

DEVERBAL NOMINA AGENTIS AND INSTRUMENTI IN POLISH:
WHICH IS WHICH? NEUTRALIZATIONS AND DECODING

HANNA MAUSCH

Adam Mickiewicz University, Poznań

Regardless of whether the stems or suffixes or both are native or foreign, a native speaker of Polish is frequently not able to tell whether a given form is a nomen agentis (henceforth NA) or a nomen instrumenti (henceforth NI). Even the presence of contexts is often of no help. Still, NA and NI are different. They differ syntactically, semantically and inflectionally. It should follow that the answer to the question posed in the title of this paper is in morphology. Thus after data are presented, the description is attached from several angles: IC theory, Nida's approach, generative morphology and stratificational theory. Only the last can account for all the facts.

I. DATA

1. *Hard facts*

1.1 Polish NA and NI are syntactically differentiated, i.e. NA are preferred in subject (agent) position in a sentence

(1) *Jan* otworzył puszkę (*otwieraczem**).

John opened a can (with an opener).

(2) *Pływacy* wyznaczyli trasę (wyścigu).

Swimmers set out the course (of the race).

vs (3) ? *Otwieracz* otworzył puszkę (**Janem*).

The opener opened a can (with John).

(4) *Pływaki* wyznaczyły trasę (wybierania sieci).

Markers/floats set out the course (of net hauling).

whereas NI are preferred in complements as in (1) and

(5) Trasa (wybierania sieci) została wyznaczona *plywakami*.
The course (of net hauling) was set out by markers/floats.

vs (6) Puszka została otwarta przez *Jana* (otwieraczem).
The can was opened by John (with an opener).

(7) Trasa (wyścigu) została wyznaczona przez *plywaków*.
The course (of the race) was set out by swimmers.

If NI occurs in agent position we may deal with neutralization

(8) *Plywak* unosił się na wodzie.
A swimmer/marker floated on the water.

In complement position, NI and NA are kept apart by means of inflectional cases, e.g. sentence (5) instrumental, sentence (7) accusative with preposition. Reversing these gives ungrammatical (9) and (10).

(9) *Puszka została otwarta przez *otwieracz* (Janem).
The can was opened by an opener (with John).

(10) *Jan otworzył puszkę przez *otwieracz*.
John opened a can by an opener.

Constructions with *przez*+NI are somewhat restricted, but if they occur, NI has the form of an accusative, e.g. sentence (5) is possible with *przez plywaki* in place of *plywakami*.

This possibility occurs quite frequently if the supposed NI are considered to be deduced secondarily from another interpretation of *przez*.

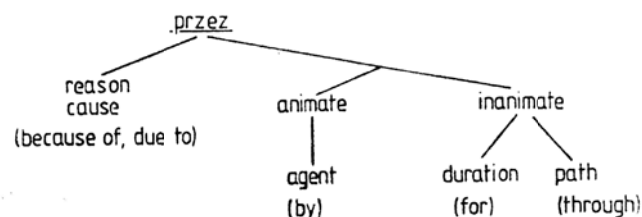


Figure 1: Uses of *przez*

Here, most probably, inanimate "path" is interpreted the same as animate agent. The consequences of such a possibility are particularly interesting in the case of NI feminine, since there is an additional structural neutralization resulting in further confusion.

Inflectionally Polish masculine NA and NI are differentiated by means of endings in Acc. sg. and Nom. pl. In plural, masculine NA and NI are differentiated by means of verbal forms, i.e. NA have virile agreement and NI

have non-virile agreement (sentence (2) vs (4)). Feminine forms of NA and NI are not differentiated inflectionally for NA (animate) and NI (inanimate).

(11) Pudełka zostały zaklejone przez *pakowaczkę*.
The boxes were glued by she-packer/packing machine.

Sentence (11) is completely ambiguous in isolation.

1.2 Polish NA and NI are furthermore differentiated by means of certain selectional restrictions.

(12) Ta *powlekaczka* nie działa.
This spreading machine does not work/act.

(13) Ta *powlekaczka* nie pracuje tak jak powinna.
This she-spreader/spreading machine does not work the way she/it should.

In (12) *powlekaczka* is interpreted as an NI because the verb used in this example can be used only with inanimate nouns. Sentence (13) is ambiguous because the verb used (though once restricted to animate nouns) can be now used in certain contexts with both animate and inanimate nouns.

2. Deverbal NA and NI formations

Deverbal NA and NI are derived by means of various suffixes.¹ The forms of stems/roots are not discussed because a suffix is attached to the same form regardless of whether the derived form is an NA or NI. Stems/roots can determine the choice of a suffix but this does not contribute to NA vs NI differentiation.

2.1. All productive² NA suffixes are common to both NA and NI

	NA	NI
-acz	biegacz/E. runner	wywoływacz/E. developer
-nik	kierownik/E. manager	grzejnik/E. heater
-(a)tor ³	repetytor/E. tutor	receptor/E. receptor
	likwidator/E. liquidator	kondensator/E. condenser
-a/jent	symulant/E. shammer	fumigant/E. fumigant
	konwojent/E. escort, guard	repelent/E. repellent
-er	trener/E. coach	komputer/E. computer

¹ Some of these suffixes are not only deverbal but this is irrelevant here.

² Productive acc. to Grzegorzyczkowa R. and J. Puzynina (1979).

³ One may argue that some of the nouns ending in *-a/tor*, *a/jent*, and *-er* are not really deverbal since the corresponding verbs either do not occur in Polish or the verbs have the *-ować* ending and the *-ow-* does not occur in the nouns. One might even argue that the verbs are derived from the nouns not vice versa. This is irrelevant to the stratificational approach, see also Fokker (1966) pp. 55–59.

2.2. Two NA suffixes of limited productivity almost never occur as NI. Only three exceptions exist:

-iciel	pocieszyciel/E. consoler	niszczyciel/E. destroyer: ship/plane
-ca	nadawca/E. sender (msc.)	plawica/E. drift net (fem.) stepica/E. a kind of trap (fem?)

2.3. Two NA suffixes have expressive connotations and occur in a limited number of words only. Only two NI with these suffixes are listed in dictionaries:

-och	śpioch/E. lie-abled	
-ula	gadula/E. chatter box	krzywula/E. old musical instrument świstula/E. old musical instru- ment

2.4. There are some suffixes which are unproductive as NA but are productive as NI.⁴

-ak	śpiewak/E. singer	nacinak/E. slitting die
-arz	pisarz/E. writer	bodarz/E. a kind of gaff tragarz/E. a kind of beam, joist
-ec	jeździec/E. rider	goniec/E. a part of loom przylepiec/E. adhesive bodziec/E. goad, spur konwojowiec/E. escort ship
	spiskowiec/E. plotter	

2.5. There are some NI suffixes which sometimes occur as NA suffixes, e.g.

	NI	NA
-ka	ścierka/E. dish-cloth	dójka/E. milkmaid przekupka/E. vendor, med- dlesome przylepka/E. pet

Under these circumstances, the agentive nouns have idiosyncratic meanings, and though their feminine interpretation is normal, a masculine referent is possible.

Some instrumental suffixes have no agentive usages. Others, though rare, do appear with msc. or neuter NA counterparts, though their meanings may

be as idiosyncratic as the meanings of the fem. mentioned above. Examples are given below:

	NI	NA
-alka	zapalka/E. match	----
-alnik	rozpuszczalnik/E. solvent	-----
-ø	wyciąg/E. hoist	zbieg/E. runaway, fugitive
-i/dło	nosidło/E. yoke	popychadło/E. drudge

The *-i/dło* NA have expressive connotations, usually pejorative, but this suffix is not productive, even among NI suffixes.

2.6. NI suffixes *-arka*, *-aczka*, *-nica* are said not to be found among NA suffixes. Typical NI examples include:

-arka	suszarka/E. drier
-aczka	polewaczka/E. sprinkler
-nica	gaśnica/E. fire extinguisher

There are many NA of precisely the same form(s) but they are traditionally considered to be feminine derivatives of masculine NA.⁵

	VERB	NA MSC	NA FEM
-arka	żeglować/E. sail	żegl-arz	żegl-ar-ka
-aczka	pakować/E. pack	pakow-acz	pakow-acz-ka
	VERB	NA MSC	NA FEM
-nica	cudzołożyć/E. commit adultery	cudzołoż-nik	cudzołoż-ni-ca

It is only when the NA msc. form is nonexistent that NA fem. of the above forms are said to be derived from verbs by suffixes identical with the above NI suffixes, e. g.

	VERB	NA MSC	NA FEM
-arka	bielić/E. bleach	---	bielarka

3. Feminine formations

3.1. To form feminine forms from masculinum NA ending in *-acz*, *-nik*, *-a/tor*, *-a/ent*, *-er*, *-iciel*, *-ak*, and *-arz*, the suffix *-k-* is frequently added. It sometimes happens that, instead of the expected fem. form in *-k-*, one finds some other formations or nothing at all.

⁴ See Fokker (1966).

⁵ For examples see p. 10 section II. 1. examples f-i.

	VERB	NA MSC	NA FEM
-acz	biegać/E. run	biegacz	biegaczka
	grać/E. play, gamble	gracz	?
	wspinać się/E. climb	wspinacz	?
-er	retuszować/E. retouch	retuszer	retuszerka
	trenować/E. coach	trener	?
-nik	przewozić/E. trans- port	przewoźnik	przewoźniczka
	pracować/E. work	pracownik/E. employee	pracownica or pracowniczka
	kierować/E. manage	kierownik/E. manager	kierowniczka
-ak	śpiewać/E. sing	śpiewak	śpiewaczka
	pętać się/E. hang around	pętaś/E. tot, loafer	?

Msc. forms in *-ca* have corresponding feminine forms in *-czyni*

	VERB	NA MSC	NA FEM
-ca	prześladować/E. per- secute	prześladowca	prześladowczyni
	dowodzić/E. command	dowódca	?
	VERB	NA MSC	NA FEM
-ca	kierować/E. drive	kierowca	?
	rozmawiać/E. talk	rozmówca /E. interlocutor	rozmówczyni or rozmówniczka
-ec	wędrować/E. wander	wędrowiec (wędrowca=older form)	wędrowniczka
	jeździć/E. ride	jeździec	?
	spiskować/E. plot	spiskowiec	?
	powstać/E. revolt	powstaniec/E. insurgent	?(old form <i>powstanka</i>)

3.2. In sum, if a NA fem. form exists, its masculine correspondent can be easily deduced; but if a NA msc. form is given, deriving the feminine form can be problematical.

4. The meaning of *-k*⁶

4.1 *-k-*, when attached to verbs, can derive NI; it can derive NA fem. with an idiosyncratic meaning; it can be the suffix denoting feminine vs masculine forms (from verbs via NA msc.); it can be a part of NI suffixes as well as a

⁶ *-k-* here is a surface form. I disregard its possible underlying forms (see Gussmann E. (1978)) since I am also interested in the decoding of surface forms and possible problems connected with it.

part of NA suffixes (in the letter case when NA msc. is missing); it can be a means of forming diminutives.

	DIMINUTIVE
N dziewczyna/E. girl	dziewczyn- <i>k-a</i>
NI komputer/E. computer	komputer- <i>e-k</i>
NA msc. kierownik/E. manager	kierownic- <i>e-k</i>
NA fem. dojarka/E. milkmaid	dojarcz- <i>k-a</i>

It can also participate in idiosyncratic derivations of a still different kind

N woda/E. water	wódka/E. vodka
-----------------	----------------

4.2 *-k-* can also derive nomina loci and nomina actionis from verbs:

VERB	NA MSC	NA FEM	N ACT	N LOCI
montować/E. assemble, erect	monter	?monterka	monterka	—
suflować/E. prompt an actor	sufler	suflerka	suflerka	suflerka
wspinać się/E. climb	wspinacz	?	wspinaczka	—

5. Gender in NI

5.1. It is very difficult to find NI pairs analogous to NA msc. and NA fem. Possible pairs are:

VERB	NI MSC	NI FEM
(i) ściągać/E. bind, tighten or crib	ściągacz/E. turnbuckle	ściągaczka/E. crib
(ii) drapać/E. scrape	drapacz (chmur)/E. sky scraper	drapaczka/E. claw (gardening)

But these are only apparent parallels. In (i) the difference between NI msc. and NI fem. is virtually the difference of reading the verb. In (ii) the NI msc. is a calque.

5.2. The notion of gender within NI is obviously deprived of any sex differentiation, and thus, given the examples above, is irrelevant, as it is clearly an arbitrary choice. The interesting thing here is the coalescence of NA fem. and NI, frequently identical in form. Thus when labelling NI as fem. or msc. the reference is made to grammatical gender only.

⁷ See Fokker (1969:71).

6. Productivity

6.1. Though the productivity of NA suffixes was presented in 2.1.—2.4., nothing was said about the productivity of NI suffixes. Actually, it is very difficult to make broadly true statements.⁸ Let us look at one set of examples:

VERB

mieszać/E. mix	mieszacz/E. wave mixer
	mieszadło/E. stirrer
	mieszarka/E. mixing picker
	mieszalnik aktywny/E. active mixer (metallurgy)

NI suffixes are on the whole very productive. Productivity is to a certain degree dependant on stems. But since productivity therefore refers to both NA and NI in the same manner, it will not be considered as a causative factor.

6.2.1. There is a historical reason for it as well. Suffixes have shifted from NA to NI with consequent shifts in productivity. Consider one example. At least one old NA suffix, *-alnik*, became an NI suffix only and regained its productivity. It had become non-productive as an NA suffix but is now productive as an NI suffix.

VERB

NA

prosić/E. ask	proszalnik/E. sb who asks
błagać/E. beseech	ślągalnik/E. sb who beseeches
pożyczać/E. borrow	pożyczalnik/E. sb who borrows

None of these words are found in Modern Polish, although *-alnik*, as an NI suffix is quite productive, as mentioned above (see 2.5.).

6.2.2. Another example of transition can be seen in the form *sorter*. This word has had the meaning of NA. Today perhaps *sortowacz* is preferred as NA, whereas *sorter* denotes mostly NI. For the time being, in addition to these competing NA forms, there is one serving as both NA and NI: *sortownik*/E. he-sorter /sorting machine.

Statements about productivity never seem unexceptional. For example, both *-acz* and *-ak* are NA suffixes: today we use form *plywak*/E. swimmer; the older form of this NA was *plywacz*. But *-acz* is the productive suffix, *-ak* is not.

⁸ The suffixes in question can be judged as truly productive and unproductive if one considers all categories they can be attached to but the situation is different when the material presented here is analyzed.

6.3. Finally, generalizations about productivity are worthless because all productive NA suffixes are also NI suffixes. No general rule based solely on the shape of the suffix will work.

7. Summary

Polish NA and NI are syntactically, inflectionally, and semantically differentiated. But they have almost all derivational suffixes in common. Some NI suffixes are identical to some NA fem. suffixes. Traditionally they are differentiated by the claim that NI are derived from verb stems directly, but NA fem. are derived from masculine NA, even though the two feminine (i.e. the NI and NA) suffixes are formally identical. Worse, if the NA masc. is missing, the NA fem. form is said to be derived directly from the verb by suffixes which are identical to but somehow different from the NI suffixes. These derivations of NA fem. is not a completely regular process. Moreover, the derivational picture is further confused by the introduction of homophonous nomina loci and nomina actionis suffixes as well. Such a confusing data picture implies problems in description.

II. DESCRIPTIONS

1. Reference list of types of derivational paradigms.

VERB	NA MSC	NA FEM	NI MSC	NI FEM
(a) podsiewać/E. do additional seeding, thresh grain	podsiewacz	—	podsiewacz /E. thresher	—
(b) sortować/E. sort	sortownik	sortownicza	sortownik	sortownica
(c) pływać/E. swim	plywak	plywaczka	plywak/E. float	—
(d) korować/E. husk	korowacz	—	—	korowaczka
(e) kopać/E. dig	kopacz	—	—	koparka
(f) żniwować/E. harvest	żniwiarz	żniwiarka	—	żniwiarka
(g) pakować/E. pack	pakowacz	pakowaczka	—	pakowaczka
(h) powlekać/E. spread	—	powlekaczka	—	powlekaczka
(i) bielić/E. bleach	—	bielarka	?bielik	bielarka

2. Immediate Constituency (IC) theory

According to IC theory, two morphemes cannot differ in meaning alone "unless they belong to all the same morpheme-classes, for otherwise they would be grammatically as well as semantically different" (Wells, 1947:97).

The inflections of NA and NI msc. differ in nominative pl. in examples (b) and (c) above. That is:

NA MSC PL	NI MSC PL
sortownicy	sortowniki
plywacy	plywaki

We can include (a), in which there is no difference in Nom. pl., and say that the agentive and instrumental suffixes in question constitute two separate groups despite their common form. This will account for the inflectional differences in their plural.

Parallel reasoning can be applied to NA fem. and identical NI forms (in (f) and (g)) by saying that NA fem. are derived via NA msc. Thus, they differ from the corresponding NI. If the NA msc. is missing, we may argue either that they parallel (f) and (g), but that the potential NA msc. does not occur and maintain the difference, or we may treat these NA fem. as the corresponding NI, and claim that they do not differ.

There is no mechanism to block the derivation of NI fem. forms from NA msc. unless one points to the lack of analogical formations as in (e). One may either assume VERB+SUFFIX+*k* derivation of NI fem. with NI meaning attached to potential or existing NI msc. (b, d-i?), or one may say that it is the suffix *-k-* which carries the meaning of instrument and derive these forms from existing or potential NA msc. (b, d-i), treating (e) as an exception. Or one may even assume that NI fem. are formed directly from verbs by adding unit morphemes of possibly complex structure. There is no obvious way to interpret NI fem. in this model.

Furthermore, within IC theory we are not able to point to the similarities between NA and NI forms, i.e. if we assume that the morphemes deriving them have only form in common. The application of the method of partitioned phoneme sequence (Wells, 1949:107) is also of no help, since it does not provide us with a means of determining positions of internal morph boundaries, e.g. in (f), (h) and (i) the NI fem. forms all occur, cp. *źniw(i)+ar+ka*.

What we have here is too many sets of apparently interlocking exceptions. It is likely that the IC approach cannot handle these data because the internal structure of an IC description is not fully integrated.

3. Nida's approach

Nida (1948) furnishes us with principles to identify morphemes. His PRINCIPLE 11 (Nida, 1948:436) says: "Homophonous forms which are semantically related but which do not occur in correspondingly different

distributional environments constitute as many morphemes as there are meaning-distribution classes". Distribution in this principle refers to morphological distribution, rather than any complementary distribution in the syntactic sense, as syntax is a subset of morphology. Meaning is the combination of form and function (Nida, 1948:434).

According to this principle NA fem. are formed on NA msc., and NI are separate. NA fem. (h, i) could possibly be accounted for by analogy to (f, g), with some potential but non-occurring NA msc. NI is different because within NI, one does not find pairs analogous to NA msc. vs NA fem. All NI will be derived deverbally by means of unit morphemes, in spite of any formal resemblances.

Nida (1948:435) points out that while discussing relations among homophonous forms, one must consider relationship which words possess for the native speaker, which is a subjective matter. But whether our NA and NI are semantically distinct or related to a native speaker of Polish, no potential relation between NA and NI is demonstrable within this approach. The potential relations include meaning, commonness of forms and the shift of suffixes from NA to NI functions. Similarities are treated as accidental here, a situation which is not always satisfactory. Nida's theory also fails to explain why there are many deverbal derivatives in Polish of which a native speaker will say only that they are either NA or NI, e.g. *klarowacz*/E. clarifier (NI) or *koruptor*/E. sb who corrupts sb (NA).

4. Generative morphology

Aronoff's morphology is word-based, i.e. a new word must be derived from an already existing word. However, this does not mean that in this model we deal with surface concatenations. The processes are more abstract.

Inflection follows word derivation, and gender is treated as an inflectional marker.⁹ Phonetics will have to account for certain alternations, e.g.

źniwiarka (Nom. sg.) vs *źniwiarke*¹⁰ (Acc. sg.) vs *źniwiarce* (Dat. sg.)

But even ignoring the phonological question, counting gender as a part of inflection only makes the false claim that NA fem. cannot have diminutives. Diminutives of NA fem. would be possible only if gender were a part of derivational morphology. Consider a typical example:

źniwiarz (NA msc.) vs *źniwiarka* (NA fem.) vs *źniwiareczka* (NA fem. dimin.).

In the above example *-ecz-* is a realization of the suffix *-k-* in *źniwiarka*. The stem is feminine from the point at which the first *-k-* suffix is added.

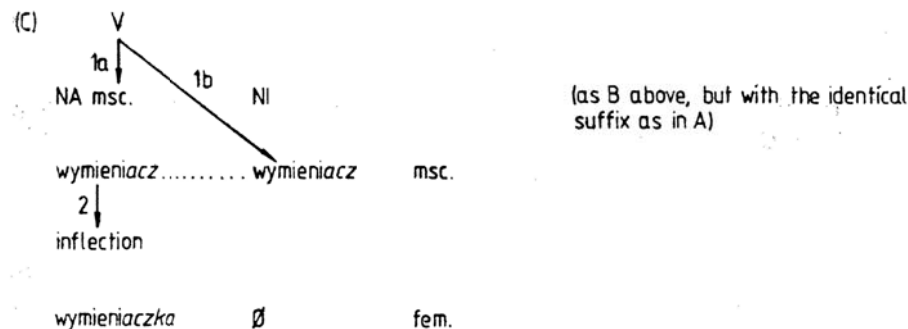
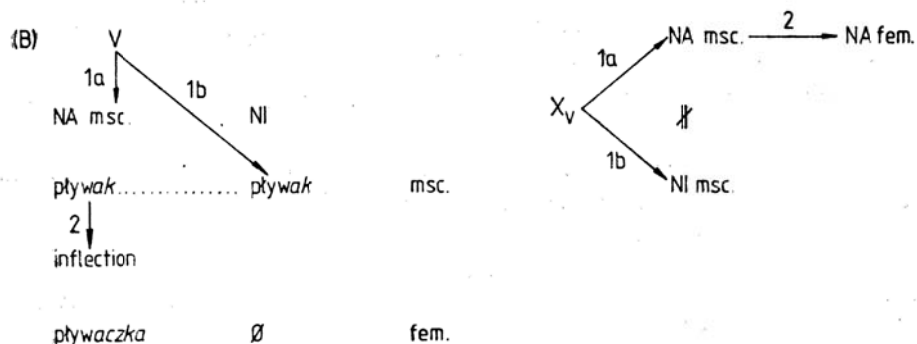
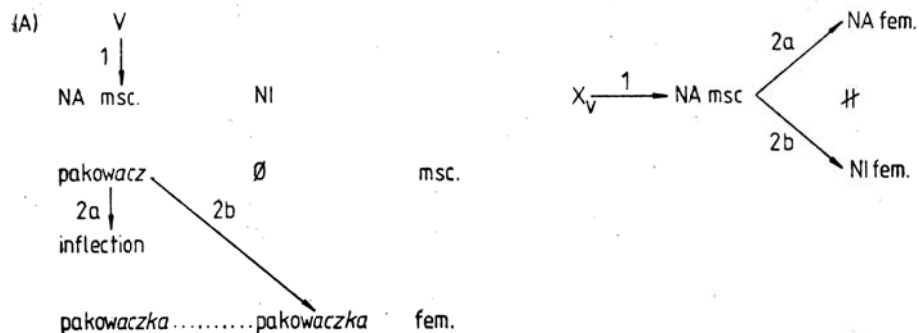
⁹ Unless the gender is natural.

¹⁰ The nasalization of the final vowel is ignored since there is no nasalization in the standard pronunciation. This nasalization would be crucial in phonology but here inflection precedes phonetics.

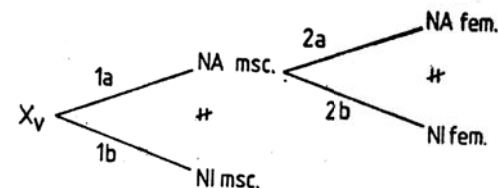
Now, an affix has no independent existence and cannot be separated from a rule which introduces it (a) "because it is nowhere given any representation of its own" (Aronoff 1976:70). But at the same time (b) "relatedness of form is prior to relatedness of meaning in morphology" (Aronoff 1976:33). Should we then have two separate rules, given (a), one for NA, another for NI, though they have the same suffixes finally and draw conclusions about similarities among derived forms after application of these rules? Or, given (b), should we have one rule followed by subcategorization? Aronoff does not consider questions of this sort and gives no indication of his approach.

Take the examples given in I.6.1. Now assume that "the lexicon is arranged according to stems and that for each stem there is a slot for each canonical meaning, where 'canonical' means derived by regular rules (...and — H. M.) that for each stem there cannot be more than one item in each meaning slot" (Aronoff 1976:45). Should we conclude that for each of the given examples there is a separate rule and that we are provided within the lexicon with (partially?) defined readings of these slots? If so the theory is vacuous, because the description is reduced to a list of the data without predictive ability.

Let us refer to deverbal NA msc., NA fem. and corresponding NI.



The forms occurring are given on the left, and the successive derivational paths are on the right. Note two distinct derivational trees in A and B, with different suffixes. But the *-acz* suffix in A follows the derivational tree of B in C. Is C the same as A, as B, or as both, or as neither? I see no way to deal with this in Aronoff's model. For many reasons Aronoff rejects ordering among WFRs (Aronoff 1976:57ff). WFRs are unordered and ordering is replaced by blocking or negative conditions on the bases of the rules. There is no feeding or bleeding ordering permitted. Thus



inequalities above are required by Aronoff's model in spite of identical forms, which is vacuous. The suffix *-acz* is very productive as both an NA and NI suffix. The formation of *pakowaczka* is the result of a productive process, too. We cannot derive NI fem. without any knowledge of NI msc. or vice versa. Negative conditions on the rule bases (stems) are of no help here. Blocking can hardly be applied, especially in view of I.6.1., except on an ad hoc and, hence, vacuous basis.

5. Mid-way conclusions

Within none of the theories presented can one fully account for the similarities and differences among deverbal NA and NI in Polish. None of them explains why the native speaker of Polish is not able to classify some of existing Polish deverbal nomina as definitely NI or NA. Each theory misses significant generalization which ought to be describable. Thus, none of these models suffices.

6. Stratificational theory

In stratificational theory word formation is a matter of morphology, but information relevant for the formation of a given item may be (and in decoding is, in our case) structurally related to any stratum. To see this it is necessary to consider functions of NA and NI on sememic and syntactic strata.

Consider first the semology. Individual participants are assigned role relationships (deep cases) with respect to acts or status. To account for the above data there must be, at the sememic level, the following three cases: AGENT (Ag) — effector, doer or performer of the act, INSTRUMENT (In) — means or tool by which the act is performed or effected and PATH (Ph) — distance, real or metaphorical, between two points either spatial or temporal. All of these functional types are defined on the bases of syntax, morphology, and semology (and phonology, which is ignored here). Syntactic and morphological data may be found in part I. Semological justification at present relies almost completely on morphological and syntactic indications. But some semological discussion can be presented. The Ag role can be assigned to agentive nouns, among others, is always realized by an animate, and dominates the act logically. The In role can be assigned to NI, is generally (always?) inanimate, and is usually dominated by the act.

In lexotactics we encounter a number of possible neutralizations which are responsible for one type of frequent NA/NI confusion in Polish. In subject position there is no problem resulting from ambiguity during encoding:

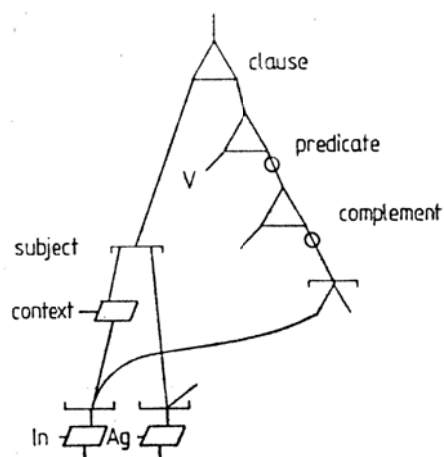


Fig. 2.

In is the marked (left-most) subject choice. If certain semotactic conditions are met, e.g. no Ag or Ag insignificant to discourse purposes, the choice of In as subject must be made. If not, the unmarked Ag is the subject of that sentence. Subject is defined upon nominative case if there is an overt subject, upon agreement in the verb, word order and sememic role possibilities (cases). Since stratificational theory is based on relationships it must be a dependency model; if there is no context for In to be the subject then Ag is the subject and then In is automatically realized in the complement. This is a consequence of the above marking. In decoding though

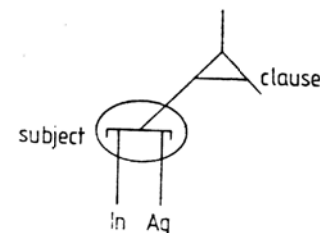


Fig. 3

the encircled relation may be troublesome, in permitting the deduction of implicit ambiguity. That is, if the context is not clear, there is no way to say whether the path through Ag or the one via In is correct. Each of them can be the subject (sentence (8) and (13)). Further on, the lines to which they are related meet at a low lexotactic level, i.e. in a nominal group,

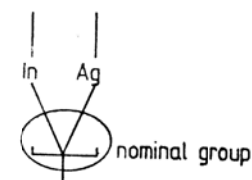


Fig. 4

here the structural ambiguity (encircled) is explicit.

In the complement the situation is as follows.

Since Ag occurs in complements in passive constructions, and since In can occur in the complement whether the construction is active or passive, let us examine passive constructions in Polish where confusions might arise. Passives in Polish occur mostly as *być*+ perfective or imperfective past passive participle and *zostać*+perfective past passive participle. They both

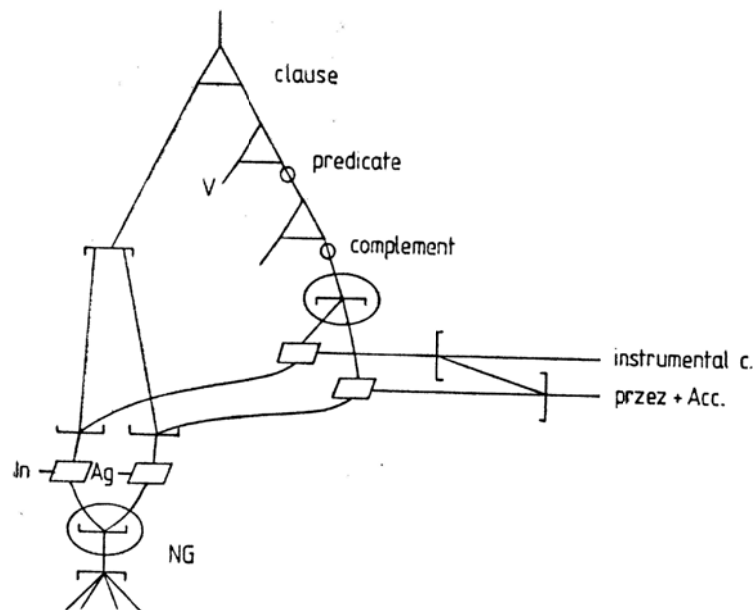


Fig. 5

behave the same with Ag and In. The only problems are found in the present tense of *zostać* and *być* plus perfective past passive participle, which are slightly different constructions despite surface similarities to other passives.

(a) present tense of *zostać* + perfective past passive participle

(14) Pudełko zostaje zaklejone { przez pakowaczkę.
pakowaczką.

The box is glued...

Sentence (14) is acceptable in proper context, i.e. using present tense in reference to past time (historical present). Since *zostać* in passive constructions implies a change of state, redundantly dynamic, structures like (14) are acceptable because they refer to a completed action.

być in passive constructions implies remoteness in time, action disjoint in time from the present moment, and often implies that the state thus described no longer holds. But the present tense *jest* (3rd p. sg) contradicts this remoteness. Such passives are unacceptable because of this internal inconsistency.

(15) ??Pudełko jest zaklejone przez pakowaczkę.

(16) *Pudełko jest zaklejone pakowaczką.

The box is glued.....

Conversely, (17) is completely acceptable in any context.

(17) Pudełko jest zaklejone.

Apparently the absence of NI or NA in (17) eliminates the problems found in (15) and (16). In fact what happens is that the absence of NA and NI permits (17) to be read as a combination of PATIENT subject with copula and predicate adjective. Conversely, such a construction can take only a PATIENT as a complement, and (15) and (16) are ruled out.

Moreover, (15) and (16) are unacceptable for another reason. If *jest zaklejone* is interpreted as a passive verbal group, then *jest* can only be the eminent present. But then it requires a non-past verbal complement. At the same time, the past passive participle, *zaklejone* is a marked past form in its non-adjectival function. Eminent presents and past tense forms, as mentioned above, are mutually exclusive; they do not occur in the same verbal group. As a general rule, in Slavic languages, and in Polish in particular, double tense choices on a single verbal group are not permitted, morphologically or on any other stratum.

Now consider (15) again. The *przez+Acc.* construction, interpreted as a realization of Ag, is indeed unacceptable for the reasons stated above. However, the question marks are meant to indicate that there are constructions of this form which are acceptable in certain contexts. Conversely, sentence (18), with an Ag, is no good.

(18) *Zboże jest ścięte przez żniwiarę.

Grain is cut by a harvester.

But (19) and (20) are acceptable.

(19) Trasa (...) jest wyznaczona przez { pływaki.
pływaków.

The course (...) is set out by floats/swimmers.

(20) Trasa (wyścigu) jest wyznaczona przez rynek.

The course (of the race) is set out across/through the market.

In (20) *przez rynek* is clearly a PATH. *przez pływaki* in (19) is implicitly an instrument and explicitly a path. *przez pływaków* and (15) *przez pakowaczkę* are possible paths, too. Syntactically and morphologically there is no way to tell that they are Ag and not PATH (Ph). If they are Ph, then they are permitted. But this does not affect the discussion above concerning passive vs. copular verbal groups and the problem of double tense choices.

Consider another type of passive. Impersonal constructions, both morphological passives like *zaklejono* and "reflexives" like *zaklejiło się* present no problem if a complement in the instrumental case accompanies them. That

means we deal with a real In and constructions like that are blocked only if the verb implies path and the In is not a path in itself.

(21) Te elementy ułożono sorterem.

These elements were arranged with a sorter.

(22) ?Te elementy $\left\{ \begin{array}{l} \text{przepuszczono} \\ \text{przepuściło się} \end{array} \right\}$ sorterem.

These elements were run with(?) a sorter.

(22) is marginal, but can be accepted if *sorter* is considered to be a physical object which can be conceived as a locus through which the sorting path lies. For example *repetytor* meaning *gyro repeater* never causes problems with verbs implying movement since this NI is a path in itself.

In general, given an inanimate noun, the Ph interpretation of a *przez+Acc.* construction is preferred over an In interpretation. *przez+Acc.* is the normal way of expressing Ph. Moreover, In can always be expressed simply by the instrumental case. Even Ag in *przez+Acc.* may express a PATH, though it is likely to be metaphorical in interpretation. This is a structural side of deducing connotative meaning, which is a major function of language use. Nevertheless it can either clarify or confuse the issue in a given case.

The differences in verbs are also significant. Forms like *ułożono* are explicitly passive and implicitly past time; *ułożyło się*, on the other hand is only implicitly passive with explicit tense endings. Sometimes it is impossible to distinguish between passive and a middle voice usage.

Apparently reflexive or passive sentences also occur without morphologically or syntactically marked subjects. These are called impersonal sentences. By rights, they should be considered here, too, as their structures are clearly related to the ones under consideration. But impersonal sentences as a whole constitute an extensive topic which is simply beyond the scope of this study. However, one part of this topic must be considered. In impersonal sentences the instrumental case and *przez+Acc.* differ morphologically but are syntactically identical. In the lexotactic relations of impersonal sentences, the *przez+Acc.* constructions may realize In and Ph simultaneously, the latter being animate or inanimate, but never realize Ag.

(23) Jan przesłał list przez Marię.

John routed a letter via Mary.

(24) List przesłano przez Marię.

A letter was routed through Mary.

(25) Maria przesłała list.

Mary routed a letter.

(23) and (25) completely neutralize in (24) since *przez* may mean 'via' or 'by'. But (25) is surely not a paraphrase of (23). The subject of (23) is an Ag. The

przez+Acc. complement in (23) must realize Ph, even though it may be metaphorical.

Ph describes motion but it never occurs with beneficiary or as subject. It cannot be interpreted as a patient, both because of the restrictions on its cooccurrence with beneficiary and because of its morphology.

(26) Przyjechałem $\left\{ \begin{array}{l} \text{pociągiem} \\ \text{*przez pociąg}^{11} \end{array} \right\}$

I came by train.

(27) * $\left\{ \begin{array}{l} \text{Byłem} \\ \text{Zostałem} \end{array} \right\}$ przyjechany $\left\{ \begin{array}{l} \text{pociągiem} \\ \text{przez pociąg} \end{array} \right\}$

I was come by train.

(28) *Pociąg przyjechał mnie.

A train came for me.

In (26), *pociągiem* explicitly realizes In. It may also be interpreted as a realization of Ph. Though *przez+Acc.* is typical for Ph, Ph can be also expressed with the instrumental case. However, an animate Ph, e.g.

(29) *List przesłano Marią.

A letter was sent through Mary.

cannot be expressed with an instrumental case.

Moreover, the situation is further complicated by geometric consideration. A close look at Polish Ph expressions reveals that there are two different types.

(30) Idę ulicą.

I am going along the street.

(31) Idę przez ulicę.

I am going across the street.

This observation will be left without further elaboration since this problem too, is beyond the scope of this paper.

Incorporating Ph into sememic structure reveals other sources of confusion. Since Ph can be both animate and inanimate it shares the set of potential participants with Ag and In which may be relevant in decoding.

All of these sememic cases are related upwards to discourse structure. To the right they are related to lexotactics. The set of potential participants is related to nominal group at a low lexotactic level. Furthermore, some ani-

¹¹ In this case the *przez+Acc.* construction is impossible since the train is not the path along which the travel lies. Nor can it be conceived as a locus through which the path lies in this context. Hence, the impossibility of the explicit path construction.

mate and inanimate participants are syntactically and phonologically identical. That is they neutralize between the semotactics and the lexotactics (the OR relation to the lower right).

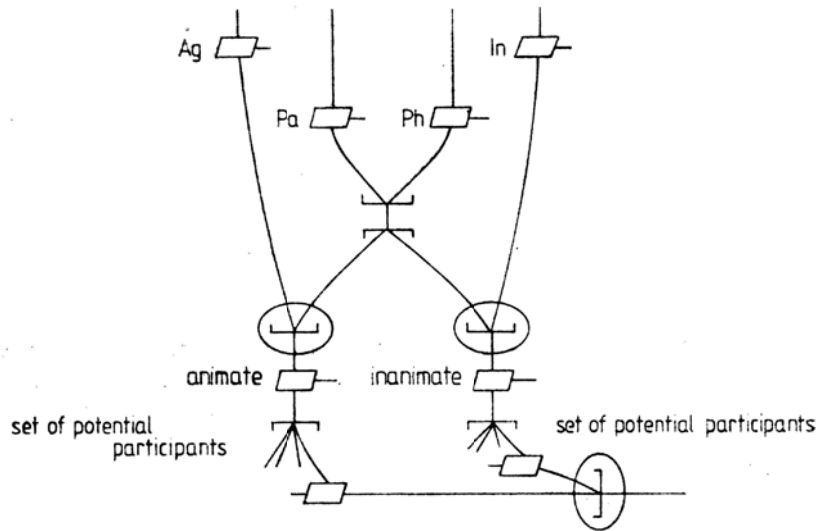


Fig. 6.

At the lexemic level Ph is related to nominal group in the same manner as Ag and In. Problems may also arise in decoding the post-verbal complement. Here, lines related to Ag, In, and Ph meet. Lines to the left relate to the semotactics. Plural is also related to semotactics, since at the sememic level, the number of participants is already known. Singularis is not explicitly mentioned since it is the unmarked number. Some gender specification is present in semotactics, since the biological sex of participants is known. Biological feminine is realized as grammatical feminine below the lexotactics. The masculine gender is morphologically unmarked; the traditional view in this matter is sound (see Schenker, 1965). Further subgrouping of feminine accounts for various feminine declensions at the morphological level. The details are complex but straight forward and not given here, Ag, In, and Ph may all appear in complement position (see examples above, passim). Lines to the right lead to morphotactics. Prepositions realize certain lexomorphemic relations. Consider the part of Fig. 7, which shows the realization of Ph. Ph is related to the preposition *przez* with the accusative case, or to the instrumental case alone.

In specific instances, there is a direct relationship from the bottom of LT to the bottom of MT (see Fig. 7). These can reasonably be called nouns.

Roughly speaking, roots are grouped according to all the suffixes they may take, and suffixes are grouped according to their function, e.g. NA suffixes, NI suffixes. Suffixes neutralize if they carry two or more functions (see Fig. 9 — below). This causes problems in decoding.

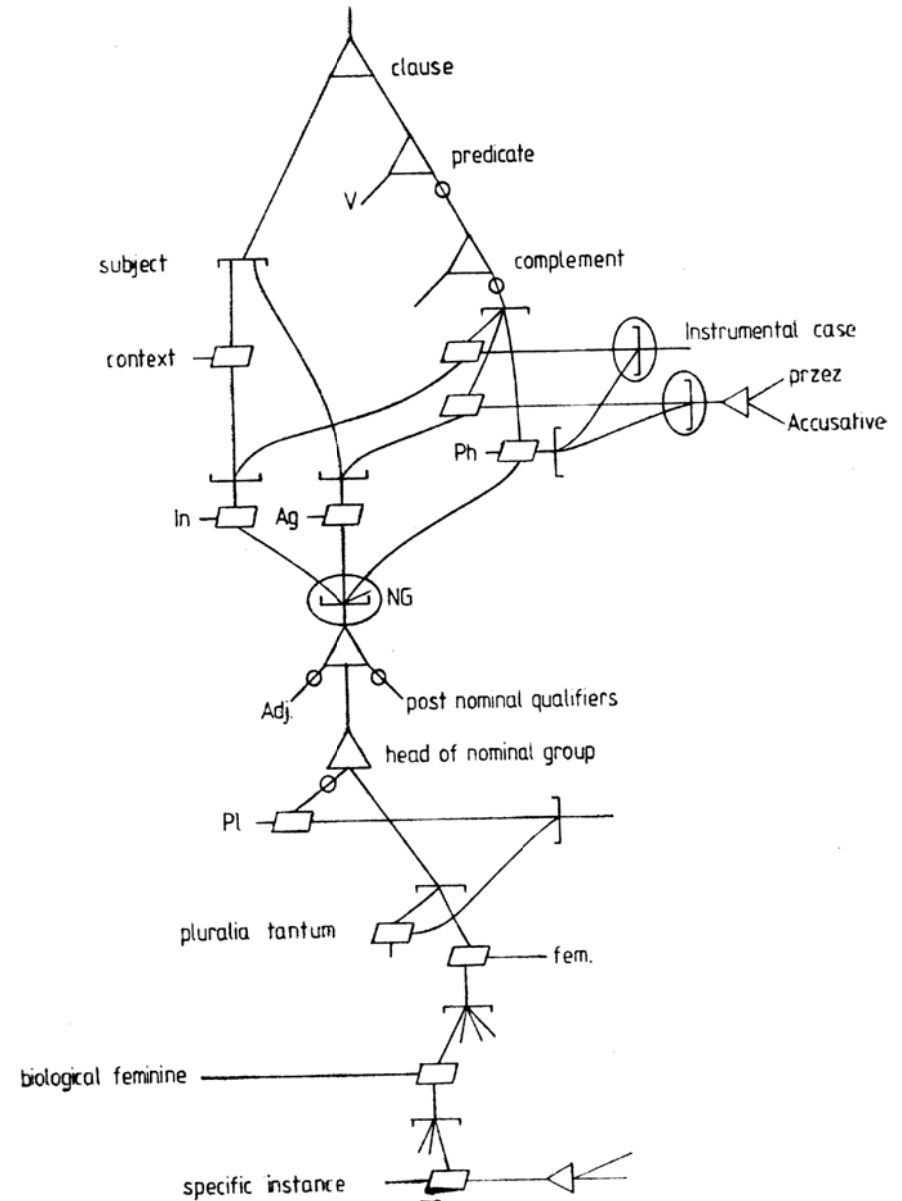


Fig. 7.

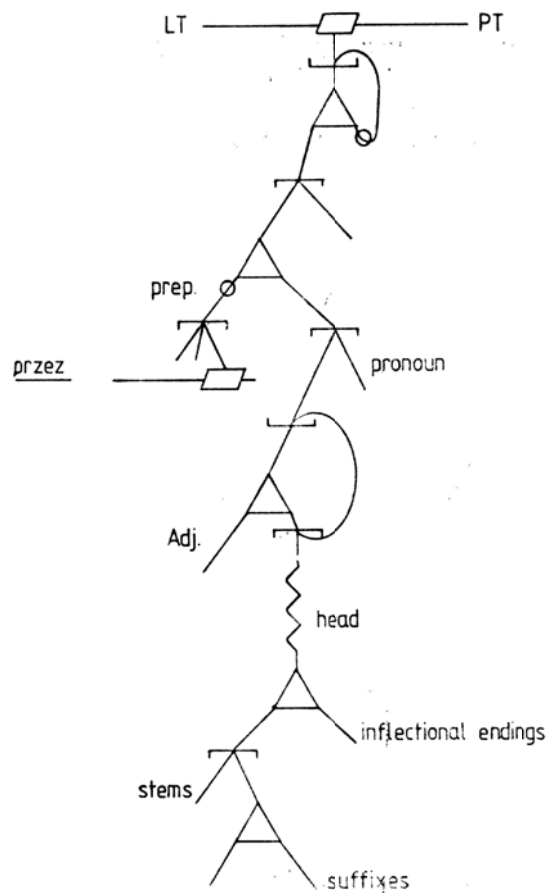
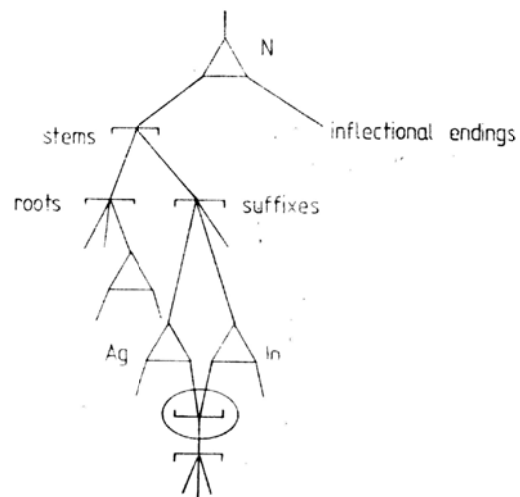


Fig. 8.



Since a full description of these groupings is possible only if all combinations are examined, at present only the following approximation is justifiable. This structure shows another source of Ag/In/Ph neutralizations (note encircled OR).

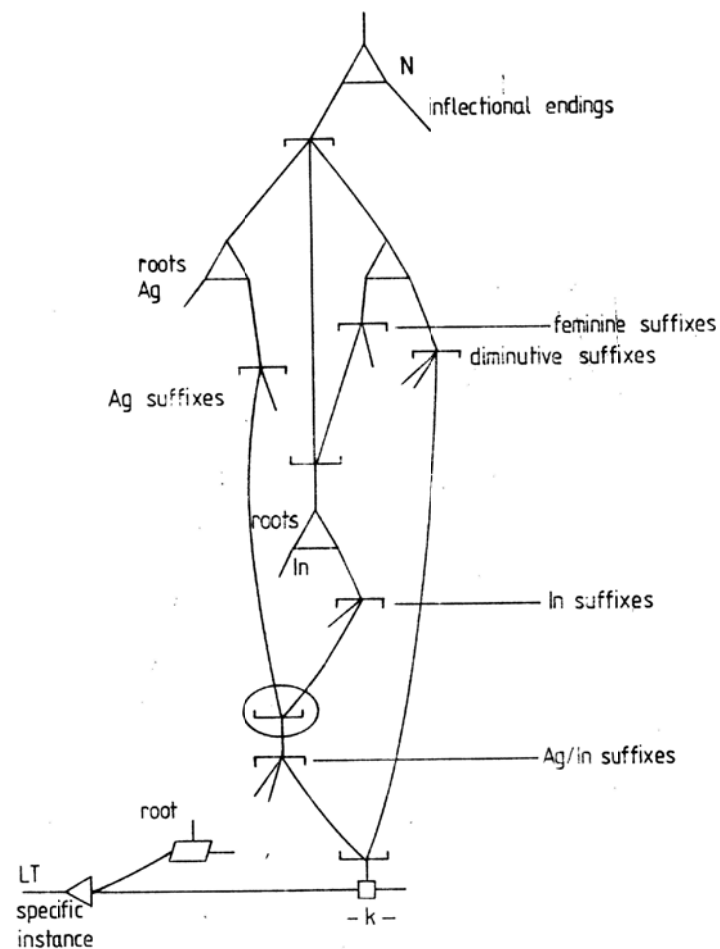


Fig. 10.

The deverbal vs. denominal derivations are described by means of tactic relations in Fig. 11. This structure describes the derivation of *trenner*/E. coach and *spiskowiec*/E. plotter. It also describes the related verbs *trenować* and *spiskować*. It does not allow **trenerować* and **spiskać*. It does not prohibit the derivation of **trenowiec*, which will be understood by a native speaker of Polish, but it does account for the fact that this word is not produced. The fact that **trenowiec* is not actually produced is due to realizational rela-

tions to the left, i.e. to specific instances of nouns. The effect is the same as of a filter, but this tactics is positively oriented, that is, it specifies both, what can be produced and what is produced rather than specifying what can be produced and filtering out what does not occur.

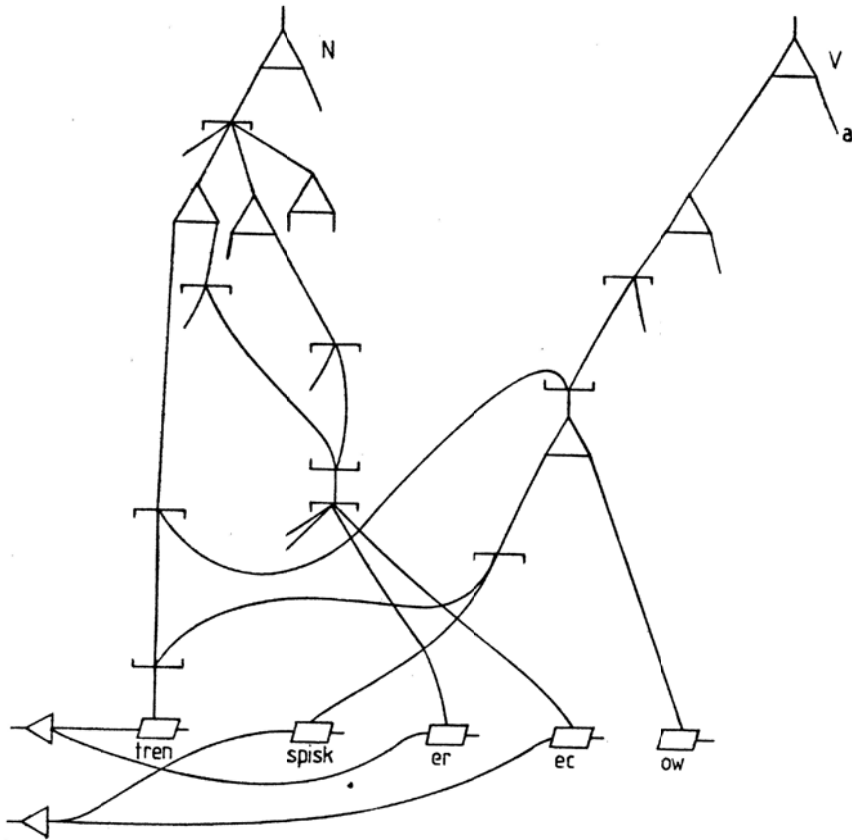


Fig. 11.

When the msc. form does not exist the tactics still allows us to derive fem. forms.

When the In fem. form deviates from the Ag msc., e.g. *kopacz/E. he-digger* vs *koparka/E. digger-machine*, it is a result of conditioned choice incorporated into the structure by means of separate AND (Δ) nodes, i.e., it is a marked choice. The full effect of marking is not incorporated here, because it requires a complete description and the details are beyond the scope of this study.

As far as inflectional endings are concerned, fem. vs. non-feminine declensions are distinguished in the singular, whereas in the plural, it is animate vs. inanimate declensions. Thus within this structure pl. is treated as a sort of a third gender (see also Schenker, 1965). Marked choices allow for the realization of (starting from the top and left) pl., animate, and some lexemic case; pl. alone (as nominative), and so on. The right most branch gives the completely unmarked sg.msc. nominative, which has \emptyset inflectional ending. The number of morphemic cases can possibly be reduced if syncretism is taken into consideration, as it should be in a complete description.

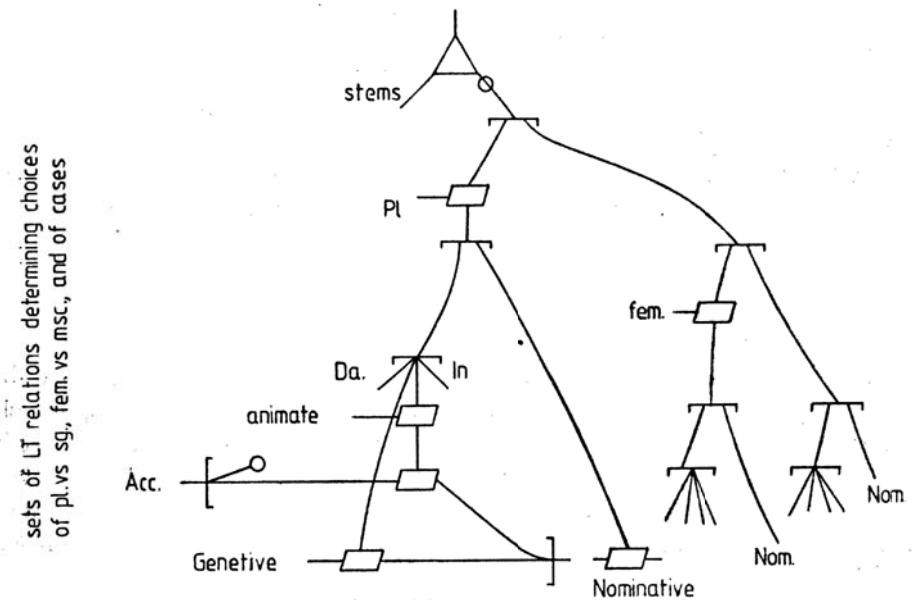


Fig. 12.

Thus within stratificational theory one can account for the data in question. Each stratum has its own tactics (here only relevant traces are presented). Within each stratum there are options, i.e. possible choices among structures. Strata are connected by another set of relationships. The consequences of these structures in specific instances are given below.

Within all these tactics and realizational patterns there are explicit specifications of all places where ambiguity may arise. This includes ambiguities during encoding and ambiguities during decoding. The distribution of these possible ambiguities is not completely parallel, since what is only an implicit ambiguity in encoding can be an explicit ambiguity in decoding.

The comments so far are simply an indication of what options can exist in

language. The main point of these comments lies in yet a different direction. Stratificationalism employs realizations between strata. To start with, realizational relations take care of what actually happen in encoding. A language user having all tactics at his disposal chooses some paths within them, depending on intent. If he does not know a form (in our case) he tries options and may, but does not have to, come up with the proper form (see I.6.1.). When his performance is faulty, it may be due to any of the possible ambiguities presented or in choice of sememic case.

In decoding the "mistakes", the number of possible problems actually increases, not because the number of options is tactically increased but because the hearer's access to information is more limited. He has only the phonetic images, and is forced to try options in order to deduce other information (e.g. sememic case). Thus what counts is not only what stands for possibilities, but also the specific realizations, i.e., what choice is made, why and where in a given pass through the structure.

In this way, a stratificational description accounts for the potential forms, the actually occurring forms, the ambiguities, and even for a wide variety of understandable mistakes.

III. CONCLUSIONS

The neutralizations among Polish NA and NI cannot be explained by morphology alone. That is why neither the IC theory, nor Nida's approach, nor generative morphology can provide an answer to the question posed in the title of this paper. None of these theories is fully structured. Moreover, the theory of generative morphology seems to be vacuous. Finally, these theories capture neither the differences nor the similarities among Polish NA and NI.

An answer to the question, Polish NA and NI: which is which? requires both a fully structured theory and means to account for communicative shortcomings.

Stratificational theory may provide us with both. It shows by means of its tactic and realizational patterns not only what should happen, but also why things which could happen do not happen, i.e. why there are discrepancies between encoding and decoding.

REFERENCES

- Aronoff, M. 1976. *Word formation in generative grammar*. Cambridge, Mass.: MIT Press.
 Bennet, D. C. 1975. *Spatial and temporal uses of English prepositions*. London: Longman.
 Czerni, S. and M. Skrzyńska (eds) 1968. *Słownik techniczny angielsko-polski i polsko-angielski*. Warszawa: Wydawnictwa Naukowo-Techniczne.

- Doroszewski, W. (ed.). 1958–1969. *Słownik języka polskiego*. Warszawa: Wiedza Powszechna.
 Fokker, A. A. 1966. *Nouns from verbs: A contribution to the study of present day Polish Word Formation*. Amsterdam: North Holland Publishing Co.
 Gleason, H. A. 1964. "The organization of language: a stratificational view." *Georgetown Monograph Series No 17*. 75–95.
 Gleason, H. A. 1976. "Realizations, transformations, and filters." *The Third LACUS Forum*. 486–94.
 Grzegorzczkowska, R. and J. Puzynina (eds) 1973. *Index a tergo do "Słownika języka polskiego pod red. Witolda Doroszewskiego"*. Warszawa: PWN.
 Grzegorzczkowska, R. and J. Puzynina 1979. *Słowotwórstwo współczesnego języka polskiego*. Warszawa: PWN.
 Gussmann, E. 1978. *Explorations in abstract phonology*. Lublin: UMCS.
 Makkai, A. 1974. "'Take one' on take: lexo-ecology illustrated." *Language Sciences* 31. 1–17.
 Makkai, A. and D. G. Lockwood (eds) 1973. *Readings in stratificational linguistics*. Alabama: The University of Alabama Press.
 Nida, E. 1948. "The identification of morphemes." *Language* 24. 414–441.
 Sullivan, W. J. 1969. *A Stratificational view of the phonology and inflectional morphology of Russian*. Unpublished PhD Diss. University of Yale.
 Sullivan, W. J. 1976. "Active and passive sentences in English and Polish" *PSiCL* 5. 117–152.
 Sullivan, W. J. 1977. "A stratificational view of the lexicon." *Language sciences* 46. 11–22.
 Sullivan, W. J. 1980. "Syntax and linguistic semantics in stratificational theory." *Syntax and semantics: current approaches to syntax*. vol. 13. 301–327.
 Urbańczyk, S. (ed.) 1978. *Encyklopedia wiedzy o języku polskim*. Wrocław: Ossolineum.
 Wells, R. S. 1947. "Immediate constituents." *Language* 23 no. 2. 81–117.
 Wells, R. S. 1949. "Automatic alternation." *Language* 25. 99–116.