the only) argument that occurs in this context of S is co-referential with appropriate *Nom'*. Joining symbols [*Nom' S'*] here is a syntactic notation that corresponds to a description (more precisely — to an expression which together with a quantifier omitted in the notation is a description). This joining is only a concatenation of two symbols which is a convenient starting point for a model that generates the surface structures which are represented e.g. by motivated (non-action nouns) nouns. The presence of symbol S to the right of rule (G 3) allows us to apply rules (G 2-3) cyclically, which results in the possibility to generate an unlimited number of types of syntactic-semantic structures.

For example, the following string of rules is possible:

[17]Thus, not in the expression e.g. *ten, kogo wczoraj spotkałem* "this/ the one (masculine, singular) whom I met yesterday," where the definite pronoun is equivalent to operator *j*.

$$S \xrightarrow{2d} PN_{Exp}N_{Pt} \xrightarrow{3a} PNpr_{Exp}N_{Pt} \xrightarrow{3b} PNpr_{Exp}[Nom'S']_{Pt} \xrightarrow{2a} PNpr_{Exp}[Nom'P^{1}N'_{Ag}]_{Pt} \xrightarrow{3a} PNpr_{Exp}[Nom'P^{1}Nom'_{Ag}]_{Pt}$$

or in the for of "trees":



The syntactic-semantic structure which is the final result of the above string of rules can be realized by the following expressions:

John sees { a person / somebody } { who swims / who rides / a swimmer / a rider }

II. The transformational component translates (transforms) deep structures (syntactic-semantic structures) into surface structures. In surface structures, particular elements of the string that constitutes the surface structure of a given utterance are still devoid of phonological representation — they are only sets of syntactic and semantic features that are realized by applying lexical rules as morphemes.

In the course of this article I shall further discuss some transformational

rules by means of which surface structures that correspond to motivated nouns directly through the so called mutation are generated (see 2.2.).

III. The lexical component assigns the symbols generated by the transformational component, through sets of rules, with phonological representation which corresponds to a given symbol in the dictionary. The symbol occurs in surface structure in a specific context. In the so called standard version of transformational-generative grammar, lexical morphemes have already obtained a phonological interpretation in the base, that is — before applying transformational rules and before a semantic interpretation of given deep structures, while symbols that represent grammatical functions obtain a phonological interpretation only through applying the so called readjustment rules (Chomsky, Halle 1968).

However, a model in which phonological representation is assigned to all morphemes only after applying transformational rules seems to be simpler. For, on the one hand, the phonological shape of a morpheme in no way influences transformations of the structures that contain a given morpheme, on the other hand, a series of morphemes, both word-formation morphemes and inflectional endings as well as whole words, occur in surface structure as a result of specific transformations. It is, however, apparent that in a lexical component of generative grammar that was distinguished in such a way, the first to obtain a phonological interpretation are morphemes, which are here conventionally called lexical (their phonological form depends only on the semantic context), then word-formation morphemes (the choice of phonological representation depends on the word-formation base), and only then — inflectional endings, which are word-boundary morphemes (the choice of which depends e.g. on the phonological structure of the inflectional stem of a given word, no matter if the stem consists of only a lexical morpheme, or also of a series of suffixes).

Phonological representation, which is assigned to particular elements of surface structures that were generated by the transformational component, is the so called "ideal representation" that does not take into account the influence of context on the phonological structure of a given string (Bloomfield 1933).

IV. Phonological component: a) introduces the ultimate linear ordering of the string of elements that constitutes the meaning of a given utterance; it is here that boundaries of words and accents are established, b) introduces context-conditioned changes in the phonological structure of a string, it predicts the rule that deletes *ł* in between consonants e.g. in the word *jabłko* "apple" which is pronounced as *japko*.

3.2. The dictionary is a repository of elementary linguistic signs. It consists of:

I. The dictionary of lexical morphemes — each lexical morpheme is represented in the dictionary by a set of syntactic, semantic and morphological features as well as phonological representation or a set of phonological representations (in the case of suppletive forms e.g. *be* — *am*). Among morphological features of some morphemes there needs to be information, for example, that the morpheme contains elements of foreign origin; this may affect the applicability of some phonological rules to a given morpheme; e.g. the change of *t* into *c* is typical of all words of foreign origin, cf. *arystokrata* "aristocrat" — *arystokracja* "aristocracy."

II. The dictionary of word-formation morphemes. It seems that this part of the dictionary is organized as either a) or b):

a) the word-formation morpheme is defined similarly to the lexical morpheme, but differs from it in the number of context-conditioned phonological representations (Wurzel 1970). This approach assumes an unbelievably extended homonymy and synonymy of word-formation morphemes.

b) A description of semantic and syntactic properties of particular word-formation morphemes consists in reconstructing the set of unchangeable functional features of a given element. A basis for establishing such sets of distinctive functional features is an analysis of functional oppositions in a given word-formation subsystem, e.g. in the subsystem of nominal word-formation formants.[18] The set of unchangeable functional features that belong to a given word-formation morpheme can be more or less numerous, the set can even be empty, while the scope of usage of a given morpheme is inversely proportional to the number of the morpheme's invariant functional features.[19]

III. The dictionary of inflectional morphemes, which assigns particular grammemes, that is sets of grammatical functions which constitute the content of an individual morpheme, with "ideal" phonological representations.

4. Some types of deep structures that correspond to deverbal and denominal motivated nouns.

4.1. What are the bases of all nouns that were motivated through mutation, that is nouns whose formants are, in Adam Heinz's terminology, in the function of the subject, are deep structures of the type [*Nom' S'*]

[18]The starting point of such an analysis can be the analysis of morphological functional oppositions introduced by Jakobson (1936).

[19]An attempt to implement such an analysis (though with different methodological assumptions) can be found in Laskowski (1971: 138-147).

which can be interpreted as expressions composed of a name (but not a name that designates only one object) and a distinguishing sentence. Applying appropriate generative rules of component *I*, these structures can be extended into strings of the type: $[Nom'\ P\ Nom'_X(\mathrm{Nom}\binom{1}{y}...)]$.[20]

Structures of this type can be transformed by means of transformational rules into constructions composed of a noun or a definite pronoun and a restrictive relative clause, into nominal phrases of different types that do not have a restrictive clause in surface structure, or into derived nouns. The transformations which cause that a motivated noun appears in the surface structure instead of deep structure of the above type, I shall call UNIVERBIZATION TRANSFORMATIONS. In the further course of the article, I shall focus only on some simple univerbization transformations.

What is introduced to the structural notation of utterance, as a result of any univerbization transformations, instead of the element *Nom'* that occurs in deep structure and its coreferential Nom'_X that occurs as an argument of the distinguishing sentence, is a complex symbol, which is treated as an elementary component of the string obtained from the transformation, and which is a set of syntactic-semantic features: $\begin{bmatrix} +Der \\ +X \end{bmatrix}$, where the semantic feature $[+Der]$ indicates that a given element is represented in surface structure by a word-formation affix, while the semantic feature $[+X]$ (X = *Ag*, *Pt*, *Exp*, *Ben*, *Res*, *Instr*, *Loc*, *Temp* or *Ob* — cf. 2.1.) shows the semantic role of a component of the deep structure *S'* that is the base of the structural notation that was obtained through univerbization transformation. The above elementary transformation can be presented in the form:

$$Nom' \ldots Nom'X \rightarrow + \begin{bmatrix} +Der \\ +X \end{bmatrix}$$

.

The sign + placed before the symbol of derivational morpheme signals that the morpheme appears to the right of the word-formation base in surface structure.[21]

Although univerbization transformations themselves are of a facultative nature (because a given deep structure can be represented by surface structures, e.g. with all components of the string that constitutes the deep structure explicated), the above elementary transformation is obligatory in

[20] Symbols in round brackets stand for facultative elements of the string.

[21] By analogy, the notation for prefixes is of the form $\begin{bmatrix} +Der \\ +X \end{bmatrix} +$.

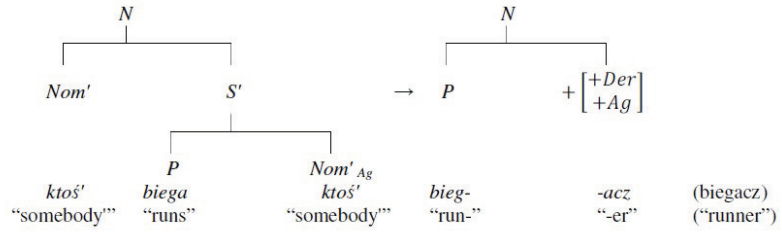
the case of applying a univerbization transformation, and does not depend on the structure of sentence *S'* that occurs in the transformed deep structure. The remaining elements (except for Nom'_X) of deep structure of the distinguishing sentence (P, $Nom\binom{1}{y}$, $Nom\binom{2}{z}$...) are represented either by a morpheme(s) of word-formation base, or part of them is deleted from the string and thus not represented directly by a component of surface structure; alternatively, this part can be represented in this structure by elements of the nominal phrase whose head is a derived noun.

4.2. The simplest case is the one of univerbization transformations of deep structures of a one-argument distinguishing sentence. The function of word-formation base in a derivative, which is a result of univerbization of such a deep structure, is fulfilled here by a morpheme that represents the predicate.

Here, the transformation is of the form:

(T 1) $$Nom' P\ Nom_X \rightarrow P + \begin{bmatrix} +Der \\ +X \end{bmatrix}.$$

For example:



4.3. A few possibilities emerge in the case of univerbization of deep structures of two- (and more) argument distinguishing sentences:

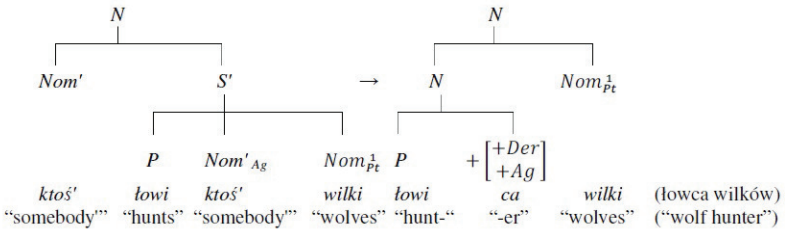
a) what undergoes univerbization is the PART of deep structure that consists of $Nom'\ P\ Nom'_X$according to the principle given in 4.1., the remaining arguments of *S'* become elements of the nominal phrase that is governed by the noun that was created due to the univerbization of the mentioned part of deep structure. The transformation is of the form (T 2) — cf. below.

If arguments of *S'* other than Nom'_X are not specified (that is, can be represented by indefinite pronouns in the "extended" surface structure that corresponds to a given description), then, in the case of univerbization transformation, these unspecified arguments undergo ellipsis, and the surface structure that represents a given description is externally identical to the structures that are the result of the transformation discussed in 4.1. For example, *łowca* "hunter" (externally identical with *biegacz* "runner" in terms

of structure) has, however, a two-argument predicate and comes from the deep structure that can be explicated e.g. as the expression "somebody who hunts *something* (some objects which are not referred to here)."

(T 2) $Nom'P\ Nom_X Nom\binom{1}{y}(\ldots) \rightarrow P + \begin{bmatrix} +Der \\ +X \end{bmatrix} Nom\binom{1}{y}(\ldots).$

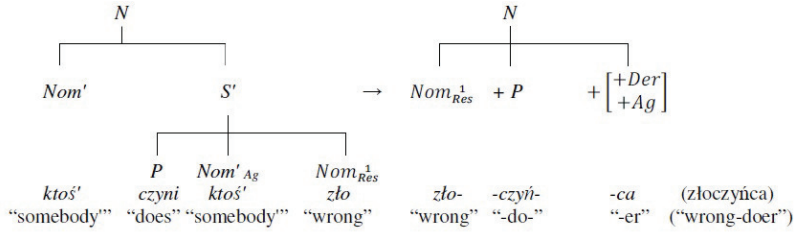
For example:



b) In the case of a two-argument *S'*, the whole deep structure may undergo univerbization, and a complex word, whose word-formation base is composed of P and $Nom\binom{1}{y}$, appears in the surface structure:

(T 3) $Nom'P\ Nom'_X Nom^1_y \rightarrow \binom{a)}{b)} \left\{ \begin{array}{l} P + Nom^1_y \\ Nom^1_y + P \end{array} \right\} + \begin{bmatrix} +Der \\ +X \end{bmatrix}.$

For example:



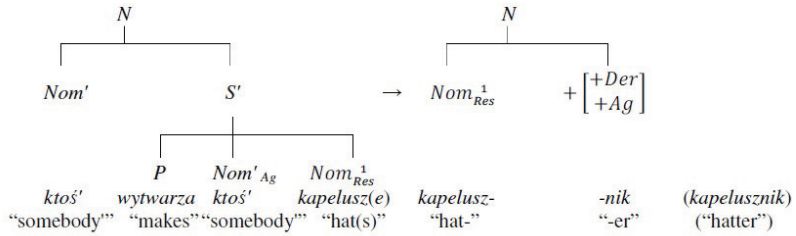
c) at last, in the case of a two- (and more) argument *S'*, P is very often eliminated, while what is represented in surface structure (of the derived noun) in the function of word-formation base is $Nom\binom{1}{y}$ (where $i = 1$, 2, ...). The clarity of such word-formations from the point of view of the reader is the most difficult, since they are the most ambiguous, on the other hand, in practice the familiarity with extra-linguistic reality limits the choice of possible semantic interpretations of such structures to two or three, and sometimes it happens that the choice is completely unambiguous. For example, the noun *kapelusznik* "hatter," which structurally has the meaning "somebody who does an activity (has a relation) connected with hats," and thus e.g. *hat lover*, *hat seller*, *owner of a hat*, etc., is usually unambiguously understood as *hat maker* because of the familiarity with the extra-linguistic situation (although, it is always possible to use this formation humorously

in the meaning "somebody who wears a hat").

Transformations that introduce formally denominal nouns that are of interest in this article have the following form:

(T4) $Nom'\ P\ Nom'_X Nom\binom{1}{y} \rightarrow Nom\binom{1}{y} + \begin{bmatrix} +Der \\ +X \end{bmatrix}$.

For example:



Here again arises the problem of elimination (ellipsis) of arguments of *S'* other than Nom'_y and $Nom\binom{i}{y}$, which is the word-formation base of surface structure of the motivated noun.

It seems that two principles are valid here: 1) ellipsis of unspecified arguments (cf. 4. 2a), e.g. *rybak* "fisherman", is a surface structure of the type $Nom\binom{1}{Pt} + \begin{bmatrix} +Der \\ +X \end{bmatrix}$, which derives from deep structure in which at least one more argument needs to be adopted, that is $Nom'\ P\ Nom'_{Ag}\ Nom\binom{1}{Pt}\ Nom\binom{2}{Inst}$, and the argument $Nom\binom{2}{Inst}$is not specified (in other words, the deep structure can be explicated as "somebody who catches fish by means of *something*"). 2) Ellipsis of certain components of deep structure occurs obligatorily in the case when an argument of *S'*, which is represented in surface structure as the word-formation base of a derivative, contains the information that is also conveyed by the eliminated elements of deep structure. For example, the noun *wędkarz* "angler" is unambiguous because the word that is its word-formation base *wędka* "fishing rod" contains both — the predicate *łowić* "catch" and the patient of the activity — *ryby* "fish" (*fishing rod* - "a tool for catching fish"). Ellipsis of some arguments (and the predicate) of *S'* here is therefore a sign of linguistic economy.

In a series of cases, however, the rules governing ellipsis of some components (arguments) of *S'* are difficult or even impossible to establish.

4.4. Univerbization rules are applied CYCLICALLY, that is they may be applied to transform structures that are already a result of some univerbization transformations. Hence the possibility of language to have word-formations which contain a number of agglutinative word-formation affixes. It is known, however, that nouns, or motivated words in general, that really

occur in language do not exceed a certain level of complexity. It is not, however, a result of the structure of the grammatical system, but a reflection of specific extra-systematic restrictions that are caused by practical reasons.

The principle of cyclic application of transformational rules requires the rules to be applied starting from the simplest linguistic structures (or to use the terminology of transformational-generative grammar — the most deeply embedded). An example of a slightly more complicated word-formation structure that requires applying univerbization rules in two cycles is e.g. *wędliniarz* "lunch meat maker" whose deep structure can be represented in a simplified form as:

$$Nom^{'}P\ Nom'_{Ag}[Nom^{1}P^{1}Nom\binom{2}{Ag}Nom\binom{1}{Res}]_{Res},$$

where $Nom\binom{2}{Ag}$is an unspecified argument. Applying univerbization transformations cyclically — first to the string in square brackets, and then to the whole string, results in:
Cycle 1

$$Nom^{'}P\ Nom'_{Ag}[Nom^{1}P^{1}Nom\binom{2}{Ag}Nom\binom{1}{Res}]_{Res} \overset{T4}{\rightarrow} Nom^{'}P\ Nom^{'}{}_{Ag}[P^{1}+\begin{bmatrix} +Der \\ +Res \end{bmatrix}]_{Res}$$

Cycle 2

$$\overset{T4}{\rightarrow} [P^{1}+\begin{bmatrix} +Der \\ +Res \end{bmatrix}]_{Res}+\begin{bmatrix} +Der \\ +Ag \end{bmatrix}$$

where P^1 is represented by the root of the verb *wędzić* "to smoke (meat)," $+\begin{bmatrix} +Der \\ +Res \end{bmatrix}$ by the suffix — $lin(a)$, while $+\begin{bmatrix} +Der \\ +Ag \end{bmatrix}$ by the suffix —$arz(\emptyset)$; the element P that occurs in deep structure of this word can be interpreted as *wytwarzać* "to make, produce."

5. Finally, I would like to provide interpretations of various types of deverbal and denominal motivated nouns (however, the examples are rather simple) from the point of view of the model proposed here.

5.1. Transformations of the type (T 1) can be realized by the following detailed transformations:

(T 1a) $\quad Nom^{'}P\ Nom'_{Ag} \rightarrow P+\begin{bmatrix} +Der \\ +Ag \end{bmatrix}$

generates deverbal *nomina agentis* of the type *biegacz* "runner," *jeździec* "rider," *pływak* "swimmer," *wróżka* "fortune-teller," etc.

(T 1b) $\quad Nom^{'}P\ Nom'_{Pt} \rightarrow P+\begin{bmatrix} +Der \\ +Ag \end{bmatrix}$

generates e.g. *żyjątko* "small creature," *stojak* "stand," *błyszczka* "spoon bait," *śpioch* "sleepyhead," though the last structure is more complex as it also contains a pragmatic operator that expresses emotional attitude to the so named object.

(T 1c') $Nom'P\ Nom'_{Exp} \rightarrow P + \begin{bmatrix} +Der \\ +Exp \end{bmatrix}$

e.g. (Russian *ljubitel'*), *miłośnik* "lover (of something)," *znawca* "expert." It is worth noting that all these words actually undergo transformations of deep structures with *S'* whose second argument is also unspecified, i.e. $Nom\binom{1}{Pt}$.

(T 1d') $Nom'P\ Nom'_{Ben} \rightarrow P + \begin{bmatrix} +Der \\ +Ben \end{bmatrix}$

e.g. *posiadacz* "owner," *oddawca* "postman, somebody who delivers" (similarly to the previous example, unspecified arguments of *S'* undergo ellipsis here).

Also other deverbal nouns discussed below have deep structures with a two- (or more) argument *S'*, and the arguments are not specified. Although the surface structure of this type of noun is identical with the surface structure of nouns derived from deep structures of a one- argument *S'*, I present them here:

(T 1b') $Nom'P\ \left\langle Nom\binom{1}{Ag}\right\rangle Nom'_{Pt} \rightarrow P + \begin{bmatrix} +Der \\ +Pt \end{bmatrix}$

(in this example, and the following ones, the symbol enclosed in angle brackets stands for an unspecified argument). Words that have such a structure are: *widok* "view," *dawka* "dose," *przesyłka* "delivery package;"

(T 1e') $Nom'P\ \left\langle Nom\binom{1}{Ag}\right\rangle Nom'_{Res} \rightarrow P + \begin{bmatrix} +Der \\ +Res \end{bmatrix}$

as in e.g. *wytwór* "artifact, product," *wędlina* "lunch meat;"

(T 1f') $Nom'P\ \left\langle Nom\binom{1}{Ag}\right\rangle Nom'_{Instr} \rightarrow P + \begin{bmatrix} +Der \\ +Instr \end{bmatrix}$

as in e.g. *pisak* "marker," *liczydło* "abacus," *kołyska* "cradle;"

(T 1g') $Nom'P \begin{Bmatrix} \langle N_{Ag}\rangle \\ \langle N_{Pt}\rangle \end{Bmatrix} Nom'_{Loc} \rightarrow P + \begin{bmatrix} +Der \\ +Loc \end{bmatrix}$

as in e.g. *umywalnia* "bathroom" (deep structure with an unspecified agent), *legowisko* "lair," *sypialnia* "bedroom" (with an unspecified patient in *S'*).

5.2. Because of the number and diversity of nominal phrases of the type *łowca wilków* "wolf hunter," *legowisko psa* "dog's lair," *lep na muchy*

"flypaper," I shall ignore this issue here. However, it is worth noting the possible structural types of some complex nouns by means of a few examples:

(T 3a) $Nom' P\ Nom'_{Ag} Nom\binom{1}{Pt} \rightarrow Nom\binom{1}{Pt} + P + \begin{bmatrix} +Der \\ +Ag \end{bmatrix}$

as in e.g. *krwiodawca* "blood-donor," *mężobójca* "husband-killer," *krętogłów* "wryneck;"

(T 3e) $Nom' P \left\langle Nom\binom{1}{Ag} \right\rangle Nom'_{Res} Nom\binom{2}{Instr} \rightarrow Nom\binom{2}{Instr} + P + \begin{bmatrix} +Der \\ +Res \end{bmatrix}$

as in e.g. *maszynopis* "typescript;"

(T 3f) $Nom' P \left\langle Nom\binom{1}{Ag} \right\rangle Nom'_{Instr} Nom\binom{2}{Pt} \rightarrow Nom\binom{2}{Pt} + P + \begin{bmatrix} +Der \\ +Instr \end{bmatrix}$

as in e.g. *śrubokręt* "screwdriver," *korkociąg* "corkscrew," *wodociąg* "water pipe."

5.3. The most represented are surface structures that are of the form of denominal nouns. But their interpretation is also the most difficult. The basic problem, especially in this word-formation group, is to differentiate between motivated nouns (which can be characterized by means of a set of appropriate grammatical rules, e.g. by means of the model proposed here) and nouns which need to be directly incorporated into the dictionary. This frequently discussed problem would require a separate consideration, however I shall not deal with it because of the limited space of this article.

Denominal nouns that are of interest in this article are (as mentioned above, cf. 4.3.c) the effect of ellipsis of the predicate (and often some arguments) of the distinguishing sentence *S'* which occurs as a component of appropriate deep structures.

Among the denominal nouns of the mutation type that are really attested in Polish linguistic material, the following structural types can be distinguished:

(T 4a) $Nom' P\ Nom'_{Ag} Nom\binom{1}{Pt} \rightarrow Nom\binom{1}{Pt} + \begin{bmatrix} +Der \\ +Ag \end{bmatrix}$

as in e.g. *owczarz* "sheep keeper, shepherd," *gołębiarz* "pigeon fancier," *muzykant* "musician," *elektryk* "electrician," *ptasznik* "birdeater," *szachista* "chess player," *biolog* "biologist," *atomista* "atomist;" *efekciarz* "show-off person," *kawiarz* "coffee maker, somebody who prepares coffee," *kobieciarz* "womanizer" (the semantic structure of the last three examples is more complicated);

(T 4a$_1$) $Nom'P\ Nom'_{Ag}Nom\binom{1}{Res} \rightarrow Nom\binom{1}{Res} + \begin{bmatrix} +Der \\ +Ag \end{bmatrix}$

as in e.g. *koszykarz* "basket maker," *kapelusznik* "hatter," *wędliniarz* "lunch meat maker;"

(T 4a$_2$) $Nom'P\ Nom'_{Ag}Nom\binom{1}{Instr} \rightarrow Nom\binom{1}{Instr} + \begin{bmatrix} +Der \\ +Ag \end{bmatrix}$

as in e.g. *saneczkarz* "sleigh driver," *łyżwiarz* "ice-skater," *traktorzysta* "tractor driver," *pianista* "pianist," *skrzypek* "violinist," *wędkarz* "angler" (the latter has also $Nom\binom{2}{Pt}$ in *S'*);

(T 4a$_3$) $Nom'P\ Nom\binom{1}{Ag}Nom\binom{1}{Loc} \rightarrow Nom\binom{1}{Loc} + \begin{bmatrix} +Der \\ +Ag \end{bmatrix}$

as in e.g. *kasjer* "cashier," *kioskarz* "newsagent," *pacierz* "prayer," *aptekarz* "pharmacist." Also the noun *stoczniowiec* "shipyard worker" has an analogous deep structure, however its "derivational history" is different than in the other words: in the generating process there must have occurred a transformation adjectivizing the argument $Nom\binom{1}{Loc}$.

(T 4b) $Nom'P\ Nom\binom{1}{Ag}Nom'_{Pt} \rightarrow Nom\binom{1}{Ag} + \begin{bmatrix} +Der \\ +Pt \end{bmatrix}$

as in e.g. *cesarstwo* "empire," *królestwo* "kingdom" (both interpreted as "object being ruled"), perhaps also *leśnictwo* "forest district" (interpreted as an area). Other deep structures that contain *Nom' ... Nom'*$_{Pt}$ in *S'* with many arguments usually undergo the adjectivization transformation before univerbization; cf. *ojcowizna* "patrimonium, paternal inheritance," *królewszczyzna* "lands owned by the king, crown land" whose deep structure is $Nom'P\ Nom\binom{1}{Ben}Nom'_{Pt}$, or *śmigłowiec* "helicopter," *motorówka* "motorboat" whose deep structure is $Nom'P\ Nom'_{Pt}Nom\binom{1}{Instr}$.

(T 4d) $Nom'P\ Nom'_{Ben}Nom\binom{1}{Pt} \rightarrow Nom\binom{1}{Pt} + \begin{bmatrix} +Der \\ +Ben \end{bmatrix}$

as in e.g. *młynarz* "miller," *aptekarz* "pharmacist" (interpreted as the owner), *rencista* "pensioner."

(T 4b$_1$) $Nom'P\ Nom'_{Pt}Nom\binom{1}{Loc} \rightarrow Nom\binom{1}{Loc} + \begin{bmatrix} +Der \\ +Pt \end{bmatrix}$

as in e.g. *krakowianin* "citizen of Cracow," *Amerykanin* "American, citizen of America," *Kongijczyk* "citizen of Congo," *Tyrolczyk* "citizen of Tyrol," *góral* "highlander," and other names of citizens as well as names of other objects that derive from the place of origin or residence (e.g. *węgierka* "prune"[22]). In the words *południowiec* "southerner," *bagiennik* "Bagiennik,"

[22]In Polish, the word for prune is *węgierka*, while the word for Hungarian female is

which have an identical deep structure, the univerbization transformation was applied before the adjectivization transformation. Also, the words *naszyjnik* "necklace," *podnóżek* "footstool" derive from the same type of deep structures, however, they seem to result from applying transformation (T $4b_1$) later — not directly to the deep structure, but to the derived structure that already has obligatory exponents of the relation between the arguments and between the arguments and the predicate. For these words have a phonological representation of prepositions *na* "on," *pod* "under," etc.

(T 4f) $\quad Nom'P\ Nom'_{Instr}Nom\binom{1}{Res} \rightarrow Nom\binom{1}{Res} + \begin{bmatrix} +Der \\ +Instr \end{bmatrix}$

as in e.g. *sieczkarnia* "straw cutter." The nouns such as: *ręcznik* "towel," *okiennica* "shutter" have in their deep structure the argument of the function $Nom\binom{1}{Pt}$ instead of $Nom\binom{1}{Res}$; however, what perhaps needs to be assumed in their case is not the direct univerbization of appropriate deep structures but also the adjectivization transformation.

The denominal nouns whose word-formation formant represented in surface structure is Nom_{Loc} are relatively numerous:

(T 4g) $\quad Nom'P\ Nom\binom{1}{Ag}Nom'_{Loc} \rightarrow Nom\binom{1}{Ag} + \begin{bmatrix} +Der \\ +Loc \end{bmatrix}$

as in e.g. *piekarnia* "bakery" (in turn, $Nom\binom{1}{Ag}$ is the result of transformation T 1a');

(T $4g_1$) $\quad Nom'P\ Nom\binom{1}{Pt}Nom'_{Loc} \rightarrow Nom\binom{1}{Pt} + \begin{bmatrix} +Der \\ +Loc \end{bmatrix}$

as in e.g. *kartoflisko* "potato field," *kurnik* "chicken coop," *bacówka* "mountain hut;"

(T $4g'_1$) $\quad Nom'P\ \left\langle Nom\binom{1}{Ag}\right\rangle Nom\binom{2}{Pt}Nom'_{Loc} \rightarrow Nom\binom{2}{Pt} + \begin{bmatrix} +Der \\ +Loc \end{bmatrix}$

as in e.g. *kawiarnia* "coffee house," *bagażnik* "car boot" (in the proposed model these structures would differ from the previous ones only in that 1) the predicate is an action verb, hence 2) the agent (in this case unspecified) is an obligatory argument of *S'*).

(T $4g'_2$) $\quad Nom'P\ \left\langle Nom\binom{1}{Ag}\right\rangle Nom\binom{2}{Res}Nom'_{Loc} \rightarrow Nom\binom{2}{Res} + \begin{bmatrix} +Der \\ +Loc \end{bmatrix}$

as in e.g. *cegielnia* "brickyard," *cukrownia* "sugar factory."

There are several groups of denominal nouns whose interpretation is difficult, e.g. names derived from the material used such as *sernik* "cheese

Węgierka — trans. note.

cake," *wiśniak* "cherry alcohol," *wełniak* "woolly monkey/ a type of fabric," etc. It seems that such words can be analyzed according to the following rule:

(T 4 h') $Nom'P \left\langle Nom\binom{1}{Ag} \right\rangle Nom'_{Res} Nom\binom{2}{Pt} \rightarrow Nom\binom{2}{Pt} + \begin{bmatrix} +Der \\ +Res \end{bmatrix}$.

More doubtful is an attempt to interpret structures with the predicate "be similar to," "be an element of ...," "be a descendant of ..." as $Nom\binom{1}{Pt}$ $Nom\binom{2}{Ob}$ (such structures occur respectively in *wilczur* "Alsatian," *maślak* "boletus;" and *Izraelita* "Israelite," *Dominikanin* "Dominican monk;" and *królewicz* "prince," *Piastowicz* "descendant of Piast the Wheelwright") as in the case when there is a sentence in the surface structure with all these elements, $Nom\binom{1}{Pt}$ is realized by the grammatical subject (*a dog* is similar to ..., *X* is a descendant of ...). However, if this interpretation were adopted, the motivated nouns mentioned above could be analyzed by means of the transformation:

(T 4b$_2$) $Nom'P\ Nom'_{Pt} Nom\binom{1}{Ob} \rightarrow Nom\binom{1}{Ob} + \begin{bmatrix} +Der \\ +Pt \end{bmatrix}$.[23]

6. The generative model to describe word-formation facts that was presented above is not so much imperfect as incomplete. I believe that after fifteen years of thriving development of the linguistic theory called generative grammar, it is beyond doubt that this type of language description is justified and even necessary if linguistics is to be a set of scientific theorems that can be proved. Also, it is beyond doubt that the method itself needs constant improvement. What is a doubtless shortcoming of the generative analyses of language is focusing on syntactic and morpho-phonological issues, while issues of morphology, and especially of word-formation, are clearly neglected.

In such a situation it seems that even if the model proposed here turns out to be completely unsuccessful, the article may have a useful function of clearing the way for further more successful research on word-formation issues within generative grammar.

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[23] In these considerations I ignore word-formations that are clearly emotionally marked, including the type *brodacz* "bearded man," *brzuchacz* "somebody with a big belly," which causes a series of interpretive difficulties.

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