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Bogdan Szymanek

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Reviewers:

prof. dr hab. Edmund Gussmann
prof. dr hab. Tomasz Krzeszowski
prof. dr hab. Roman Laskowski

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INTRODUCTION

Many scholars are of the opinion that the study of the functional aspect of derivational morphology is a relatively undeveloped area of linguistic research. The theory of morphology has undergone an unprecedented evolution in recent years, which has been marked by new and spectacular developments (cf., for instance, the newly-emerged frameworks of lexical and prosodic morphology). However, the novel proposals which dominate the scene these days seem to be preoccupied with the formal aspect of word-formation, to the neglect or even exclusion of functional/semantic considerations (obviously, there are exceptions to this trend; besides, functionalist approaches are traditionally predominant in Slavic linguistics). And so, while recently there have been several important contributions which illuminate, for instance, the interplay between morphology and phonology, or between morphology and syntax, it seems that there is no single and comprehensive account available at present which explores in depth the functional side of word-formation phenomena in relation to current ideas in linguistic semantics.

While the present study certainly does not aspire to compensate for this obvious neglect, it attempts, nevertheless, to throw some new light on what seems to be the central concept behind the functional approach to word-formation, viz. the concept of a derivational category. Previous research on

morphological categories and categorization is outlined in Chapter I. This chapter also gives a brief characterization of the relationship between meaning and form in morphology. In Chapter II we put forward a specific theoretical proposal concerning the conceptual basis of derivational categories. That is, it is claimed that the principal categories of word-formation are rooted in, and derivable from the fundamental concepts of cognition. This proposal, which is referred to as the Cognitive Grounding Condition, draws upon certain ideas from cognitive psychology and cognitive linguistics, relying in particular on the prototype theory of categorization. The Cognitive Grounding Condition is meant not only to provide a partial account of the derivational categories that exist and explain why they exist, but is also intended to function as a major constraint on categorization in morphology. The principles and criteria to be used in categorization procedures are investigated more fully in Chapter III. The problem is viewed as, basically, a question of defining the prototype of a derivational category. Several prototypical attributes are identified which, when examined against the actual language-data, should help decide what is and what is not a legitimate derivational category.

The evidence and illustrations used throughout this study are taken mainly from English and Polish. The derivational categories which are most central and/or representative for these two languages are listed separately in the Appendix, apart from being discussed in the main body of the text.

The project reported in this study would not have been conceived, let alone completed, were it not for the friendly

encouragement and scholarly advice which I received from Prof. Edmund Gussmann of the Catholic University of Lublin. Indeed, my present interest in morphology and in linguistics in general would not have crystallized without his long-lasting support and guidance. I owe a special debt of gratitude to my colleague, Dr. Anna Malicka-Kleparska, whose morphological insight helped me to avoid certain blunders and misconceptions. I am also grateful to several other colleagues in my department for discussing individual points with me and for suggesting improvements in the manuscript. I would like to single out, in particular, Dr. Jim Fife and Mr. Aidan Doyle who were kind enough to read and comment upon earlier drafts of this study.

Indirectly, but no less importantly, I am indebted to Prof. Tomasz Krzeszowski, Doc. Roman Kalisz and Doc. Michał Post whose works in cognitive grammar, published and unpublished, first drew my attention to this new method of approaching the study of language. Recently I was able to deepen my understanding of this field thanks to the generous help offered to me by Prof. Brygida Rudzka-Ostyn who provided me with material as yet unavailable in this country. In an equal measure, I feel indebted to Prof. Roman Laskowski whose original work in Polish morphology and morphological theory has, for a number of years, been a source of constant inspiration. Finally, it is with particular pleasure that I recall the time spent, in 1985/86, at Bucknell University, Lewisburg, Pennsylvania where I benefited so much professionally from the many discussions of morphological issues which I had there with Prof. Robert Beard, who helped me in many ways and on many occasions when I was preparing for this undertaking.

CHAPTER I

THE NATURE OF DERIVATIONAL CATEGORIES

"... human beings the world over,
no matter what their language or culture,
do share a common meaning system,
do organize experience along similar symbolic dimensions".
C. E. Osgood (1963:309)

1.0. Introduction

The term "derivational category" is commonly employed in morphological literature. However, the concept on which it is based is either left undefined, as if it were one of those primitive notions in the theory of grammar that hardly need clarification, or else it is given a definition that cannot be directly incorporated into any modern linguistic framework (see, for instance, the notion of a derivational category that emerges in the writings of Dokulil; cf. in particular Dokulil 1962).

It appears then that contemporary morphology has no reliable concept of a derivational category to work with. It seems that the notion is much spoken of but little understood. For one thing, it is patently false to view derivational categories as indefinable, theoretical primitives, since (as will be seen below) there is not, in fact, much agreement among contemporary linguists about the issue of categorization in derivational morphology, both as far as its methods/principles and its end-product are concerned. Likewise, to adopt, without modification, any of the traditional theories of morphological

categorization does not seem to be a promising idea either. The main reason is that the frameworks made available in past works are not normally subject to any explicit constraints, which often leads to the recognition of arbitrary and grammatically irrelevant categories.

Below we shall attempt to explore the notion of a derivational category and to bring it more in line with the remaining central concepts of morphological research, those which have already been worked out with considerable success within the broad generative framework. We begin by considering briefly a few of the commonly held assumptions about categories and categorization in morphology.

1.1. Categories of inflection vs. categories of derivation

1.1.0. On inflection and derivation in general

One of the wide-spread assumptions about morphology at large is that there is a substantive difference between the categories of derivation vs. the categories of inflection. However, the literature does not seem to offer any explicit definition of those differences, even though the general differences between these two sectors of morphology are frequently discussed. This neglect is understandable in view of the fact that no full-fledged theory of derivational categories is available in generative linguistics, in contrast to the existence of a number of categorial frameworks for the description of inflectional systems. Clearly, there is a clash between the popular, though poorly evidenced claim that the nature of categories in

inflection and derivation is different and the equally wide-spread conjecture that there is no clear-cut boundary between these two domains of morphology (see below).

Suffice it to say that, as is sometimes pointed out, "[t]he same morphological category may be derivational in one language and inflectional in another" (Watters 1985:87). To illustrate this point, one may take as an example the category of diminutives. For most languages, diminutivization is regarded as a purely derivational phenomenon. "In a few cases, however, the formation of diminutives is so thoroughly integrated into the language's inflectional system that its status is not in doubt" (Anderson 1985b:177, who discusses one case in point: Fula nouns).

Largely the same spirit permeates the treatment of the problem offered in Kuryłowicz (1964). Having noted that derivational categories are subordinate to inflectional ones, Kuryłowicz develops the following argument: "[...] the most important fact to be called special attention to is the correlation of certain derivational and inflectional categories. Semantically there is a close affinity between: aspect (inflectional) and mode of action (derivational); passive voice (inflectional) and derived intransitive verbs (derivational); participle (inflectional) and verbal adjective (derivational); infinitive (inflectional) and verbal noun (derivational); plural (inflectional) and collective (derivational); concrete case (inflectional) and denominal adverb (derivational); gender of adjective (inflectional) and gender of substantive (derivational); comparative (inflectional) and nominal intensive forms (derivational); and so on." (Kuryłowicz 1964:35). That is

to say, at least some derivational categories are viewed by Kuryłowicz as being rooted in inflection. At the same time he concedes that "[t]here are, of course, a great number of derivational categories which do not directly adjoin the inflectional categories" (Kuryłowicz 1964:36).

These findings, plus the existence of diachronic changes, prompt the following view of the nature of the border between inflection and derivation: "An analysis of concrete examples shows that the transition from *inflectional* to *derivational*, and vice versa, is continuous and that there are categories which may and must be established as being (at a certain moment) intermediate between inflectional and derivational [...]. The difference between inflection and derivation does not rest upon the *binary* principle in its pure form, but is a question of *degree* (it is not *digital* but *analogue* - to use the terminology of communication engineers)." (Kuryłowicz 1964:37).

It may be added that Kuryłowicz's claim about the "intermediate" status of certain categories is borne out by the descriptive accounts of Polish morphology, where it is usually maintained that such phenomena as aspect, comparison or adverb formation belong to the border area between inflection and derivation (see *Morfologia* 1984:53 ff).

It is also of interest to note that when one now reads Kuryłowicz, his view is strongly reminiscent of some quite recent approaches to morphology. Consider, for instance, Bybee's (1985) diagram presentation and discussion of "expression types" in morphology. These are shown as follows:

(1)

lexical--derivational--inflectional--free grammatical--syntactic

<----------

greater degree of fusion

Bybee explains the nature of the relationships among the different expression types by saying that they "do not constitute discrete categories, but rather mark off areas on a continuum [...] that ranges from the most highly fused means of expression, lexical expression, to the most loosely joined means of expression, syntactic or periphrastic expression" (Bybee 1985:12).

The view that the traditional distinction between inflection and derivation is relative at best and sometimes misleading is shared by many scholars. At the same time, however, an attempt is often made to develop a set of criteria which could help decide whether a particular morphological phenomenon is inflectional or derivational (or belonging more to one domain than the other). Consider, for instance, Carstairs (1984:3) who, on the one hand, speaks of "the notoriously hazy boundary between inflexional and derivational morphology", but on the other hand argues that "one can nevertheless identify a kind of spectrum of morphological behaviour with DERIVATIONAL and INFLEXIONAL extremes". And these extremes are defined in terms of certain characteristic properties; for example, inflection, in contrast to derivation, is said to be fully productive and never changes the word-class membership of an item. These and other criteria for the demarcation of both domains are also discussed in Adams (1973:11 ff), Bauer (1983:22 ff), Matthews (1974:Ch.III) and Anderson 1985b:163).

1.1.1. Defining inflectional categories

Research into the nature of inflectional categories has a rich and remarkable tradition of its own. Since our present interest in the problem is quite limited, we shall not, however, trace its ultimate origins and evolution in the literature, but rather will confine ourselves to a few standard accounts given in several contemporary sources. These are, for instance, the works of Kuryłowicz (1964), Matthews (1972, 1974), Miloslavskij (1981), Anderson (1985b), Bybee (1985) and Carstairs (1987), plus the volume on morphology in the Polish "Gramatyka współczesnego języka polskiego" (= *Morfologia* 1984).

Inflectional categories are otherwise known as *morphosyntactic* categories. This is to indicate the fact that "they play a rôle both in the rules of syntax [...] and in the morphological rules" (Matthews 1974:66). The categories usually recognized are as follows: case, number, gender, person, tense, aspect, mood, voice, and valence. As is well-known, these categories can be variously grouped and classified, according to several independent criteria. Thus, one can differentiate, for instance, between nominal and verbal categories. Another division is into categories that are inherent, relational, or agreement-related (see Anderson 1985b:172). From yet another point of view, inflectional categories can be divided into those involving binary vs. n-ary oppositions (cf., respectively, number vs. gender; see Miloslavskij 1981:26, *Morfologia* 1984:102 ff). One member of any such opposition is then regarded as unmarked, while the remaining one(s) as marked; e.g. for the

category Number, the Singular is unmarked whereas the Plural is marked.

So far, we have omitted one crucial problem, i.e. how to define an inflectional category. Despite the fact that several definitions of the concept are available in the literature, the issue does not seem to have been satisfactorily solved. Actually, a survey of these definitions demonstrates that many of them are rather vague, incomplete, or mutually incompatible. As a good example of a carefully worded and clearly articulated definition, one may mention Carstairs (1987:2) whose interpretation draws upon the theory put forward in Matthews (1972, 1974). According to Carstairs, "[m]orphosyntactic categories are classes of contrasting and mutually exclusive morphosyntactic properties, such as, in Latin, Gender, Tense and Case. Each category, together with the properties it contains, is applicable to one or more parts of speech or word-classes". Morphosyntactic properties, in turn, "are what inflections express or realize, such as Masculine Gender, Past Tense or Accusative Case".

If one now considers Anderson's approach, it turns out that his notion of an inflectional category appears to correspond, roughly, to Carstair's concept of a morphosyntactic property. Witness the following passage: "[...] inflectional categories can be organized into a set of dimensions applicable within a given lexical class (a *paradigm* for members of that class), such that (virtually) any lexical item can be specified for one of a set of opposed categories along each dimension" (Anderson 1985b:169).

There is a subtle yet traceable difference between the

two views just cited and the way inflectional categories are defined in the Polish *Morfologia* (1984:24). An inflectional category is conceived of there as "a set of all functional classes, each of which enters into a direct morphological opposition with respect to all the remaining functional classes which belong to this set". The defining terms employed here are: "functional classes" and "a direct morphological opposition" of such classes; e.g., for the category Number, one might posit Class *A*: *cup, spoon, knife,...* (countable nouns) vs. Class *B*: *cups, spoons, knives, ...* (see *Morfologia* (1984:22 ff) for a detailed analysis of these notions).

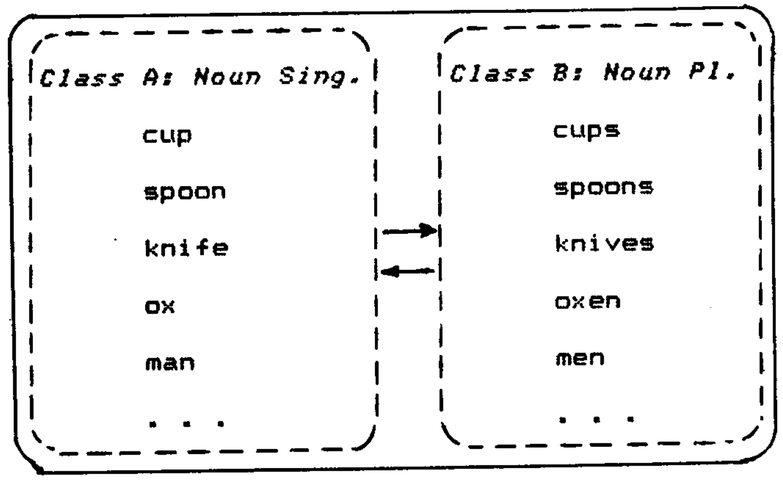
It is important to realize at this point that, according to the latter definition, a morphological category directly subsumes, and is constituted by, classes of "grammatical words", in contradistinction, for instance, to Carstair's definition, where the constitutive elements of a category are not words but the more abstract morphosyntactic properties.

Now, to illustrate the definition offered in *Morfologia* (1984), a typical binary category like Number may be represented graphically in the following manner:

(2)

Inflectional category

C = Number



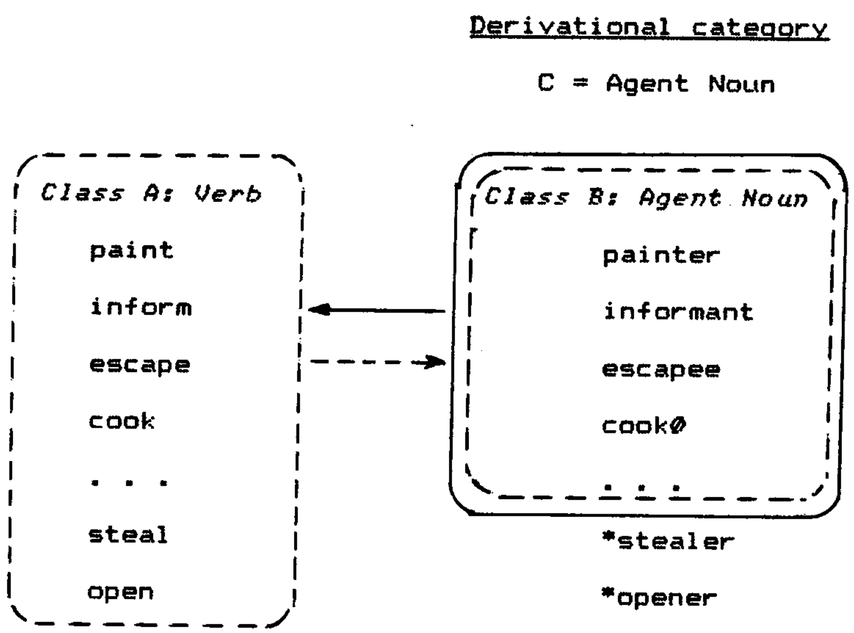
--> A implies B
<-- B implies A

Below we shall make reference to this diagram, and to the definition that it represents, in order, first, to draw a comparison between the internal organization of categories in inflection and derivation and, then, to work out a provisional definition of a derivational category.

1.1.2. Defining derivational categories

Drawing upon what has just been said, we now take under closer scrutiny some general properties of derivational categories. Taking the familiar example of Agentive noun derivation in English, one may draw the following diagram to illustrate the issue:

(3)



A derivational category, contrasted with an inflectional one (cf. (2) above) will now be defined tentatively as follows: a *single* functional class of lexemes (i.e. a set of exemplars), each of which consists, minimally, of a base and a derivational formative. The formative element, which spells out a particular derivational category, may be more than one; however, it must be uniquely specifiable and constant in terms of its basic function (meaning).

A derivational category *C* is relatable, as a class *B*, to the corresponding class *A* of base-forms. Likewise, any member of category *C* (i.e. an element of class *B*) is related, in a pairwise manner, to some element of class *A*. However, the nature of this mutual relationship is different from the links that

hold between the function classes which constitute any binary inflectional category. In the case of derivation, a class of derivatives *B* implies a corresponding class of base-forms *A* (and, consequently, each element in *B* implies some element of *A*), but not vice versa. When we go in the opposite direction (from *A* to *B*), the relation to be recognized is that of derivational motivation (foundation); i.e. only some members of class *A* motivate the complex lexemes from class *B* (cf. the fact that certain verbs have no corresponding Agentive nominalizations; e.g. *steal*, *open*, *resemble*, etc.).

To put it briefly, the relationship between bases (class *A*) and derivatives (class *B*), within a specific derivational category *C* is not symmetrical: for every item b_1, b_2, ... b_n in *B* there exists a counterpart a_1, a_2, ... a_n in *A*, but only some items in *A* have their equivalents in *B*. It may be added that the prime factor which affects the ratio *B/A* is the productivity of a given derivational category.

Because the relationship under discussion is not symmetrical, it should be approached in a unidirectional manner: either from *A* to *B*, i.e. from base to derivative, in which case we are dealing with the problem of generating complex words, or the other way round - from *B* to *A*, where the focus is on analysing the existing derivatives - the members of a category. In either case, the approach is dynamic in nature, which also differentiates it from the more static manner of representing members of inflectional oppositions.

1.2. Past attempts at classifying and categorizing derived words

The recognition of derivational categories, and of their significance for morphological analysis, gives us a unique perspective of word-formation processes. Instead of simply identifying and focusing upon various formatives found in a language, the morphologist sets for himself the more basic task of specifying the range of functions encoded by a given morphological system. Thus, there is a shift of emphasis in the analysis, from units of form to units of content, i.e., in the particular case of affixation, from affix-shapes to affix-functions. These functions become the main target of the investigation.

And indeed, the first question that may come to mind when one goes through the intricate patterns of affixation phenomena in a language like English or Polish is how to classify various affixal derivatives, and the affixes themselves, over and above the somewhat superficial division into prefixation, suffixation, infixation, etc. As yet, no satisfactory answer to this question has emerged in the morphological literature and the following remarks are also quite tentative although they rely, to a large extent, on the traditional theory of Slavic word-formation studies, on the one hand, and, on the other, draw on some quite recent suggestions found in generative sources.

A number of alternative approaches to the problem of classification and categorization in derivational morphology have been put forward in the literature. For example, the simplest method of arranging prefixes and suffixes is to list them alphabetically, according to their first letter (or sound).

This method, however "useful for indexes and other reference tools, is hardly conducive to deeper insights" (Malkiel 1978:141).

Another method often employed in the traditional accounts has been to list and group affixes also alphabetically, but according to the characteristic consonants or consonant clusters found in them (cf., for instance, Jespersen (1954) for English or Grzegorczykowa and Puzynina (1979) for Polish nouns). Thus, for example, one may put together disparate suffixes with the basic *-n-* sound, or establish another class of suffixes that would have *-t-* in common. Unfortunately, this latter technique for grouping formatives has not proved much more revealing than simple orthographic listing.

From a completely different point of view, affixes are often divided according to their origin or provenience. This is essentially a diachronic criterion which may be justified in a synchronic description of word-formation only insofar as the working of the present-day morphological system proves sensitive to such a division. This seems to be the case in English, where it has been customary to divide all affixes into two large sets: native and foreign. Within the "foreign" class, it is particularly useful to distinguish the so-called Latinate affixes (Greek, Latin, or Romance in their origin) from other affixes.

Another criterion for grouping affixes and affixal derivatives is lexico-syntactic in nature. It is based on the notion of principal word-classes (traditional "parts of speech"). The concept is applicable in two ways for the purpose of classification: affixes can be divided (1) according to the

syntactic-category (word-class) membership of the words they derive as when we speak about affixes deriving verbs, nouns, adjectives and adverbs; or (2) according to the syntactic-category membership of the base-forms. In this case we distinguish deverbal, denominal, and de-adjectival formations.

* * *

All the formal methods of classification outlined above (disregarding the division based on etymology) are too general or suffer from some other defect. As Malkiel (1978:141) points out in connection with this, "[m]ore stimulating has been the semantic or functional approach which aims to bring together suffixes, whatever their shapes, which perform more or less the same services". Unfortunately, the kind of approach advocated by Malkiel has not been pursued by many scholars working in the field of morphology. It is particularly uncommon in the generative studies of word-formation. (The import of the "semantic" or "functional" approach to word-formation systems will be more fully appreciated in the light of the "meaning/form asymmetry"; see 1.4.)

One might take, as an example, Marchand's (1969) description of English word-formation. The question of a semantic-functional categorization of English derivatives emerges several times in this volume, yet a summary solution to this problem appears to be relegated to one of the indices, entitled an "Index of the principal sense groups of prefixes and suffixes" (p. 516). Regrettably, this index is a rather arbitrary, and hence disappointing, list where some notably significant and possibly universal categories like 'agent', 'collectivity', etc. are put on a par with a number of evidently

irrelevant classes, e.g. 'drink' (suff. *-ade*: *lemonade*, *gingerade*, etc.), 'message' (suff. *-gram*: *cablegram*, *radiogram*). This is the same as saying that Polish has a "principal sense group" of derived nouns denoting different 'names of vodkas' because of the productive series in *-ówk(a)*: *cytrynówka*, *orzechówka*, *pomarańczówka*, *żubrówka*, etc.

A clear shortcoming of the kind of approach illustrated above is the apparent lack of explicit constraints and criteria which might make it possible to elaborate a principled system of categorization for derivational morphology. A way to remedy this situation, partly at least, has been suggested in Kuryłowicz (1964:35) who points out that the function of derivational affixes often coincides with that of inflectional ones (cf. the quotation in 1.1.0. above).

In order to provide some illustration of the above statement, we may have a brief look at the correlation between the inflectional category of plurality and the derivational category of collectivity (Nomina Collectiva). Consider the following nouns in Polish:

(4)

	Plural	*Collective*
adwokat 'attorney'	adwokaci	adwokatura
generał 'general'	generałowie	generalicja
nauczyciel 'teacher'	nauczyciele	nauczycielstwo
pióro 'feather'	pióra	pierze
robak 'worm'	robaki	robactwo
student 'student'	studenci	studenteria

There are contexts in which the collective forms would not prove

exactly synonymous with their plural counterparts (or otherwise nonequivalent, if only for stylistic reasons), but nevertheless the semantic affinity of the two sets remains a striking feature of the morphological system.

Thus, following Kuryłowicz's suggestion, one might argue that a successful method of establishing derivational categories would consist in first trying to uncover the functional correspondences between inflection and derivation, given the fact that the categories of inflectional morphology are much better understood and less controversial. However, an attempt to implement this strategy is bound to reveal that its usefulness is, in fact, severely limited. The primary reason for this is that the functional analogies mentioned by Kuryłowicz only hold for a fraction of all the derived forms that have to be considered.

Another attempt at constraining the set of legitimate derivational functions has been undertaken in a series of studies by Beard (cf. Beard 1986). This new approach to the problem of morphological categorization is based on the assumption that word-formation "is somehow determined by case" or, strictly speaking, by case functions. 34 major case functions are isolated for Indo-European languages and each of them is shown to define a significant category of lexical derivation. These functions include both "configurational relations" like Subject and Object, as well as certain truly semantic functions like Possession, Material, Location, etc.

This comprehensive approach is then comparable to those recent studies in morphological categorization which take as their point of departure some set of semantic roles associated

with predicate-argument structures. These can be, for instance, the thematic roles originally proposed in Fillmore (1968), such as [Theme], [Patient], [Goal], etc. Thematic roles appear to be quite useful in describing and, effectively, categorizing, deverbal nominalizations (see e.g. Kleszczowa 1981, Comrie and Thompson 1985). Nonetheless, they are insufficient for giving an exhaustive account of the network of all the functional relations which make up the derivational system (for example, it is hardly possible to use thematic roles in defining such categories as Diminutive nouns, Similitudinal adjectives, etc.).

Completely new approaches to the problem under discussion seem to be appearing now as a result of recent advances in cognitive lingustics. The so-called derivational categories present themselves as instantiations, on the level of morphology, of some more general, underlying categories of meaning, ultimately derivable from even more fundamental categories of cognition. Those scholars who stress the significance of a cognitive approach to language have already observed that the categories of human cognition and those of semantics are mutually interrelated. Cf. Jackendoff (1983:16): "[...] semantic structures could be simply a subset of conceptual structures - just those conceptual structures that happen to be verbally expressible".

Now, to broaden this view, one might argue (paraphrasing Jackendoff) that the structures, or rather categories of derivational morphology can simply be a subset of semantic structures (categories) - precisely those categories that happen to be *derivationally* expressible. Or, perhaps, one could even claim that the categories of derivation are rooted in a direct

manner in the basic concepts of cognition. Actually, a specific theoretical proposal which goes along these lines will be presented in the second chapter of this study. But first we need to pave the ground for it, by examining a few morphological notions which affect one's understanding of derivational categories.

1.3. Derivational categories and meaning

1.3.0. Introduction

One of the least controversial views on derivational categories is that their nature is, in the majority of cases at least, semantic. And this is where our problems begin since, generally speaking, studies of the semantic (functional) aspect of word-coining are relatively scarce in current morphological research. This is perhaps best visible in the several lexicalist contributions to the theory of word-formation which originated during the past 15 years or so. Thus, for example, the theory of Word Formation Rules (WFRs) developed in Aronoff (1976) may be criticized precisely on semantic grounds: "It should be noticed that semantics in WFR's is a weak point in the theory, in general, because it is a relatively underdeveloped area" (Scalise 1984:45); "[...] the semantics of WFR's is an area that has yet to be properly investigated" (Scalise 1984:53). Cf. also Dressler (1986:527): "[...] research into the semantic and conceptual bases of morphological categories has progressed in only very few instances [...]".

The problem is that most investigators focus on the form

and distribution (and perhaps to a limited extent, also meaning) of *individual* affixes found in a language, instead of first trying to establish what categorial functions may be expressed on the level of word-formation in this or that language, and only then concentrating on the formal means used to achieve this. So far, the latter kind of approach has not evolved beyond a programmatic, postulative stage, though a few attempts have been made to construct "a theory of word-formation that takes its starting point in some kind of semantic or cognitive structure [...]" (Bauer 1983:286).

However, a semantically oriented model of this kind must provide for the fact that it is by no means true that every process of word-formation is a meaning-changing operation. Firstly, apart from the majority of derivations where this is, indeed, the case ("lexical" derivations), there are also the productive, though not so numerous categories of what is called transpositional derivation. While the formatives which are involved here have some specific (syntactic) function, their meaning contribution may be nil. And secondly, one occasionally comes across instances of unproductive, isolated derivations which cannot be associated with any specific change of either meaning or function ("tautological" derivations). Below, the properties of these three types of word-formation will be reviewed in greater detail.

1.3.1. Transpositional derivations

It has been observed by many authors (cf., for instance, Kuryłowicz 1936) that there exist operations of affix-

attachment, traditionally interpreted as belonging to the realm of derivational morphology, which do not modify the meaning of the base-form in any way. Their only function is to change the syntactic-category membership of a word denoting a particular concept.[4] Thus, for instance, side by side with the category of verbal gerunds, traditionally assigned to inflection, cf. English *-ing*, there exist in many languages more or less productive derivational affixes used precisely for turning lexical verbs into abstract nouns. The nouns thus derived, often called Nomina Actionis (NA), have no specifiable semantics apart from the fact that they express as an entity the action/process originally denoted by the verbal stem. This is the function of the 'regular' English nominalizations in *-(at)ion*, *-ment*, *-al*, *-ure*, etc.

Related to simple gerunds and Nomina Actionis are so-called 'action nominals', i.e. noun phrases which contain, "in addition to a noun derived from a verb, one or more reflexes of a proposition or a predicate" (Comrie and Thompson 1985:358). Thus, for instance, the Polish sentence

(5)

Denerwuje mnie jego głośne jedzenie zupy

'His eating soup loudly is getting on my nerves'

contains an action nominal

(6)

jego głośne jedzenie zupy

'his loud eating of soup'

which is related to a full proposition

(7)

On je zupę głośno

'He is eating soup loudly'

where *On* [Subject], *zupę* [Object], and *głośno* [Manner] are arguments in a complex predicate.

The context of an action nominal clearly indicates that the derived noun which is part of it or, for that matter, any gerundive or NA nominalization potentially possess certain morphosyntactic characteristics found in both nouns and verbs. In our example, it can be seen that, on the one hand, *jedzenie* takes ordinary pronominal and adjectival modifiers (*jego*, *głośne*), subject to grammatical agreement, which is a property of nouns. On the other hand, this nominalization 'behaves' like a typical verb, since it is followed by an object (*zupa*) and besides the adjectival modifier turns out to function as an adverb of manner (*jeść głośno*).

Polish action nominals are, in fact, quite remarkable since, unlike those found in other languages, they can even mark the inherently verbal distinction of perfective/imperfective aspect, cf.:

(8)

Czytanie tej książki dało dużo radości [-perf.]

'The reading of this book gave much pleasure'

vs. Przeczytanie tej książki dało dużo radości [+perf.]

(Comrie and Thompson 1985:363)

The kind of asemantic derivational operation evidenced by Nomina Actionis (which may or may not be part of a larger

'action nominal') is known under the traditional name of **transposition** and the affixes thereby involved are said to have a **transpositional** or syntactic function, which consists in a category shift (e.g. V --> N).

It may be of interest to note in this connection that the systematic relation holding between lexical verbs and their transpositional nominalizations is not symmetrical, i.e. "languages often possess rather elaborate morphology whose sole function is to convert verbal roots into N's, but no morphology whose sole function is to convert nominal roots into V's" (Hopper and Thompson 1984:745).

This allegedly universal tendency is certainly borne out by English data. However, recall that there is in English a type of denominal verb which appears to resemble transpositional 'verbalization' very closely indeed. The following examples of the phenomenon are taken from Clark and Clark (1979):

(9)

summer to summer (Julia summered in Paris)

blanket to blanket (She blanketed the bed)

xerox to xerox (Who xeroxed his paper ?)

Titanic to Titanic (The canoe Titanicked on a rock in the river)

The function of these 'verbalizations', which are frequently innovative and unfamiliar, may resemble mere transposition (category-shift) since normally their meanings are determined pragmatically, on the basis of the context in which they appear. On the other hand, "[m]ost common denominal verbs seem to be full or partial idioms" (Clark and Clark 1979:781).

In either case, the semantic change concomitant with the shift from Noun to Verb is grammatically unspecifiable: "[t]he meaning of the verb is limited only to an activity which has some connection with the noun" (Aronoff 1980:747).

In any event, the verbs mentioned above, and numerous similar established forms like *to jail*, *to pilot*, *to radio*, etc. are obviously meaningful, and so attempts have even been made to categorize them semantically according to such roles as [Location], [Agent], or [Instrument] (see Clark and Clark 1979). However, the lengthy list of required categories appears insufficient and provokes many questions and doubts. What is equally important, however, is that no overt morphological devices are used in deriving the verbs under discussion. As is well known, the pattern in question is describable in terms of the murky concept of zero-derivation or conversion. But, in a rather abstract fashion, one may argue as well that "[...] to change a nominal root into a verbal form, it is sufficient simply to use it as a V, attaching standard verbal tense/aspect/mood and person morphology directly to it" (Hopper and Thompson 1984:745; see 3.1.9.1. for more discussion of the zero-derived verbs in English).

This universal generalization is also borne out, though less spectacularly, by the Polish data. Consider the following list of examples analogical to the "zero-derived" verbs mentioned above:

(10)

	Verb
boks 'boxing'	boks-owa-ć
cenzur(a) 'censorship'	cenzur-owa-ć

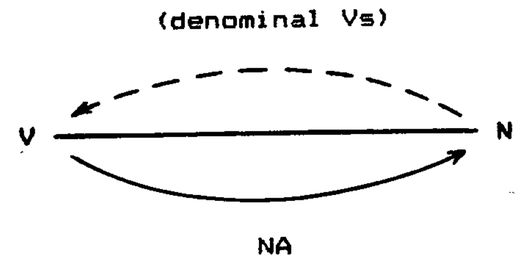
dubbing 'dubbing'	dubbing-owa-ć
koncert 'concert'	koncert-owa-ć
król 'king'	król-owa-ć
sędzi(a) 'judge'	sędzi-owa-ć

In Polish, "simply to use a noun as a verb" requires that a verbalizing "theme-forming" suffix be added to the noun, like *-owa-* in the examples above. But this does not necessarily undermine the generalization cited above since the theme-forming suffixes are not part of derivational morphology (cf. additionally *Morfologia* 1983:496, where denominal verbs of the kind illustrated in (10) are referred to as "transpositional").

Thus far we have discussed the question of transpositional derivation with respect to two basic "parts of speech" or lexical categories, i.e. the Noun and the Verb. It appears that "languages tend to have special nominalizing morphology but no special *productive* verbalizing morphology" (Hopper and Thompson 1984:745). However, as we have seen, even though there are no special affixes 'reserved' for the function in question, the shift from Noun to Verb can be accomplished in a variety of ways. Thus, the method typical of, though not limited to, denominal verbs in English is that of "zero-derivation" (but cf. also causative de-adjectival verbs like *clean - to clean*, etc.). In Polish, on the other hand, the change of category is overtly marked through the attachment of a stem-forming element.

These observations can be summarized in the following diagram (where the broken arrow denotes the transpositionally less prototypical shift from N to V):

(11)



Another commonly recognized transpositional category of word-formation are so-called Nomina Essendi, i.e. abstract de-adjectival nouns. Typical examples are Polish nominalizations in *-ość* and their English equivalents in *-ness* (also *-ity*, *-ancy/-ency*, and a few others). For example: *ostry* 'sharp' - *ostrość* 'sharpness', *cykliczny* 'cyclic' - *cykliczność* 'cyclicity', *przejrzysty* 'transparent' - *przejrzystość* 'transparency', etc.

A predominantly transpositional function may also be ascribed to certain adjectival suffixes which combine with nouns. The following suffixes often perform this function in Polish (see Szymanek 1985:151):

(12)

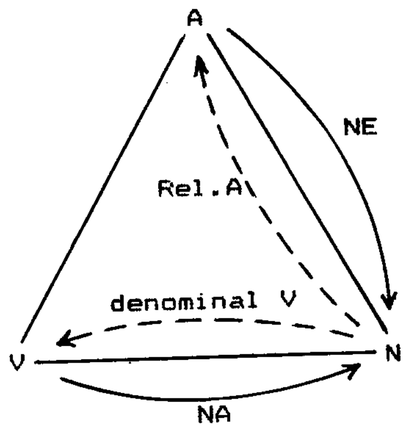
/+ov+/	e.g.	dom 'house/home'	domow(y)
/+ǐsk+/		uniwersytet 'university'	uniwersyteck(i)
/+ǐn+/		szkoł(a) 'school'	szkoln(y)
/+i+/		rolnik 'farmer'	rolnicz(y)
/+an+/		ziemniak 'potato'	ziemniaczan(y)
/+j+/		kobiet(a) 'woman'	kobiec(y)

These suffixes change the word-class membership of the base noun, so that it can be used as an attribute of another

noun. The resultant semantic modification (if any) is normally so obscure and indeterminate, especially when abstracted from particular contexts, that the "meaning" of the derived adjective can only be paraphrased in very general terms as 'pertaining to/connected with what is denoted by the base noun'. Accordingly, adjectives of this sort are often called *transpositional* or *relational* (Rel. Adjs). Their transpositional, i.e. primarily syntactic relevance is strengthened by the fact that, as a rule, they can be replaced with corresponding inflected forms of nouns; cf. *program rządowy* vs. *program rządu* 'government programme'.

Given the existence of such adjective-related transpositional categories as NE and Rel. Adj. (the latter being less prototypical, like the shift N --> V), the final picture of morphological transposition presents itself as follows:

(13)



It appears, then, that there are no solely transpositional processes that shift verbs to the class of adjectives, and vice versa.[2] A process that might be considered

as a likely candidate for the V --> A shift is the adjectivization of participles; cf. English *He was the person frightening us all* (Pariciple) vs. *He was very frightening* (Adjective). But, again, there are no overt morphological markers for the process involved and, besides, the two forms are not strictly equivalent semantically.

Other processes relating verbs and adjectives that might come to mind in the context of transposition have far too specific and definable meanings to qualify as mere category-shifters; cf., for instance, inchoative/causative de-adjectival verbs like *dark-en*, *broad-en*, etc. (see Gussmann (1987) for a detailed analysis of this class).

1.3.2. Lexical derivations

Apart from cases of pure transposition as discussed above, some degree of semantic modification is, indeed, an inherent property of virtually any process of word-coining. For many scholars this is simply the defining property of derivational morphology, as opposed to inflection.

Traditionally, affixes capable of altering the meaning of the base-form have been called **lexical formatives** (see e.g. Kuryłowicz 1936, Grzegorczykowa and Puzynina 1979). The attachment of a lexical formative may be accompanied by a shift from one word-class to another (e.g. $sing_V$ - $singer_N$, $fool_N$ - $foolish_A$), but not necessarily (cf. $trumpet_N$ - $trumpeter_N$, $white_A$ - $whitish_A$). In English, no such shift normally occurs in prefixal derivation.

The rich diversity of meaning changes involved in lexical

derivation has provoked many scholars to develop semantic classification and categorization frameworks for this central section of all word-formation systems. However, the difficulties faced by any such attempt are formidable, as is shown in part in the following sections. Here, we should like to point out one particular complication which arises if one is to approach the categorization of lexical derivatives from the semantic viewpoint. This is the fact that, in reality, one can speak of several distinct kinds of meaning expressed by language, including its word-formation system (cf. Lyons 1977:50). For the purpose of morphological analysis it is especially important to distinguish, at least, between descriptive (referential) and expressive meanings, since there are affixes whose functions differ remarkably and systematically precisely in terms of these two kinds of meaning.

As an example, consider the following two Noun-Noun derivations in Polish: *aktor* 'actor' - *aktork(a)* 'actress' vs. *aktor* 'actor' - *aktorzyn(a)* 'id. pejorative'. In the former case, the attachment of the suffix *-k-* brings about a change in the descriptive meaning of a noun: the class of referents of the lexeme *aktor* is distinct from the referents of *aktork(a)*, the difference being specifiable in terms of the features [male] vs. [female]. In the latter case, however, the referent(s) of *aktor* and *aktorzyn(a)* can be basically the same. What is different this time is the attitude of the speaker: it is either emotionally neutral, when the underived noun *aktor* is used, or the speaker may intend to convey some sort of disparaging, pejorative attitude. This is achieved by adding an expressive suffix *-in-/-yn-* to the nominal stem.

This important difference in the function of derivational affixes has already been recognized in several studies of word-formation (cf., for instance, Grzegorczykowa and Puzynina 1979, *Morfologia* 1983:319 ff., and the elaborate classification of formative functions found there). Indeed, the distinction is worth encoding in any model of derivational morphology, in view of the fact that expressive formatives also possess as certain formal properties which differentiate them, as a class, from those affixes whose primary role is to change the referential meaning. For example, expressive affixes are category-preserving (have no "syntactic" function). Besides, their attachment is not subject to the principle of "blocking", commonly encountered in other, non-expressive areas of word-formation; cf. Polish *mały* 'small' - *maleńki/malutki/malusi/maluśki* '(very) small, expressive', *ręka* 'hand' - *rączka/rączyna/rączuchna/rąsia* 'id. (dim.) endearing' (see 2.3.2.2.6. below).

1.3.3. Tautological derivations

Apart from the basic division into transpositional (syntactic) and lexical formatives, some authors mention also a third, very minor class, so-called **tautological affixes** (see, e.g., Grzegorczykowa and Puzynina 1979:31). Here belong the infrequent cases where the attachment of a particular affix (or, alternatively, a back-derivational affix-drop) appears to be a completely redundant operation, from the point of view of both the syntactic and semantic changes, which are null. Consider the following examples:

(14)

P. stron(a) 'page' = stron-ic(a)
parasol 'umbrella' = parasol-k(a)
darń 'sod' = darn-in(a)

E. lunch = lunch-eon
mitt = mitt-en
hate = hat-red

cf. also most of the *Xic(al)* type, e.g. *dramatic(al)*, *theatric(al)*, *phonologic(al)*

Doublets like those above may be regarded as lexical free variants of sorts, i.e. to the extent that they are exactly equivalent not only semantically, but also in stylistic and expressive terms.

1.4. Meaning/form asymmetry in derivation

1.4.1. Cofunctional and multifunctional formatives

In this section we intend to investigate the relationship between meaning and form in lexical derivation. As has been pointed out by many scholars (recently e.g. by Carstairs 1984, 1987), in morphology, "[t]he simplest relationship imaginable is a perfect one-to-one pairing of lexical meanings and morpho-syntactic properties on the one hand with their expressions or realisations on the other" (Carstairs 1984:16). That this is the simplest, or ideal, kind of relationship between meaning and form should not be taken to mean that it is the most common as well. On the contrary, Carstairs (1987:14 ff) presents numerous

examples of all the logically possible deviations from the simplest pattern. In so doing, he focuses on inflection. However, it is well known that non-isomorphic meaning/form relationships are also frequently found in derivation. Let us examine two simple examples of the phenomenon. First, consider the case of English deverbal nouns meaning 'act/process of V-ing' ("Nomina Actionis"). The semantic effect spelled out in the above paraphrase must be associated with at least as many as 8 formally distinct nominalizers. They are: *-(at)ion*, *-ment*, *-al*, *-ure*, *-age*, *-y*, *-ance/-ence*, and *∅* (cf., respectively, *adaptation*, *resentment*, *arrival*, *departure*, *coinage*, *inquiry*, *acceptance*, *launch∅*).

Formally unrelated formatives of the sort illustrated above may be termed **cofunctional** (or: isofunctional); cf. also the term "rival affixes" used by some authors.

The opposite side of the phenomenon under discussion may be illustrated with the example of the English adjectival suffix *-ish*. Here we have a case of a formative which is used quite systematically to perform several derivational functions. Handbooks of English word-formation list the following uses of *-ish*: (a) derivation of adjectives from ethnic/toponymic names (*Pole/Poland - Polish*); (b) derivation of expressive, manner adjectives from nouns (e.g. *foolish*, *bookish*); (c) derivation of "adjectives of attenuation" like *oldish*, *reddish*; and (d) derivation based on numerals, conveying the meaning of approximate age or time (e.g. *sixtyish*, *ninish*).

Now, if we treat (quite tentatively) the *-ish* element as a single suffix, we cannot but conclude that, in view of its syntactico-semantic diversity, it must be regarded as a

so-called **multifunctional** formative, i.e. an element which displays more than one regular meaning.

Examples of both cofunctional and multifunctional formatives are not hard to come by in the derivational systems of other languages. Polish word-formation is, for instance, notorious for such "two-way overlap" of meaning and form. Below we shall consider several classes of derived nouns in Polish in order to further illustrate the issue.

It is well known that numerous Polish nouns denoting animate beings (humans and animals) have as their counterparts formally distinct Female Names, derived from the former by suffixation. Consider the following regular examples:

(15)

aktor 'actor'	aktork(a)
Francuz 'Frenchman'	francuzk(a)
opiekun 'guardian'	opiekunk(a)
pianist(a) 'pianist'	pianistk(a)
pisarz 'writer'	pisark(a)
sąsiad 'neighbour'	sąsiadk(a)
student 'student'	studentk(a)
kot 'cat'	kotk(a)

It turns out that all the Female Names above are derived by means of a single suffix which in the nom.sg. appears phonetically as [-k-] (*-a* being the inflectional ending). A brief look at a complete declensional paradigm of the nouns in question reveals, however, that phonologically this suffix should be interpreted as /+ɨ̯̌k+/, since it involves the *e* ~ *∅* alternation in some related forms (cf., for instance, gen.pl. *aktorek*; for the phonological status of lax vowels in Polish, see Gussmann 1980a,b).

However, what is essential here is the fact that /+ɨ̯̌k+/ is not the only suffix capable of rendering the meaning of femaleness. This may be seen from the following list of derivationally related nouns:

(16)

członek 'member'	członkin(i)
dozorc(a) 'caretaker'	dozorczyn(i)
hrabi(a) 'count'	hrabin(i)
monarch(a) 'monarch'	monarchin(i)
mistrz 'champion'	mistrzyn(i)
zdrajc(a) 'traitor'	zdrajczyn(i)

Now it appears that another, formally distinct suffix can also be used to derive Female Names in Polish. This suffix appears as *-in(i)/-yn(i)* on the surface, and phonologically should probably be represented as /+ɨ̯̌ni+/.[3] The distribution of its two alternative phonetic shapes, i.e. [-ini-] vs. [-ɨ̯̌ni-] is predictable and phonologically determined, depending on the application of the rule of High Vowel Adjustment (see Gussmann 1980b:87).

If we continue thinking about the possible ways of deriving Female Names in Polish, we will see that /+ɨ̯̌k+/ and /+ɨ̯̌ni+/ are not the only suffixes that come to mind. Occasionally, one may come across derivations like the following:

(17)

(a) czarownik 'magician' czarownic(a)

	grzesznik 'sinner'	grzesznic(a)
	pomocnik 'helper'	pomocnic(a)
	robotnik 'worker'	robotnic(a)
(b)	diabeł 'devil'	diablic(a)
	lew 'lion'	lwic(a)
	słoń 'elephant'	słonic(a)
	tygrys 'tiger'	tygrysic(a)
(c)	uczeń 'pupil'	uczennic(a)

Judging by the nouns given in (17b), one will probably conclude that the suffix that attaches in each case to derive a Female Name is /+ic+/ (*-ic-*). However, the identity of the suffix is somewhat problematic in the case of the nouns listed in (17a). One possible interpretation traditionally entertained with reference to such data is to view forms like *robotnic(a)* as instances of "paradigmatic derivation": the masculine declensional paradigm of *robotnik* is said to be replaced by the feminine set of endings in *robotnic(a)*, plus the accompanying consonantal alternation *k ~ c*. Following another approach, one might recognize here the sequence *-nic-* as the suffix, i.e. a variant of the basic *-ic(a)*, in which case the original termination *-nik* of *robotnik* would have to be deleted. This line of reasoning is apparently supported by forms like the one in (17c) where the suffix appears in its most complex shape.

Leaving aside the controversial question of suffix identity, let us summarize our observations by saying that, simplifying the issue a little bit, Polish Female Names are derived by means of three, formally distinct co-functional formatives, viz. /+ɨ̯̆k+/, /+ɨni+/, and /+ic+/.

Now, the data analysed so far offer a good point of departure for illustrating the complementary concept of multi-functional formatives. Let us come back to the types of Female Name derivation in Polish. One of the suffixes mentioned in that connection was /+ɨ̯̆k+/ which appears, for instance, in *aktork(a)* 'actress'. But now it is time to add that the derivation of Female Names certainly is not the only function of /+ɨ̯̆k+/. Quite regularly, this suffix is used to form other kinds of nouns, i.e. derivatives belonging to some other categories.

First of all, /+ɨ̯̆k+/ is a common diminutive suffix in Polish. Consider the following examples of [+feminine] nouns:

(18)

dziur(a) 'hole'	dziurk(a)
głow(a) 'head'	główk(a)
kiełbas(a) 'sausage'	kiełbask(a)
lamp(a) 'lamp'	lampk(a)
szaf(a) 'wardrobe'	szafk(a)

That this suffix phonologically involves a nonpalatalizing vowel alternating with zero, hence represented as /+ɨ̯̆/, may be seen in other, related forms like *lampek* 'lamp, gen.pl.' or *lampeczka* ("secondary diminutive"). Besides, all the nouns above are feminine in gender. If we now turn to masculine and neuter nouns, the identity of this diminutive suffix will become even more transparent:

(19)

(a) [+masculine]

anioł 'angel'	aniołek

dom 'house'	domek
dzban 'jug'	dzbanek
kij 'rod'	kijek
słup 'post'	słupek

(b) [+neuter]

koł(o) 'wheel'	kółk(o)
krzesł(o) 'chair'	krzesełk(o)
okn(o) 'window'	okienk(o)
wiadr(o) 'pail'	wiaderk(o)

Summing up, then: some, at least, Polish Diminutives are derived by means of the suffix /+ɨ̯k+/ (*-k-/-ek-*) which is phonologically identical with one of the formatives found in Female Names. As a result of this formal identity, the following semantic contrast and ambiguity may arise:

(20)

Moja sąsiadka ma dwa przemiłe kotki

'My neighbour-FEM has two lovely cats-DIM'

vs. Moja sąsiadka ma dwie przemiłe kotki

'My neigbour-FEM has two lovely cats-FEM'

In the former sentence the noun *kotki* bears the syntactic specification acc.pl.masc. and is a regular diminutive formation from *kot* cat', whereas in the latter case the homophonous form *kotki* appears in acc.pl.fem. and denotes female cats. This ambiguity, which resolves itself only in a broader context (via the noun - attribute agreement) is an immediate consequence of the multi-functional nature of the suffix /+ɨ̯k+/.

However, the derivation of Female Names and Diminutives

is not the only function of the formative /+ɨ̯k+/. A more exhaustive analysis of nominal formation in Polish would reveal the importance of this formal unit for the derivation of words representing a wide range of derivational categories. Below, we shall mention only a few alternative functions of /+ɨ̯k+/.

Firstly, /+ɨ̯k+/ is a typical exponent of a functional class that, semantically speaking, comes close to that of Diminutives and in individual cases can hardly be distinguished from it, i.e. the class of Endearings. Consider the following examples:

(21)

masł(o) 'butter'	masełk(o)
mord(a) 'muzzle'	mordk(a)
włos(y) 'hair, pl.'	włosk(i)
zęb(y) 'teeth'	ząbk(i)
zup(a) 'soup'	zupk(a)

All the right-hand column nouns are typical examples of expressive terms of endearment.

Secondly, /+ɨ̯k+/ combines with some mass-nouns or collective nouns to convey the meaning of singleness (Singulativa), e.g.:

(22)

dym 'smoke'	dymek 'a puff of smoke'
słom(a) 'straw'	słomk(a) 'a straw'
traw(a) 'grass'	trawk(a) 'a blade of grass'
ziarn(o) 'grain'	ziarnk(o) 'a seed'

Thirdly, /+ɨ̯k+/ may be found in various kinds of

deverbal nouns. As an example, one may mention certain Names of Instruments, e.g.:

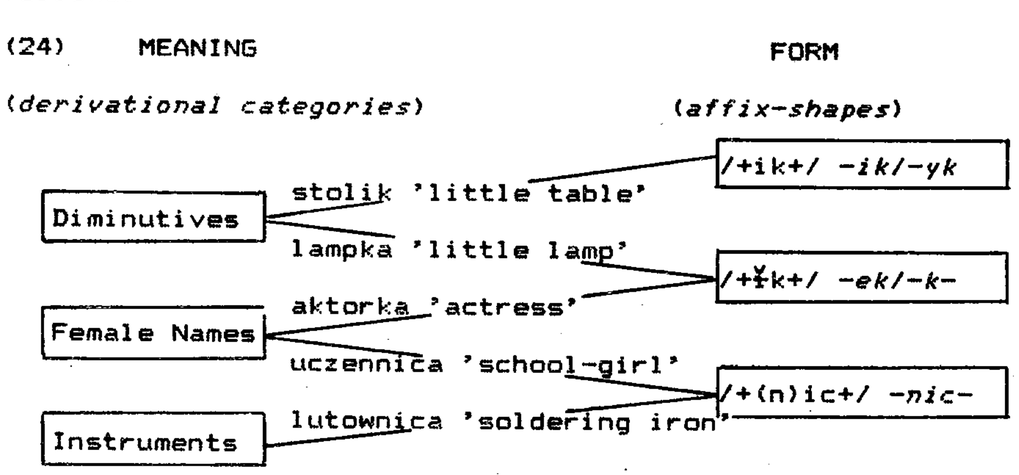
(23)

podpier(ać) 'support'	podpórk(a) 'a support'
przykryw(ać) 'cover'	przykrywk(a) 'a cover'
ścier(ać) 'erase'	ścierk(a) 'a duster'
zakręc(ać) 'screw up'	zakrętk(a) 'a cap'
zapal(ać) 'set fire'	zapałk(a) 'match'

The evidence presented so far demonstrates the multifunctionality of the suffix /+ɨ̯k+/ clearly enough. We have seen that the suffix is employed in the derivation of nouns which belong to the following categories: Female Names, Diminutives, Endearings, Singulativa, Instrumental Nominalizations, plus a few others (cf., for instance, the meanings of *szoferka*, from *szofer* 'driver': (a) 'cab', (b) 'driver's profession', (c) 'woman driver').

The two-way overlapping which pervades word-formation systems and is manifested by the existence of both cofunctional and multifunctional affixes may be illustrated schematically as follows:

(24)



To summarize, the existence of both multifunctional and cofunctional affixes is a prime manifestation of the meaning/form asymmetry in morphology. A general and succinct definition of morphological asymmetry may be found in Beard (1984:50). It is "the ability of a single suffix to reflect several meanings while several such suffixes convey any one such meaning".

The pervasiveness of morphological asymmetry has prompted some investigators to argue for the separation of the semantic/functional and formal aspects of word coining (see in particular Beard 1981, 1986, Malicka-Kleparska 1985, Szymanek 1985). One type of argument frequently advanced in order to defend the "separation hypothesis" concerns the nature and scope of constraints operative in word-formation systems. Normally, conditions and constraints whose nature is phonological or morphological apply only to individual affix shapes, representing single morphosemantic types, and cannot be linked to the higher-level functions of lexical derivation. For instance, a phonological condition on the English noun-forming suffix *-al* stipulates (among other things) that the last vowel in the base must be stressed (except for *bury - burial*); cf.:

(25)

trý	- trial	vs. órganize	- *organizal
dený	- denial	encóurage	- *encourageal
refúse	- refusal	cómpensate	- *compensatal

Notice, however, that the phonological limitation in question obviously does not hold for the "homophonous" *-al* which is used to derive adjectives (even though stress-shift occurs in some

such derivations):

(26)

mûsic	- musical
ôrchestra	- orchestral
perîphery	- peripheral

That is to say, the scope of the stress requirement is restricted to just those occurrences of *-al* where this element is deverbal and noun-forming (normally meaning the 'act/process of V-ing').

Viewed from a different perspective, the above condition is equally inapplicable to all the remaining types of abstract deverbal nouns, formed by means of suffixes other than *-al*. The condition merely forces the selection of some other, competing formative (e.g. *-ation* in *organization*, *-ment* in *encouragement*, etc.).

To give a clearer example of a phonological condition whose scope is limited in the way evidenced above one may mention English adjectives in *-ish* derived from ethnic/toponymic names (e.g. *Polish*, *English*, *Finnish*, *Turkish*, etc.). It turns out that all such adjectives have the following structure: $[C_1V_1C_1$ + ish$]_A$; i.e. each of them is bisyllabic. That is to say, the attachment of the suffix *-ish* in the function under discussion is subject to a phonological (output?) constraint which stipulates that the prospective derivatives cannot be more than two syllables long. Quite clearly, however, this limitation is not valid for other uses of *-ish*; cf. *nightmarish*, *yellowish*, *fiftyish*, etc. (3 syllables in each case). The suffix *-ish* emerges then as a multifunctional formative whose distribution

depends, partly at least, on the particular function in which it is used.

However, there are conditions in word-formation which can be linked directly and in a general manner to a particular derivational function. The nature of such conditions is usually syntactic or semantic. One trivial instance of a syntactic restriction is the stipulation that abstract nominals meaning the 'act/process of V-ing' have base-forms which carry the feature [+Verb]. Finer syntactic limitations are also possible: cf. the class of objective/potential adjectives in *-able* which are derivable only from verbs with the feature specification [+transitive].

A good example of a semantic limitation is provided by the class of so-called "adjectival diminutives" (attenuative in meaning) like E. *fattish* or P. *tłustawy, grubawy* 'id.', where the necessary condition on the meaning of the input form is that it be an adjective with gradable semantics.

It should be stressed again that general syntactico-semantic conditions of the sort outlined above are to be viewed as constraints on processes/functions of lexical derivation rather than as constraints on the use of the individual formatives by means of which lexical derivation is accomplished.

As was said above, the difference in scope between phonological and morphological conditions on the one hand and syntactico-semantic ones on the other is that the former typically apply to individual morphological types while the latter are usually coupled with particular derivational functions. This difference seems to argue in favour of the "separation hypothesis". Cf. also Beard (1984:52): "This

separation of the lexical and morphemic systems is the result of each having its own constraints. There are no phonological constraints on the semantics of L-extension, but obviously there are on affixation".

1.4.2. Other manifestations of the meaning/form asymmetry in derivation

In the remainder of this section we want to mention briefly two special varieties of the meaning/form asymmetry in derivation which have direct, and better investigated, analogues in inflection. These are the phenomena of cumulative and extended exponence. Both concepts will be illustrated with some data from Polish.

1.4.2.1. Cumulative exponence

In inflection, cumulative exponence may be defined as follows: "instances where, in some word-form, more than one morpho-syntactic property is realised in one unsegmentable morph or morphological process" (Carstairs 1987:15). Let us take the Polish noun *dom* 'house' as an example. Its paradigm of declension involves, for instance, the form *domu*. This form can be decomposed into two morphs: *dom* + *u*. When we examine the morphological oppositions the desinential *-u* enters into, within the paradigm, it turns out that this ending realizes two independent properties: 'genitive' (contrast: *dom* 'nom./acc.', *domowi* 'dat.', etc.) and 'singular' (contrast: *domów* 'pl.'). Therefore the *-u* element under discussion is to be regarded as

an instance of cumulative exponence in Polish noun-inflection.

It appears now that, by analogy, the concept of cumulative exponence can be traced in certain spheres of Polish derivation as well. Consider the following list of examples:

(27)

cham 'cad'	chamica
biolog 'biologist'	biologica
Francuz 'Frenchman'	Francuzica
aktor 'actor'	aktorzyca
wampir 'vampire'	wampirzyca

The forms in the right-hand column are derived from the corresponding masculine personal nouns by means of the suffix *-ic(a)/-yc(a)* (phonologically /+ic+/). The point is that this suffix conveys here two independent functions: 'female' + 'pejorative' (see Grzegorczykowa 1979:56). In other words, it is a cumulative marker of two derivational categories. Normally, both the female and pejorative meaning are marked exclusively and separately on a given personal base.[4] For example:

(28)

aktor 'actor'
- aktor-ka (Fem.)
- aktorz-yna (Pejor.)
→ aktorz-yca (Fem.+Pejor.)

cham 'cad'
- cham-ka (Fem.)
- cham-isko (Pejor.)
→ cham-ica (Fem.+Pejor.)

1.4.2.2. Extended exponence

Another type of deviation from the one-to-one pairing of meaning and form in morphology is extended exponence. The concept, often

used in descriptions of inflectional systems, is applied to cases where "[...] a property is identified in position *a* in one class of words, in position *b* in another, and then in both positions *a* and *b* in a third" (Matthews 1974:149).

A simple example of the phenomenon would be an English pair like *steal - stolen* where the single property 'Past Participle' is realized jointly by vowel modification plus suffixation; likewise German *Haus - Häuser*, with the complex plural marker Umlaut + suffix.

Now, to turn again to derivational morphology, extended exponence may be postulated for a virtually unproductive pattern of English de-adjectival verbs like *em-bold-en*, *en-liv-en*. Clearly, the single derivational category 'Causative V' is realized by joint attachment of a prefix-suffix complex *eN-...-en*. This occurs despite the fact that the usual method of coining members of this class in English is the attachment of either *eN-* (*enlarge*) or *-en* (*broaden*) but not both (see Gussmann (1987) for a comprehensive account of de-adjectival verbs in English).

More conclusive evidence in favour of introducing the concept of extended exponence into the theory of derivational morphology may be found in Polish. Below, we shall demonstrate the applicability of this term to the description of a class of Polish augmentative/pejorative nouns.

There are several methods of deriving an augmentative noun in Polish. Three such patterns which are of particular interest will be outlined here. All three take as their input certain nonabstract, inanimate nouns, which must also be "emotionally neutral", i.e., roughly speaking, nonexpressive.

The patterns in question are as follows: (1) back-formation; (2) consonant modification (i.e. nonphonologically conditioned alternation), and (3) something that looks like a mixture of (1) and (2). Consider the following examples:

(29)

Back-formation

buɬk(a) 'roll' - buɬ(a)
beczk(a) 'barrel' - bek(a)
ɬawk(a) 'bench' - ɬaw(a)
piɬk(a) 'ball' - piɬ(a)
szpilk(a) 'pin' - szpil(a)

As has already been mentioned, the pattern illustrated above is fairly productive in colloqiual Polish and may tentatively be represented in terms of the following formula:

(30)

$$\text{¥k} \dashrightarrow \emptyset \;/\; + \_ +]_N \begin{bmatrix} \text{-expressive} \\ \text{-abstract} \\ \text{-animate} \end{bmatrix}$$

(semantics: augmentative)

(31) *Consonant modification* [s] --> [x]

papieros 'cigarette' - papiero[x]
mięs(o) 'meat' - mię[x](o)
kieɬbas(a) 'sausage' - kieɬba[x](a)
wąs(y) 'moustache' - wą[x](y)
wɬos(y) 'hair' - wɬo[x](y)

This pattern of augmentative formation is evidenced by only a few derivations, but this is due to a highly specific

phonological condition on the base-forms: the alternation takes place only in nouns whose stems terminate in /-s/. On the assumption that the augmentative is semantically secondary with respect to the neutral form, the alternation may in fact be represented as a unidirectional process. Thus:

(32)

$$s \longrightarrow x \;/\; \_ \; +]_N \quad \begin{bmatrix} -\text{expressive} \\ -\text{abstract} \\ -\text{animate} \end{bmatrix}$$

(semantics: augmentative)

(33) *Extended exponence*

/s/	lask(a) 'stick'	- lach(a)
	kresk(a) 'dash'	- krech(a)
	desk(a) 'board'	- dech(a)
	klusek 'noodle'	- kluch
	piasek 'sand'	- piach
/z/	wiązk(a) 'bunch'	- wiąch(a)
	walizk(a) 'suitcase'	- walich(a)
	pinezk(a) 'thumb-tack'	- pinech(a)
/ś/	czaszk(a) 'skull'	- czach(a)
	flaszk(a) 'flask'	- flach(a)
	kiszk(a) 'bowel'	- kich(a)
	puszk(a) 'can'	- puch(a)
/ź/	łyżk(a) 'spoon'	- łych(a)

The pattern illustrated in (33) is fairly productive in the spoken language. Its scope may be delimited as follows: it operates on emotionally neutral, nonabstract inanimate nouns terminating in /+ɨ̯k+/ (*-ek, -k(a), -k(o)*), preceded by a

sibilant /s,z,ś,ź/ (see Grabias 1981:113).

Now one might consider the question of whether augmentatives like *lach(a)* etc. can be derived from their respective base-forms by means of a single derivational process. Apparently they cannot. The extreme complexity of such a single move, were it possible, becomes clearer at the level of the phonological (lexical) representation. Thus /las+ɨ̯k+/ would have to be changed to /lax+/, i.e. a whole sequence of segments, involving a morpheme boundary, would be reduced to a single /x/, but no such instantaneous change is likely, even with the help of the resourceful machinery of Polish phonology (see, however, Gussmann 1978:84). Therefore, we conclude that *lask(a)* gives rise to *lach(a)* through the application of two, formally distinct processes of morphology: back-formation and C modification. These are precisely the two processes which, applied independently, can account for other classes of augmentatives, as evidenced by the data in (29) and (31). It follows then that the forms like *lach(a)* are, indeed, good instances of a derivationally realized extended exponence (see Szymanek 1986 for more details).

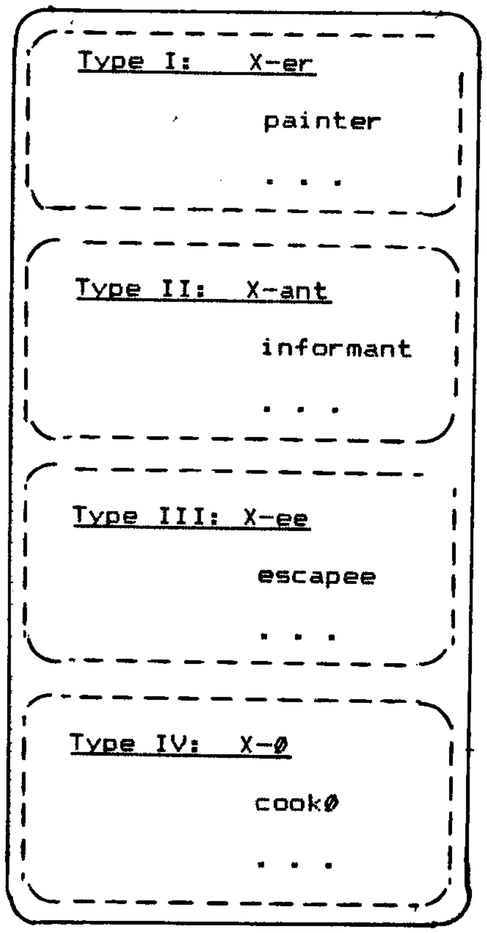
1.5. Derivational categories vs. derivational types

The existence of cofunctional formatives throws a new light on the internal organization of derivational categories. It may be argued that a given, functionally established derivational category subsumes one or more **derivational types**, depending on how many cofunctional formatives are used to realize it.

A derivational type is a group of complex lexemes characterized by a singleness of derivational function and of its formal ex-ponence (e.g. all English Agent nouns which end in *-er*). Since our provisional definition of a derivational category (see 1.1.2.) stipulates that it is a class of lexemes characterized by a single derivational function, it follows that some categories may fall into formally identifiable sub-classes of derivatives, corresponding to derivational types. Thus, the picture of the category Agent Noun in English, sketched in 1.1.2., should now be modified in the following manner:

(34) Derivational category

C = Agent Noun



The differentiation of derivational categories and derivational types is not a new idea in the theory of morphology. The distinction, which goes back to Dukulil (1962), may be found in several Slavic word-formation studies (see e.g. the Polish works of Grzegorczykowa 1979:23-24, Laskowski 1981; also *Morfologia* 1984:327). In principle, most adherents of the "separation hypothesis" in generative morphology implicitly employ this distinction, no matter whether the term "derivational type" is actually used (or how it is used; see e.g. Jackendoff 1975, Beard 1976, 1981, 1986, Szymanek 1985, Malicka-Kleparska 1985).[8]

A formal consequence that follows from the recognition of derivational types within derivational categories pertains to the shape and mode of application of word-formation rules. Since the issue is marginally relevant from the point of view of the present study, we shall not pursue it in any detail. Suffice it to say that the usual solution is to postulate two kinds of rules operative in word-formation: (1) **rules of derivation** which can be linked to the concept of derivational categories as they take care of the functional/semantic aspect of word-coining; and (2) **rules of affixation**, to be coupled with the notion of derivational types, since they carry out the formal operation of affixation (the distribution and spell-out of cofunctional formatives). A detailed proposal that goes along these lines may be found in Szymanek (1985). See also Beard (1981, 1986), Laskowski (1981) for similar frameworks, as well as Booij (1986) for some criticism of approaches which disconnect meaning and form in morphology.

1.6. Problems with categorial distinctions

1.6.0. Introduction

Among the assumptions implicitly present in most analyses of word-formation systems is the view that derivational categories are lexico-semantic classes characterized by water-tight, discrete boundaries. And so, for example, any given complex noun is considered to belong to a single specific derivational category of nominalizations. According to this view, there can be no indeterminacy as far as an item's membership in this or that category is concerned; in particular, dual membership is not possible.

But the actual situation seems to depart considerably, and on a good number of occasions, from this simple rule. As a matter of fact, it has been suggested by several authors that the boundaries which set apart certain derivational categories may be blurry and indeterminate. As will be argued in the last chapter, derivational categories appear to share their basic properties with the so-called "fuzzy" categories well-known from recent work in psychology. But, before we investigate this issue in a detailed manner, let us consider a few examples of fuzzy inter-categorial boundaries and indeterminate categorial membership. Our first example comes from the realm of transpositional derivation (Nomina Actionis vs. Nomina Essendi). The second example is a case of two major "lexical" nominalizations (Agentive vs. Instrumental nouns).

1.6.1. Nomina Actionis and Nomina Essendi

Let us now examine one small fragment of transpositional nominalizations operative in English (on transposition, cf. 1.3.1. above). As is well-known, two principal, independent categories of transpositional derivation are usually recognized in the literature: Nomina Actionis and Nomina Essendi. Among the suffixes used to derive deverbal nouns of the former class is the element *-ance/-ence*. The latter class involves, among other things, the deadjectival type *X(anc)y/X(enc)y*. Cf. Marchand (1969:249): "[...] substantives in *-ance*, *-ence* are deverbal nouns, expressing the idea of action, whereas substantives in *-ancy*, *-ency* are deadjectival nouns expressing the idea of state or quality". A few regular instances of both patterns are given below:

(35)

(a)	NA: *Xance/Xence* (deverbal)	
	accept	acceptance
	appear	appearance
	emerge	emergence
	interfere	interference
(b)	NE: *X(anc)y/X(enc)y* (deadjectival)	
	redundant	redundancy
	vacant	vacancy
	adjacent	adjacency
	recent	recency

This regular pairing off of forms and meanings may occasionally be observed in derivatives based on a single stem. Thus,

according to Marchand (1969:250), *insistence* derives from *insist* while *insistency* from *insistent*.

The situation sketched thus far corresponds rather nicely to the traditional concept of a discrete derivational category. We have witnessed items whose categorial membership may be determined solely and unmistakenly on the basis of their form (affix-shape).

However, the complete picture of the problem is far more complex. First of all, a number of de-adjectival nominalizations terminate in *-(anc)e/-(enc)e* and so coalesce formally with the regular products of NA derivation. For example:

(36)

NE: *X(anc)e/X(enc)e* (deadjectival)

(*fragr)	fragrant	fragrance
(*indole)	indolent	indolence
(*intellige)	intelligent	intelligence

A contrary situation, where a clearly deverbal nominalization terminates in *-ancy/-ency* and thus is formally indistinguishable from the regular products of NE derivation, might perhaps be illustrated by the pair *tend* -> *tendency* (cf. **tendent*).

Moreover, among the exclusively de-adjectival NE, one frequently encounters rival, parallel output forms of the following kind:

(37)

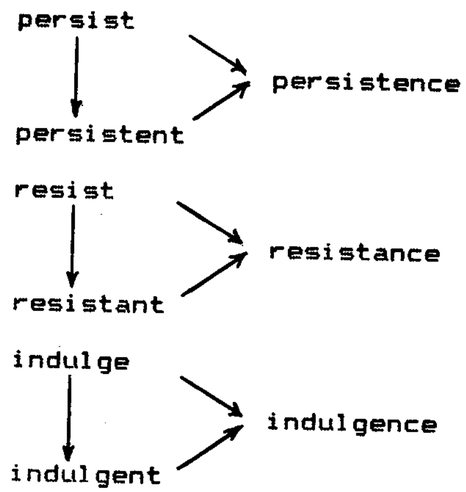
(*brill)	brilliant	brilliance ! brilliancy
(*reluct)	reluctant	reluctance ! (reluctancy)
(*complace)	complacent	complacence ! complacency
(*stride)	strident	stridence ! stridency

(*innoce)	innocent	innocence ! (innocency)
(*promine)	prominent	prominence ! (prominency)

It should be admitted that the variants of the type *Xce* are, as a rule, more commonly used in present-day English, whereas those in *-cy* are rarer and more likely to have secondary, idiosyncratic meanings; cf. *brilliancy* 'quality or state of being brilliant' but also 'an instance of brilliance'. But, nevertheless, the fact remains that, given the output split evidenced above it is not always possible to determine on a purely formal basis whether a particular nominalization in *-ance/-ence* is an instance of NA or NE derivation. In the cases just cited, one has to take into account the category of the motivating lexeme.

However, this last consideration will prove equally inconclusive in derivations of the following kind:

(38)



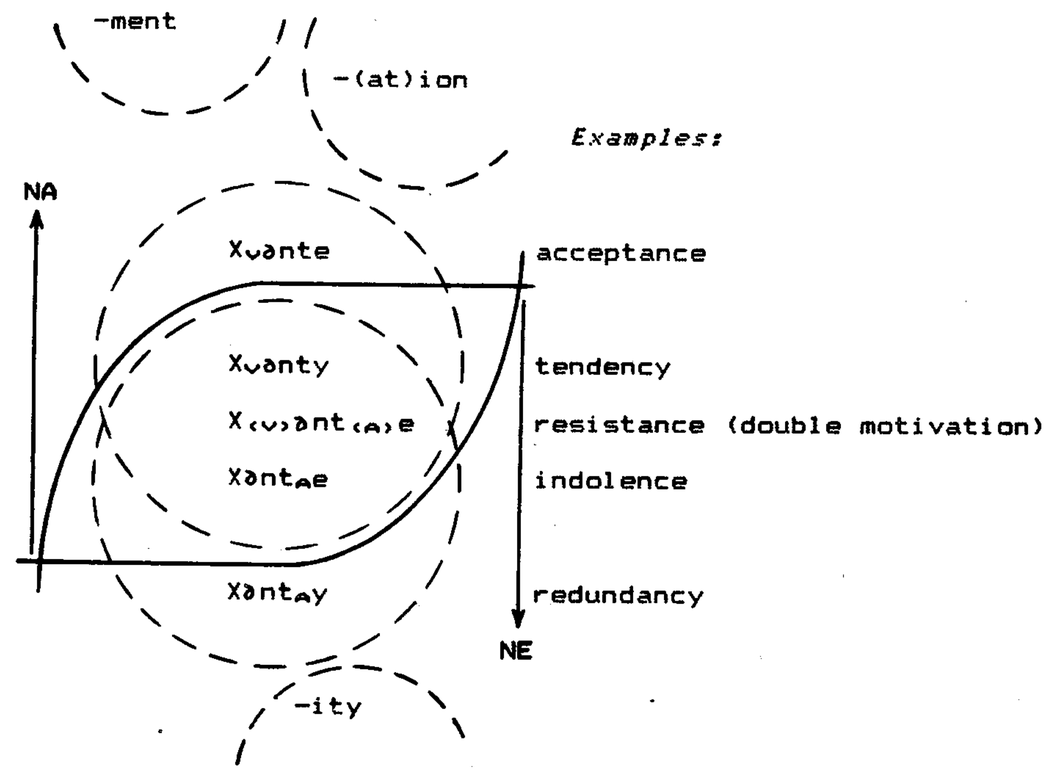
What we observe here is a true case of the *formal overlapping* of the categories NA and NE (notice the non-existence of the

corresponding forms in *-ancy/-ency*: **persistency*, etc.). Two putative base-forms have to be considered in each instance: a verb (e.g. *persist*) and an adjective (e.g. *persistent*). The resultant nominalization may, in principle, be motivated by both and will be glossed, respectively, as either (1) the 'act of persisting' (NA) or (2) the 'state/quality of being persistent' (NE). That is to say, we have encountered here a classic case of what traditionally is referred to as **double motivation**.

But the discussion has revealed as well a great deal of *functional overlapping* between the two formal types examined: *Xance/Xence* and *Xancy/Xency*. Now, what is true about two morphological types must also be true about the categories which these types are said to represent. We conclude that the English categories of Nomina Actionis and Nomina Essendi display considerable fuzziness, as is evidenced by certain cases characterized by formally and/or functionally indeterminate membership. In view of this, the traditional model of discrete categories must clearly be modified or rejected as inadequate.

A diagram presentation of our findings in this section is given below (for convenience, the orthographic variation *a/e* in the suffix is represented as ə):

(39)



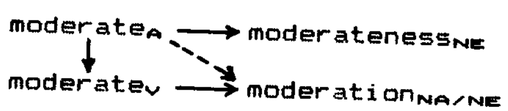
* * *

Formal and functional interplay between the English categories of NA and NE is by no means limited to the two types discussed above. Let us briefly mention just one more instance which formally represents the major NA-forming suffix *-(at)ion*. In hundreds of cases, this suffix is added to verbal bases, yielding a syntactic shift V -> N. Consider, however, a pair of words like *indignant - indignation*. Semantically speaking, it can be argued that *indignant* is secondary with respect to the corresponding noun and interpretable as 'filled with/marked by N', or that the noun is in fact derived from the adjective so as to mean 'state of being A' (cf. the lack of **indignance*). Principles of synchronic analysis definitely encourage the latter interpretation. *Indignation* would then belong to the

category NE, by virtue of its paraphrase. However, notice as well that the suffix *-(at)ion* suggests the formal resemblance of the noun in question to NA nominalizations. Were there an independent verb like **indign* in English, the categorial status of *indignation* would be ambiguous between NA and NE.

Leaving aside this hypothetical example, let us finally consider a somewhat different case offered by abstract nominalizations from a class of adjectives in *-ate*. Typically, simplex Latinate adjectives in *-ate* have corresponding nominals of the form *Xacy*; cf. *accurate - accuracy*. However, adjectives like *moderate* do not fall within the scope of this pattern (cf. **moderacy*). These are simplex adjectives related (by conversion) to phonologically identical verbs (*to moderate*). Strictly transpositional nominalizations of such adjectives are possible, by means of the native suffix *-ness* (*moderateness*). What is significant, however, is the fact that a deverbal NA nominal in *-(at)ion* may be used as well in the function of the "missing" Latinate NE. Thus, *moderation*, apart from the deverbal sense 'act of moderating', also has the secondary meaning 'state/ quality of being moderate'. Schematically:

(40)



1.6.2. Agents and Instruments

As is pointed out in Booij (1986), the traditionally recognized categories of Agentive and Instrumental nominalizations cannot

be sharply segregated from each other. Rather, both categories should be regarded as having a uniform, underlying foundation at a deeper semantic level. The main argument for this claim is the frequent occurrence of transitory nominalizations which belong neither to the class of truly personal Agents nor to that of Instruments (impersonal by definition). Such border-line items may be termed "impersonal agentive nominalizations". Booij interprets this transition in terms of the following "semantic extension scheme", illustrated with examples from Dutch, like the following one:

(41)

Personal Agent -> Impersonal Agent -> Instrument

zender 'sender'	zender 'sender' (radio/TV-station)	zender 'sender' (transmitter)

This example is meant to demonstrate that the traditional, superficial division into personal Agents and impersonal Instruments is insufficient as it stands and should be supplemented, at least, with the transitory class of Impersonal Agents. But even then, there are border-line cases whose unique assignment to any of the three classes is virtually impossible (cf. the notion of gradedness implicit in "semantic extension").

In the example just cited, the multiple semantic functions under discussion are associated with a single Dutch nominalizer, viz. *-er*. In fact, the English *-er* also offers abundant illustration of the close links between Agentive and Instrumental derivations. First of all, nouns representing both classes are typically derived by means of precisely this formative. Consider the following examples:

(42)

(a) *Verb*	*Noun*	(b) *Verb*	*Noun*
learn	learner	cook	cooker
sing	singer	erase	eraser
travel	traveller	transmit	transmitter

It will be seen that the form of the nouns in (a) and (b) suggests by itself that both groups may be somehow related, akin to each other (Note as well that a similar situation is to be found in a variety of other languages; Polish, for instance, has a group of productive suffixes which are common to both NAg and NInstr.)

Next, not only are individual suffixes (like *-er*) found with high frequency in derivatives of both kinds, but what is more significant, there are numerous instances of individual nominalizations which are polysemous precisely in the sense that they have, potentially or actually, the meaning of both a human Agent and of an inanimate Instrument. Below we give a few typical English examples of this phenomenon, contrasted with their Polish equivalents:

(43)

print-er	(1) drukarz (Ag)
	(2) drukarka (Instr)
receiv-er	(1) odbiorca (Ag)
	(2) odbiornik (Instr)
wash-er	(1) praczka (Ag)
	(2) pralka (Instr)
collect-or	(1) zbieracz, kolekcjoner (Ag)
	(2) kolektor (Instr)

conduct-or	(1) konduktor, dyrygent (Ag)
	(2) przewodnik (Instr)
protect-or	(1) obrońca, protektor (Ag)
	(2) ochraniacz, osłona (Instr)

One might just as well approach this problem from the other end, i.e. by first taking into account certain Polish nominalizations; the Polish data also provide ample evidence of the semantic convergence under discussion, though perhaps with lesser frequency. Take the Polish deverbal noun *przewodnik* which appears in the above list: in fact, it is polysemous, meaning not only 'conductor' (Instr) but also 'guide' (Ag).

It should be added that the transition from Agents to Instruments can be carried one step further: cross-linguistic investigations reveal that affixes whose primary function is Agentive/Instrumental are frequently used also to derive nouns of Location or Source (cf. the English *-er* in *din-er*). Moreover, "[t]he agent polysemy does not consist of an unordered set of meanings, but seems to have a hierarchical structure: agent > instrument > $\begin{cases}\text{locative}\\ \text{source}\end{cases}$" (Dressler 1986:526).

Phenomena of the kind just discussed have made some investigators question the validity of the traditional distinction between Agentives and Instrumentals. It has been pointed out in several recent studies of the derivational systems of various IE languages that nominalizations of both types reveal a great deal of underlying functional and formal uniformity, and therefore could be viewed as representing a single derivational category at a somewhat deeper level of

analysis (this line of approach is contemplated, for instance, in Panagl 1978, Beard 1981, Bauer 1983, and Booij 1986; cf. also the discussion of this issue in the Polish studies of Laskowski 1971 and Kleszczowa 1981). Thus, attempts have been made to find, for nouns of both kinds, some common denominator in the deep semantic roles of the arguments implied by any given base-verb. For instance, it is argued in Bauer (1983:286) that the superficial contrasts between Agents and Instruments are neutralized if one treats both categories as different surface realizations of an underlying notion 'Subject': "The derivative is a lexeme which is a typical subject for the verb used in the base". Hence the label "subject nominalizations". A similar approach to the problem may be found in Booij (1986), where it is argued that the underlying role to be associated with the different kinds of "Agentive" and "Instrumental" nominalizations is that of a 'Theme'.

An alternative solution is sketched in Beard (1981). Having noted that "[t]he grammatical coincidences between agents and instruments would be improbable without some perceivable semantic identity involved", Beard goes on to suggest that "Syntactic agents and instruments are animate and inanimate variants of the same deep case node, e.g. instrument (of action)" (Beard 1981:187).

It appears that no simple solution to the problem is available at the moment. Even those who advocate some sort of a uniform interpretation of Agents and Instruments fail to agree on a single thematic role which might be regarded as the deep source of these two (sub)categories. This confusion is, in part at least, a reflection of the differences of opinion which still

surround θ-role theory; in particular, it is a direct consequence of the fact that no single inventory of these roles is commonly accepted in current linguistic research. But the ultimate cause of all this terminological and classificatory chaos seems to be precisely the lack of a general theory for the categorization of morphological derivatives. Having dismissed the traditional labels and divisions, modern morphology has not been very successful in introducing new ones in their place.

CHAPTER II

THE COGNITIVE GROUNDING OF DERIVATIONAL CATEGORIES

"... language and its notional/functional
and structural organization
is intimately bound up with and motivated
by the structure of human cognition,
perception and neuro-psychology".
T. Givón (1984:11)

2.0. Introduction

In the present chapter we will argue that lexical derivational categories are rooted in the fundamental concepts of cognition. Before we proceed to do this, we need to give a brief exposition of the relevant ideas from cognitive science and cognitive psychology, in particular those relating to the problem of human categorization. The section that immediately follows deals with this. In the next section we shall trace the way in which cognitive ideas about categorization are employed in current linguistic research, in areas other than morphology. And, finally, section 2.3. will present a detailed proposal showing how the basic categories of cognition may be used in constructing a theory of categorization for derivational morphology.

2.1. The prototype theory of categorization in psychology

The theoretical framework that will be used as a frame of

reference in our discussion of morphological categorization is that of the so-called prototype theory, which has been developed in the past two decades in the realm of cognitive psychology. The basic assumptions which underlie the prototype approach are now well-known and available in both original formulations as well as in numerous review presentations found in the majority of recently published textbooks of psychology and cognitive science. In fact, the theory has already exerted some influence upon the field of linguistics as well (see next section). Given this situation, the present outline of the prototype theory will be rather sketchy and limited to its most characteristic claims and assumptions.

To begin with, the prototype theory is a reaction against the classical view of categories and categorization, according to which "[m]embership of an entity in a concept/category is defined by the entity's possessing a set of criterial, i.e. singly necessary and jointly sufficient features. In other words, concept membership is a 'yes or no' question, not a matter of 'more or less'" (Cuyckens 1984:72). Because an entity either is or is not a member of a given category, it follows that the boundaries between different categories should be clearly delineated, prohibiting, in particular, an element from belonging to two categories.

The prototype theory questioned all the fundamental assumptions of the classical view. In fact, it turned them upside down. The initial stimulus for the novel interpretation of human categorization came from the experimental work of cognitive psychologists, dedicated to throwing a new light on the problem of how people arrive at, store in their memory and

process such "natural" categories as *colour*, *bird*, *fruit*, *furniture*, *vehicle* (which are either "perceptual" or "semantic" in nature; see e.g. Rosch 1973, 1975, 1977a,b 1978, Mervis and Rosch 1981).

It may be added that recently psychologists expanded the scope of their investigation to cover certain types of more abstract categories which differ from the natural ones. These are, for instance, functional, goal-derived, artificial and *ad hoc* categories (see e.g. Barsalou 1983, 1985, Armstrong, Gleitman and Gleitman 1983). This broadening of perspective has actually led some scholars to modify or even abandon completely the prototype approach to categorization, as originally put forward in the works of Rosch, Mervis, and others. For reasons of space, however, we are not able to discuss here any of the dissenting or opposing views.

The definitions of a category given by the adherents of the prototype model are, as a rule, so general and neutral that they do not show, in fact, any real contrast between this view and the classical approach. Thus, for instance, Rosch (1978:30) offers the following definition: "By *category* is meant a number of objects that are considered equivalent". A variant of this definition may be found in Mervis and Rosch (1981:89): "A category exists whenever two or more distinguishable objects or events are treated equivalently".

That is to say, the novelty of the prototype approach does not lie in the way it defines categories, but rather in the manner in which it characterizes and represents them. And so a system of categories is said to be characterizable in terms of certain general and category-external properties as well as in

terms of attributes specifying the internal structure of a single category. We shall have a closer look now at these external and internal factors.

Two very general questions that come to mind when investigating categories concern the arbitrariness and universalism of categorization. Rosch (1977a:2) argues that human categories, being the end-product of the quite elementary segmentation of the world, are not arbitrary, just as the segmentation of reality, which is first perceived by a child as a continuum, is not arbitrary. The question of the universalism of categories is answered in a less authoritative tone. It is argued that, on the one hand, "the content of categories is assumed to vary with culture" but, on the other hand, "the principles of category formation and the development of prototypes can be expected to be universal" (Rosch 1977a:3). A stronger case for universalism is made with reference to "attribute domains" such as *colour*, because this category is said to be physiologically determined.

Another key idea associated with the external organization of categories is the claim that categorial systems are characterized by a hierarchical **multilevel structure**. That is to say, categories can be constructed and compared at different levels of generality. Hence, within a particular domain, one may speak about superordinate and subordinate categories but also, more importantly, about the intermediate **basic-level categories**: "Certain categories are psychologically more "basic" than others - they are recognized more rapidly, learned earlier, used more frequently, have shorter names, etc." (Lakoff 1982:146). From the linguistic point of view,

basic-level categories are also remarkable since the labels that stand for them are used as unmarked lexical items in normal everyday conversation (see Cruse 1977). Compare, for example, *chair*, which is a basic-level category, with, on the one hand, *furniture* (a superordinate category) and *easy chair* (a subordinate category) on the other. The basic level of categorization can be determined by balancing two opposing factors: informativeness and economy. Thus, "the basic level is the level of abstraction at which the organism can obtain the most information with the least cognitive effort" (Rosch 1977a:29).

And, finally, a vital question that refers to the external properties of categories of cognition is the question of the nature of inter-categorial boundaries. The answer to this question, so characteristic of the prototype approach, is often reiterated in the literature. Namely, it is said that "[m]ost, if not all, categories do not have clear-cut boundaries" (Rosch 1978:35). In other words, the boundaries between categories are often vague and fuzzy rather than well-defined (this property is usually referred to as the **fuzziness** of categorial boundaries). A conclusion that is drawn from this finding is that categories should have analog, rather than digital representation.

But this idea also follows, in a more direct manner, from the internal organization of each category. Namely, it is argued that category members do not enjoy an equal status: some members are better exemplars of a category than others. Therefore, the internal structure of a category is said to involve "a focal center" and "unfocal surround" (Rosch 1973:130), and is a **graded structure**, with a smooth transition from the centre to the

periphery. "In addition, nonmembers of a category vary in how good a nonmember they are of the category [...]. For example, *chair* is a better nonmember of *birds* than is *butterfly*. *Graded structure* refers to this continuum of category representativeness, beginning with the most representative members of a category and continuing through its atypical members to those nonmembers least similar to category members" (Barsalou 1985:629-30).

As was just said, central to a category are those of its members that are most representative, most typical of it. Such entities are called prototypical members (**prototypes**). For instance, within the category labelled as *vehicle*, *car* counts (for most people) as a prototypical member while, say, *scooter* and *skis* do not, though the former should be located closer to the prototype than the latter (see Rosch 1973:133). Category prototypes are identified operationally - "by people's judgements of goodness of membership in the category" (Rosch 1978:36). But these judgements can be rationalized by comparing the properties, or attributes of individual category members: "Category membership seems to be characterized not by necessary and sufficient conditions, but by clusters of attributes that characterize the most representative members. None of these attributes need be either necessary or sufficient for category membership" (Lakoff 1982:146).

It is important to point out at this juncture that, according to Rosch (1978:40), there may be categories without any single, clearly defined prototype: "For natural-language categories, to speak of a single entity that is the prototype is either a gross misunderstanding of the empirical data or a

covert theory of mental representation."

A factor that is said to determine, in part at least, the distance of any given category member from the prototype (as well as the distance between two category members) is known as **family resemblance**. The concept derives from Wittgenstein (1953) who used the term with reference to the similarities between the members of a category. The idea, again, is that "two members of a category do not have to possess exactly the same features. Indeed, it might even happen that two members belonging to the same category did not have any features at all in common" (Eysenck 1984:315). A more technical definition of family resemblance as it is now used in psychology reads as follows: "... family resemblance is defined as an exemplar's average similarity to other category members and its average dissimilarity to members of contrast categories" (Barsalou 1985:630).

The prototype view has spread beyond psychology in an unprecedented manner. Within linguistics, one can certainly speak now about a completely new paradigm which is establishing itself and which stems from the prototype theory. Especially since the recent publication of the seminal studies of Langacker (1987) and Lakoff (1987), there is little doubt that the new view constitutes a serious challenge not only for the traditional interpretation of linguistic categories but also, more broadly, constitutes a challenge for the basic tenets and assumptions of Chomskyan linguistics.

2.2. Recent cognitive interpretations of linguistic categories

A general view of categorization consistent with the prototype theory has been adopted, in recent years, by several linguists. In fact, this view now stands as one of the basic assumptions behind the newly emerged cognitive science, and cognitive linguistics is considered by many to be part of it. The writings of cognitive linguists provide abundant illustrations of the ways in which such basic concepts as "prototype", "family resemblance", "fuzziness of categorial boundaries", etc. have been incorporated in linguistic theory and description. As an example, consider a brief quotation from Jackendoff (1983:117): "fuzziness is an inescapable characteristic of the concepts that language expresses". Cf. also Bates and McWhinney (1980:214) who maintain that, just like the natural categories known to psychologists, "grammatical categories may also be organized around prototypic members, with assignment of the corresponding surface forms that mark category membership being based upon family resemblance to those prototypes".

In the remainder of this section we shall concentrate on one aspect of the cognitive approach to language that is of immediate concern here, viz. the nature of linguistic categories and the principles of categorization.

The essence of the new approach has been roundly characterized, for instance, in Givón (1984-14): "Lexical items, morphemes, syntactic constructions and the rules that govern their appropriate use in communication represent a huge body of *prima facie* evidence in support of the existence of categoriality. But equally well, the very same rules also

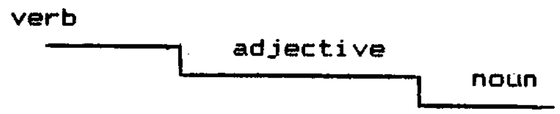
furnish a wealth of evidence in support of non-discreteness, fuzzy edges, continua and contingent definitions and applications". Apparently every aspect of language structure and use provides manifestations of the existence of categories organized according to the prototype theory. It should be pointed out, however, that the research that has been carried out so far along these lines has been unevenly distributed, with an emphasis on some components of language and a relative neglect of others. For instance, the prototype view of categorization seems to have had very little effect on phonological theory (see, however, Jaeger 1980 or Tatham 1984). Likewise, its impact has been very modest as far as morphology is concerned. In an indirect manner, this impact is visible, for instance, in the work of Mayerthaler (1981). It is given greater prominence in Bybee and Moder (1983) and Booij (1986). But, on the whole, the problem of the applicability of the prototype approach in morphology is rarely contemplated in any detail. Nobody really goes beyond general, programmatic statements asserting that "... the prototype concept is applicable to determining morphological categories ..." (Edmondson 1985:124).

In fact, it is not surprising that the method of employing the prototype theory in the study of phonology or morphology has been so weakly developed thus far. Other components of language seem to offer a much more natural testing ground for the prototype view. Since this view itself originated within psychology, in studies of human perception and concept formation, it is understandable that the branch of linguistics most likely to absorb the new view-point was lexical semantics. And so, in reaction to the earlier "checklist theories of

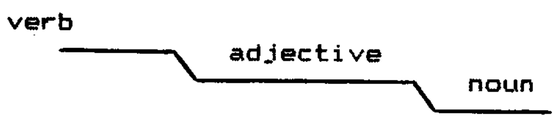
meaning" (including the componential and meaning-postulate frameworks), a handful of new systems for the description of semantic relations in the lexicon were developed, each of them having as its foundation the concept of a prototype (see, for instance, Lakoff 1972, 1977, 1982, 1987, Fillmore 1975, 1978, 1982, Jackendoff 1983, Langacker 1984, 1986, 1987a,b). Besides, the approach under discussion has resulted in several detailed analyses of the meaning of both individual lexical items (e.g. the English verb *lie* in Coleman and Kay 1981) and variously established classes of lexemes (and phrases) such as "hedges" (Lakoff 1972), "drinking vessels" (Labov 1973), metaphors (Lakoff and Johnson 1981), or denominal adjectives (Post 1986).

No less spectacular and representative are the accomplishments of cognitive linguistics in the realm of syntax. And it is perhaps here that the issue of categorization makes its presence most felt. Initially, the prototype approach was used to launch an attack on the most basic categorial distinctions employed in syntax, like the fundamental lexico-syntactic categories Noun, Verb, Adjective. The postulate to reinterpret these concepts was voiced in Ross (1972): "... the traditional distinction between verbs, adjectives, and nouns - a distinction which is commonly thought of as discrete - should be modified" (Ross 1972:316). Ross presented ample evidence to demonstrate that the transition from one major syntactic category to another is non-discrete, gradual and quantifiable. That is to say, there are degrees of "nounhood" or "verbhood"; hence his term "category squish". Ross' finding is recapitulated in Bolinger (1975:244). It is pointed out that the traditional categories of grammar "are not as compact and exclusive as we have been

accustomed to think. [...] In the old view the main parts of speech could be pictured as abruptly distinct, like a new staircase:"



The new view, consistent with the prototype theory, would insist that these categories "shade into one another, like a worn staircase:"



These early observations were followed by several attempts at redefining the categories Noun, Verb, Adjective so that they might fit more naturally into the cognitive view of language. In one study of this sort, it is argued that "the basic categories N and V are to be viewed as universal lexicalizations of the prototypical discourse functions of 'discourse-manipulable participant' and 'reported event', respectively" (Hopper and Thompson 1984:703).

Another study (Croft 1984) also seeks to interpret the basic syntactic categories in terms of discourse functions. Thus prototypical Nouns, Adjectives and Verbs are correlated, respectively, with the following functions: reference, modification and predication. Another correlation that is said to obtain pertains to the semantic plane. Thus Nouns, Adjectives and Verbs typically denote (physical) objects, properties, and actions respectively (see Croft 1984:57).

A similar proposal, though a more radical one, has

recently been put forward in Langacker (1987b). Stressing the importance of the prototype approach and noting that "the possibility of semantic characterizations limited to category prototypes is hardly controversial", Langacker advances the claim that "ALL members of the noun class (not just central members) instantiate an abstract noun schema while all verbs elaborate an abstract verb schema" (Langacker 1987b:54). Langacker maintains that it is possible to provide a notional, conceptually based definition for both categories.

The theoretical shift just illustrated with the "part-of-speech" categories affected, to a greater or lesser extent, the present view of other syntactic categories as well. Another illuminating example might be the cognitivist treatment of the traditional category Subject. Thus, for example, Bates and McWhinney (1980) define the category Subject by means of an "agent-topic" prototype, i.e. in terms that are semantic and pragmatic in nature. It follows that there may be different degrees of "subjecthood" since, apart from the prototypic subjects that are characterized as both agents and topics, elements that are either agents or topics qualify as relatively "good" subjects, too. It follows, again, that the category in question is definable "neither by the union nor by the intersect of its members", but rather in terms of the central tendency member, i.e. the prototype.

The universal definition of Subject that emerges from a cross-linguistic investigation by Comrie (1981) echoes the position of Bates and McWhinney. Comrie argues that "the prototype of subject represents the intersection of agent and topic, i.e. the clearest instances of subjects, cross-

linguistically, are agents which are also topics" (Comrie 1981:101).

Before we conclude this review, it should be added that, apart from such fundamental categories as Noun, Verb, or Subject, current cognitive linguistic research aims at reinterpreting other grammatical categories as well. As examples, one may mention the following concepts: Agent (whose prototype is defined e.g. in Lakoff (1977:248) as a cluster of 3 properties: VOLITION, CONTROL, and PRIMARY RESPONSIBILITY), Case (see Braine and Hardy 1980), or Transitivity (see Givón 1984:20).

2.3. Derivational categories as cognitive categories

2.3.0. Introduction

In this section we intend to relate in a systematic way derivational categories and cognitive categories. This relationship will be defined explicitly and discussed in some detail shortly, but first we need to take a general look at the cognitive categories themselves, especially those that should be regarded as the most primitive and fundamental ones.

Lists of such basic cognitive concepts may be found in a number of works in philosophy, psychology, psycholinguistics and linguistics (cognitively oriented linguistics in particular). Some scholars even claim that linguistics offers the best vantage-point from which to examine the problem under discussion. Consider in that connection Lange (1985:9-10) who argues as follows: "... only linguistics is able to give the

complete inventory of innate cognitive categories of human beings, and perhaps also is able to say something about the succession of those categories in evolution. Biology cannot do this, because it only studies the perceptible behaviour of animals and humans, nor can philosophy on its own, because it is concerned only with concepts, and not with the relationship between natural sign systems and concepts. The human world view device, however, can be reduced neither to a mere conceptual system, nor to a mere sign system, because the connection of signs and concepts is the essential feature of the human cognitive device [...]. There is, thus, only one science which deals with this connection: linguistics."

No matter whether Lange's main conclusion, as cited above, is or is not legitimate, one should nevertheless point out that there is, at the moment, little evidence to suggest that a uniform and *complete* inventory of the basic cognitive categories is, indeed, available (it remains to be seen whether Lange's own system qualifies as such). What one usually finds in the literature are scattered examples of variously chosen concepts. Moreover, the labels with which individual concepts are referred to also frequently vary from author to author (cf., e.g., the interchangeable use of terms like "Object", "Thing" or "Entity" with reference to what seems to be a single categorial concept).

Given this situation, we find it necessary at this stage to give a sketchy and rather informal presentation of those categorial concepts that seem indispensable in any discussion of the fundamental aspects of cognition. The outline which follows draws on a number of specialized accounts, of which the

following are the most important: Clark and Clark (1979), Smith and Medin (1981), Lakoff and Johnson (1981), Braine and Hardy (1982), Jackendoff (1983, 1987), and Lange (1985). An attempt at providing an independent justification of every single category to be proposed below would mean going beyond the limits of the present study. Suffice it to say that each of the categories on our list appears in at least one of the sources examined (see references above) and so, to that extent, we take these categories to be well-justified.

Up to a point, then, the categorial framework to be developed will constitute a cumulative list of the fundamental categories of cognition as discussed by other authors. It should be noted, however, that we omit from the inventory a few concepts whose status seems rather dubious or simply non-essential from the point of view of the present study (e.g. the "communicative categories" in Lange's (1985) system, "Container" in Lakoff and Johnson (1980) or "Amount" in Jackendoff (1987)). Besides, unlike most sources referred to above, we make no attempt to divide the categories on the list into groups delimited substantively or otherwise (cf., e.g., "directly emergent" vs. "metaphorical" concepts in Lakoff and Johnson (1980), or Lange's (1985) division into "substantial", "accidental" and "communicative" categories).

It is believed that the categorial framework to be presented below, although probably incomplete, provides a sound point of departure for constructing a theory of categorization in derivational morphology (see 2.3.2.).

2.3.1. Fundamental concepts/categories of cognition

It will not be out of place to begin this account with a brief quotation from Lakoff and Johnson (1980), as it expresses in a condensed form a very elementary and now frequently voiced observation concerning the ultimate roots and origin of cognitive categories: "... our conceptual system is grounded in our experiences in the world" (Lakoff and Johnson (1980:119)). That is to say, our interaction with the world, and the very fact that we are part of it, moulds and determines the basic concepts we arrive at. The simplest concepts/categories are related to our perceptions of the outside world. Thus we perceive **OBJECTS** (things, entities) and we learn to distinguish various **SUBSTANCES** they are composed or made of. We also come to realize the unique status of a human **PERSON** in the universe in which we live. Objects, unlike Substances but in the same way as Persons, may be perceived as groups, collections, or in their single occurrences. Hence the related category **NUMBER**. An experience about a perceived Object that is quite basic is that this thing *is* "out there", that it exists. We may label this concept of "being" as **EXISTENCE**. A complementary category, which becomes part of the conceptual system at a fairly early age, is the concept of "having" or **POSSESSION**. Every normal human being also knows how to deny the Existence or Possession of something. This is possible due to the category of **NEGATION**. Objects, Substances, as well as Persons are perceived and stored in memory as wholes, but also in terms of their more or less characteristic properties. Indeed, even the properties themselves are perceptible. Therefore an independent category

PROPERTY should apparently be added to the list of basic concepts as well (see Jackendoff 1987:375). But certain properties of the things in the visual field are more salient than others and a few of these properties also appear to motivate some very basic categorial distinctions. This is true, first of all, about **COLOUR** and **SHAPE**. Other equally central distinctions, also involving physical properties, are based on the general concept of Size or **DIMENSION** (big-small, long-short, etc.). Properties like those just mentioned often are involved in comparing things (people, etc.) which, in turn, is possible due to the concept of **SIMILARITY** (the latter concept may also be employed metaphorically). In the case of human beings rather than things, a feature that is equally important is their **SEX** (Male-Female distinction). Whatever we perceive, we tend to orient it in a three-dimensional **SPACE** (or locate it on a plane, etc.), i.e. we need to identify the **POSITION** (Place) of an Object. Being aware of the orientation of our own body (up-down, left-right, etc.) is most important, since it enables us to relate Objects with respect to it. Next, a more complex concept is indispensable for grasping the essence of a moving Object. Apart from **MOVEMENT** itself, we must conceptualize its **PATH** (Trajectory). And this is just one instance when the concept of **TIME** helps organize our experience. Time also makes it possible to draw a line between what is a **STATE** and what is a **PROCESS** (a Process can be viewed as a sequence of States in Time). A Process, in turn, should probably be distinguished from an **EVENT** or **ACTION**. There are specific kinds of Events/Actions which appear to have a direct counterpart in the conceptual structure. These involve perceptions of causes and effects, and so the

corresponding category may be termed **CAUSATION.**

Most of the categories mentioned so far have a fairly clear linguistic significance. To these, one should probably add at least two more concepts, namely **AGENT** (Actor) and **INSTRUMENT.** The cognitive centrality of (among others) Agents and Instruments is argued for in, for instance, Braine and Hardy (1982:223): "We assume there are cognitive categories that are natural to the perception of events or states of affairs. That is, people see events as having actors or agents, things acted upon, places where the events occur, instruments that are used, and so on." All these are referred to as the "basic cognitive categories for apprehending the world".

The direct cognitive grounding of the category Agent (or Instrument) is a debatable issue. The point of view just expressed may be contrasted, for instance, with the position adopted in Jackendoff (1987:378): "... the terms *Theme*, *Agent*, and so on, are not primitives of semantic theory. Rather, they are relational notions defined structurally over conceptual structure, with a status precisely comparable to that of the notions Subject and Object in many syntactic theories [...]".

* * *

Let us sum up. Making use of the scattered evidence found in the literature we have argued that a list of the fundamental categories of cognition should, approximately, include the following: Object, Substance, Person, Number, Existence, Possession, Negation, Property, Colour, Shape, Dimension, Similarity, Sex, Space, Position, Movement, Path, Time, State, Process, Event, Action, Causation, Agent and Instrument (plus a few modal concepts, see footnote 9).

In the next section we shall attempt to demonstrate how these basic concepts may be used in constructing a theory of morphological categorization.

2.3.2. The cognitive grounding of derivational categories

2.3.2.1. The Cognitive Grounding Condition

The central claim that underlies the argument being developed in this chapter may be given as follows:

The Cognitive Grounding Condition

The basic set of lexical derivational categories is rooted in the fundamental concepts of cognition.

Given the fact that a list of "the fundamental concepts of cognition" has just been established, the task that we now face might seem relatively straightforward. It might be defined as identifying whatever correspondences exist between cognitive concepts/categories, on the one hand, and derivational categories, on the other. However, as will be shown very shortly, the correlation between the categories of both levels is not absolutely regular or one-to-one. Only in some cases can a direct pairwise relationship be established. Consider, for example, the traditionally recognized categories of Agentive nominalizations, Causative verbs, or Similitudinal adjectives *vis-à-vis* the cognitive concepts of AGENT, CAUSATION, and SIMILARITY. Such analogies point quite unequivocally to a close affinity between, at least some, categories of cognition and of morphological derivation. Note, however, that the hypothesis

that we want to put forward here is much stronger: we want to claim that the majority of derivational categories (if not all) have their conceptual origin in the cognitive structure.

The links between most categories of both levels cannot be defined in terms of a bi-unique, one-to-one relationship. Observe that if they were to be so defined, we would get exactly 25 distinct derivational categories (given the number of basic cognitive concepts which came to 24). However, intuitively speaking, it may be assumed that the number of grammatically and cognitively relevant categories of derivation is considerably larger (though, no doubt, finite). This assumption will then call for an explanation, in particular in view of the fact that not all of the cognitive concepts identified in 2.3.1. seem to be reflected on the level of derivational morphology (e.g. COLOUR, SHAPE) and, conversely, some (traditionally identified) categories of word-formation cannot be related to any primitive cognitive concept (see 2.3.2.2.5. for some details).

How shall we explain, then, the apparent inconsistency which resides in the fact that, contrary to the claim put forward above, namely that derivational categories are grounded in the fundamental concepts of cognition, the system of categorial distinctions found in morphology seems to be much richer and more diversified than the underlying system of basic cognitive concepts? It appears that a number of arguments are available to explain this paradox and so to defend the major claim of this chapter. We only need to gain a deeper insight into the properties of categories on both levels and into the principles of their mutual correlation. It should be pointed out that if our claim proves legitimate, it will offer a valuable

means of constraining the theory of morphological categorization. It will provide a principled method for limiting the number, and for defining the properties, of derivationally relevant concepts.

Our justification of the position outlined here will consist of a few points, to be presented below.

2.3.2.2. Justification and illustration

2.3.2.2.1. Binary structure of some cognitive categories

1). *Certain fundamental categories of cognition involve binary conceptual oppositions.*

It can easily be demonstrated that this property of the conceptual system provides a basis for potentially enriching the inventory of derivational categories. Let us take as an example the cognitive category NUMBER. It extends over two contrary concepts in a bipolar opposition: Singularity and Plurality. Now, the point is that each of the poles involved can become a target for morphological derivation. Thus, *a priori*, one can speak about two complementary categories of nominalization: Collectiva and Singulativa (in some systems of inflection, this binary structure is elaborated to a more complex, tertiary opposition: singular:plural:dual).

Past work on the Plural as an inflectional property has shown that it is marked with respect to the Singular. This markedness relation between Singularity and Plurality (Collectivity) seems to explain why, in derivational systems, overtly expressed processes forming Collective nouns are found

much more frequently than processes which operate in the opposite direction, from an inherently collective/mass noun to a specifically Singulative counterpart.

Consider, however, the following examples from Polish:

(44)

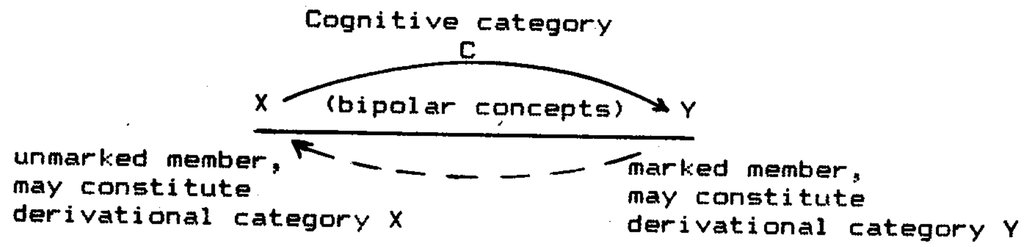
dym 'smoke'	dymek 'a puff of smoke'
słom(a) 'straw'	słomk(a) 'a straw'
traw(a) 'grass'	trawk(a) 'a blade of grass'
ziarn(o) 'grain'	ziarnk(o) 'a seed'

What we have here are instances of a class, albeit limited in number, of morphological Singulativa. Whether or not a class like this one is to be recognized as an independent derivational category in its own right will depend on the degree to which it meets the criteria of derivational categorialness (e.g. productivity, etc., see Chapter III).

Now, to take another example of the property under discussion, consider the traditionally recognized category of Female (Feminine) nouns. The corresponding process of derivation is based on the cognitive concept of Sex. But again, the latter concept involves two mutually exclusive notions: Male-Female. And, in principle, each of them could give rise to a process of derivation, i.e. it could provide the conceptual grounding for an independent derivational category. What one normally finds are derivations of Female nouns, the Female being the marked member of the opposition (in systems where this process is not quite productive, a personal noun morphologically not marked for Femaleness normally refers to both sexes, cf. E. *doctor*, *singer*, etc.). As we noted, however, nothing precludes the logical possibility of deriving Male nouns from semantically Female bases. This is evidenced by such irregularities of English and Polish word-formation as, respectively, *widow*$_{[+FEMALE]}$ --> *widower*$_{[+MALE]}$ or *wdow(a)*$_{[+FEMALE]}$ --> *wdowiec*$_{[+MALE]}$ 'id.'. It is conceivable that there are languages where patterns analogical to the one just discussed could, indeed, meet the criteria of derivational categorialness.

Summing up, one should point out again that some cognitive categories involve bipolar conceptual oppositions, each of which may become a target for morphological expression. Given that, within such an opposition, one specific concept (Y) is marked with respect to the other (X), we are more likely to have overt derivations in the direction from X to Y, although the opposite order (Y --> X) cannot be excluded on either logical or conceptual grounds. This finding may be diagrammed as follows:

(45)



2.3.2.2.2. A criss-crossing of cognitive and syntactic categories in derivation

2). *There exists a criss-crossing of the fundamental categories of cognition with the major categories of grammar, i.e. with the lexico-syntactic categories Noun, Verb and Adjective.*

This statement should not be taken to mean that, given the set of basic cognitive concepts adopted in 2.3.1., we might now wish to posit a system of derivational categories elaborated to include as many as 75 (3X25) entities. Quite clearly, not all the 75 logically possible combinations of syntactic and cognitive categories are exploited by morphological systems. For example, the distinction Male-Female definitely plays a significant role in the formation of Female nouns in many languages (cf. E. *actr-ess*, P. *aktor-k(a)*), but it seems to be completely irrelevant in verb or adjective derivation (although the contrast reveals itself, in an indirect manner, through the inflectional category of Gender in verb- and adjective-agreement).

However, almost any cognitive concept can, in fact, be seen as underlying derivational classes which belong to different syntactic categories and hence to distinct derivational categories. To take a straightforward example of what is meant here, consider the cognitive concept of INSTRUMENT. This concept must certainly be looked upon as motivating the commonly recognized derivational category of Instrumental nominalizations (E. *open-er*, *eras-er*, etc.). But, apart from Instrumental nouns, some morphologists also speak about Instrumental verbs (see e.g. Marchand 1964, 1969, Ljung 1977 for analyses of such Instrumental, zero-derived verbs in English as *to hammer, to nail, to radio*, etc.). Within categorization frameworks which achieve a very high degree of functional/semantic specificity, repetitions of categorial designations of the sort illustrated above tend, in fact, to be quite frequent. Consider, for example, the very detailed

semantic classification of English denominal adjectives presented in Ljung (1970). Ljung establishes a list of 26 "gross definitions" which are meant to represent the major categories of denominal adjectives in English. The list includes, among other things, the relatively small class of adjectives paraphrased as "causing" (e.g. *painful*, *shameful*, see Ljung 1970:131). However, the concept of CAUSATION which is implied here must also be used to account for another, more significant class of English derivatives, i.e. the class of Causative verbs (e.g. *quieten*, *neutralize*, *activate*, etc.). It would appear then that, again, we have a case here of two derivational categories being based on a single cognitive concept. As the next section will demonstrate, a similar effect may even be noticed within the bounds of a single syntactic class.

2.3.2.2.3. Double derivational realization of a single concept within the same syntactic class.

3). *A single cognitive concept may underlie two derivational categories which are semantically cognate and syntactically uniform.*

What makes this case different from the phenomena discussed in the preceding section is the fact that even within the limits of one syntactic category one may speak about a cognitive concept giving rise to more than one derivational category. An example or two from Polish adjectivization will make this point clear.

Consider the following forms:

(46)

(a)	(b)
pomysł-owy pisarz 'writer of (many) ideas'	pisar-ski pomysł 'writer's idea'
posaż-na panna 'dowered maiden'	panień-ski posag 'maiden's dowry'
ość-ista ryba 'boney fish'	rybi-a ość 'fish's bone'

The derived adjectives in both (a) and (b) are relatable to the concept of POSSESSION, albeit in different ways. It should be pointed out that POSSESSION is a typical "relational" concept, implying two reversible arguments: 'X possesses Y' or 'Y belongs to X'. Both these arguments can become a target for derivational expression, as is evidenced by (a) and (b). Thus, the adjectives given in (a) may be paraphrased as 'having _' • while those listed under (b) roughly mean 'belonging to _'.

As is well known, traditional morphology draws a line between these two patterns of adjectivization: they are regarded as forming two distinct derivational categories, referred to, respectively, as Possessional and Possessive adjectives. In Polish, members of the former class are typically derived by means of such suffixes as *-'ast(y)* (*pasiasty* 'striped'), *-ist(y)* (*kościsty* 'boney'), and *-at(y)* (*garbaty* 'hunch-backed'). Possessive adjectives, on the other hand, are usually marked by the suffixes *-(i)/-(y)* (*psi* 'dog's'), *-sk(i)/-ck(i)* (*sułtański* 'sultan's'), and *-ow(y)* (*Janowy* 'John's', *Piotrowy* 'Peter's'; this last type is now obsolete, see Grzegorczykowa 1979:68).

A phenomenon similar to the one just discussed may be observed when we turn our attention now to another basic concept, viz. SUBSTANCE (Material). Again, the relationship 'X made of Y' is reversible and can be encoded in a two-fold manner in derived adjectives. Consider the following Polish examples:

(47)

(a)	(b)
sukienka wełniana 'woollen dress'	wełna sukienkowa 'wool(len fabric suitable) for dresses, skirting'
okładka papierowa 'paper cover'	papier okładkowy 'paper for making covers'
siatka druciana 'wire-netting'	drut siatkowy 'wire for making nettings'
narzędzie stalowe 'steel tool'	stal narzędziowa 'steel for making tools'
okno szklane 'glass window'	szkło okienne 'glass for making windows'

The adjectives listed in (a), traditionally referred to as adjectives of Substance or Material adjectives (Polish "przymiotniki materiałowe"), may be paraphrased as 'made of _', while the adjectives in (b) name, through their nominal base, a certain product that can be made of some Substance/material. The general meaning of adjectives in the latter group is '(fit/suitable) for making _' (see *Morfologia* 1984:421). For want of a better term, they may be labelled as Destinative adjectives (Polish "przymiotniki przeznaczeniowe").

It may be granted that the semantic bifurcation just outlined is not perhaps as spectacular as the contrast between Possessional and Possessive adjectives mentioned earlier (also, that it is not as frequently recognized in morphological categorization). But the nature of both phenomena is similar, if not the same. And so, it seems *a priori* possible to associate a cognitive concept like POSSESSION or SUBSTANCE with two morphological categories of adjectivization, thus broadening the inventory of morphologically valid distinctions.

2.3.2.2.4. Derivational categories involving a combination of several cognitive concepts

4). *Certain notionally more complex derivational categories*

involve a combination of several fundamental concepts of cognition.

This property enriches and complicates the structure of a derivational system to a still greater extent. In order to illustrate it, we shall now consider one specific example from English word-formation.

Among the types of English derived adjectives, there is a class of denominal forms in *-less* like *doubtless*, *talentless*, *faultless*, etc. The semantics of such adjectives is very much similar to adjectival coinages involving the "semi-suffix" *-free*, like *error-free*, *rain-free*, *sugar-free*, and so on. Both types can be coupled with the paraphrase 'not having _'. Following the traditional terminology, the category in question can be referred to as Privative adjectives. Now, as the paraphrase indicates, this derivational category is based on two primitive concepts, which appear in combination. The concepts are: NEGATION + POSSESSION. Both of these belong to the set of fundamental concepts of cognition, as identified in 2.3.1. And both of them, taken separately, underlie two independent and notionally simpler categories of English adjectivization. Consider that, on the one hand, there are adjectives like *doubtful*, *talented*, or *faulty* which mean, roughly, 'having _'. The concept inherent in these derivations is that of POSSESSION (hence: Possessional adjectives). On the other hand, by comparing e.g. *luck-less* with *luck-y* --> *un-luck-y* we will be reminded that English also has an independent category of Negative adjectives, based exclusively on the concept of NEGATION. These facts suggest, again, that the derivational notion of Privativity should be considered in relation to the

cognitively fundamental concepts of Negation and Possession. What we witness here then is an instance of a single derivational category definable as a function of a cluster of two primitive cognitive concepts.

Apparently, this is not an isolated case of its kind (see 2.3.2.3. for similar categories). Moreover, there are derivational categories whose conceptual structure is even more complex. Consider, for example, the case of denominal Privative verbs in English, such as *debug*, *deflea*, *degrease*, *desalt* (also such zero-derived verbs as *to skin*, *to scale*, etc.). One may compare e.g. *desalt* with *saltless* to see that Privative verbs have a lot in common semantically (or conceptually) with the class of Privative adjectives mentioned earlier. The traditional paraphrase of the verbs in question is 'deprive of _'; thus *desalt* 'deprive of salt'. But the categorial function involved here can be decomposed as follows: 'cause not to have _'. In other words, the derivational category of Privative verbs appears to be grounded in a triad of fundamental cognitive concepts: CAUSATION + NEGATION + POSSESSION. Under this interpretation, the conceptual structure of Privative verbs turns out to be richer by one degree, compared to a similar structure of Privative adjectives (cf. the extra concept CAUSATION which is linked with the former class).

The conclusion to be drawn from this example is that an analysis of notionally complex derivational categories in terms of basic cognitive concepts permits us to grasp the semantic/functional relatedness of some such categories. In our example, it was possible to express the nature of the affinity that holds between Privative verbs and Privative adjectives. Relationships

of this sort cannot be explicitly stated within those frameworks which neglect (or trivialize) the significance of a thoroughly developed theory of categorization in derivational morphology (cf., for instance, some early "lexicalist" approaches to word-formation (e.g. Halle 1973, Aronoff 1976, Siegel 1979) and their largely formalist and atomistic treatment of Word Formation Rules).

Finally, the objection might be raised that the handling of the problem of derivational categories by means of sets of labels like CAUSATION + NEGATION + POSSESSION is too reminiscent of the discredited methodology of the various "check-list theories" of meaning. However, there is one crucial difference between the two approaches, which entitles us to dismiss the objection as irrelevant. Namely, it ought to be reiterated that the markers used here, such as CAUSATION, NEGATION, etc. do not stand for "semantic distinctive-features" of any sort, not even for some set of "semantic primitives" but rather they represent all those concepts (and only those) which, according to the present state of our knowledge, make up the back-bone of human cognitive capacity. Given the adequacy of this assumption, the categorial distinctions employed here are not made *ad hoc* - on the contrary, they seem to be non-arbitrary and justified in a way that is lacking for some feature-labels of componential semantics, and for many categories of traditional morphology.

2.3.2.2.5. Indirect cognitive motivation for "transpositional" categories

5). *A few derivational categories, the so-called "trans-*

positional" categories, are relatable to the basic cognitive concepts in an indirect way only, being directly motivated by the system of the major grammatical categories (N, V, Adj).

One area where the cognitive view of morphological categorization may seem to be not directly applicable is the limited set of "transpositional" categories. It will be recalled (see 1.3.1.) that the following categories are to be viewed as rendering the transpositional function: Nomina Actionis, Nomina Essendi, and Relational (transpositional) adjectives (as exemplified, respectively, by Polish *czytanie* 'reading' from *czytać* 'read', *ciekawość* 'curiousity' from *ciekaw(y)* 'curious', and *książkow(y)* 'of book(s)' from *książk(a)* 'book'). As is traditionally maintained, the semantic modification involved in typical (i.e. regular and non-lexicalized) transpositional derivations is so vague and general that it is virtually unspecifiable, the basic function of any such derivation being simply a change of the syntactic-class membership of a lexical item (V --> N, Adj --> N, N --> Adj). Given the nature of this transposition, it may, indeed, appear redundant to invoke the cognitive structure in this context. However, upon closer scrutiny, the issue turns out to be far from trivial. As we pointed out in section 2.2., according to some recent theories, such basic syntactic categories as Noun, Verb, and Adjective can be accounted for in notional, cognitive terms (see, e.g., Hopper and Thompson 1985, Givón 1984, Langacker 1987a,b). Thus it is argued that (physical) Objects are prototypical for Nouns, while (physical) Actions are prototypical for Verbs. Given this approach, the syntactic-category change which constitutes the essence of any

process of transpositional derivation would present itself as, ultimately, a manipulation involving two fundamental concepts of cognition. For example, a Nomen Actionis like *arrival* (from *arrive*) would have to be related, in some way, to the verbal prototype ACTION as well as to the nominal prototype OBJECT. How to achieve this is not quite clear at the moment. What is clear, though, is a general conclusion that follows from the above argument, namely, that even the so-called transpositional ("asemantic") categories of derivation may allow for an interpretation based, in the last resort, on the fundamental concepts of cognition.

2.3.2.2.6. The "expressive" domain of derivation exempt from cognitive grounding

6). Cognitive grounding does not apply to the "expressive" domain of lexical derivation.

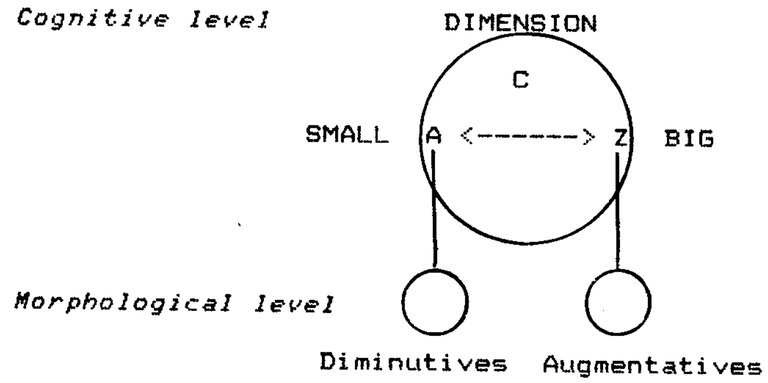
Human cognitive capacity can be contrasted with the sphere of emotions, subjective evaluations and attitudes. Factors of the latter kind play an important role in the derivational systems of many languages (e.g. Slavic in general and partly Romance). They lie at the foundations of all sorts of "expressive" word-formation. But since emotions, attitudes, etc. are clearly distinct from the basic cognitive concepts, it follows that the latter cannot be used in explaining "expressive" morphology, or perhaps can be so used only to a very limited extent.

Let us then compare two traditionally recognized categories which seem to belong to the border area between the

cognitively defined core of morphology and its "expressive" periphery. The categories in question are Diminutives and Augmentatives.

At first glance it may appear that both categories should pose no difficulty as far as their strictly cognitive interpretation goes. It will be recalled that the set of basic cognitive concepts presented in section 2.3.1. incorporated, among others, the category of physical size or DIMENSION (SMALL-BIG in the terminology of Lakoff and Johnson (1980)). Since the concept in question involves a bipolar opposition ("smallness" vs. "bigness") it seems to dovetail with the categorial content of, respectively, Diminutive and Augmentative nouns. Thus:

(48)



Let us now consider some Polish examples of both morphological classes. Diminutives: *kot-ek* 'cat', *dom-ek* 'house', *stol-ik* 'table', *samochodz-ik* 'car', *twarz-yczka* 'face', etc. Augmentatives: *koc-isko* 'cat', *dom-isko* 'house, *samochodz-isko* 'car', *decha* (back-derived from *deska* 'board'), etc. It may be granted that the forms of both classes are paraphrasable as, respectively, 'small _' and 'big _'. However, these paraphrases

come short of revealing the full meanings of such items as they are normally used. In the case of Diminutives, the cognitive concept SMALL co-occurs potentially (and often actually) with elements of emotive and attitudinal meaning. And so the semantics of *kot-ek* should rather be given as '(good)(dear)(lovely)(friendly)(familiar) ... (small) cat'. Conversely, the meaning of the Augmentative *koc-isko* ought to be partially represented as '(bad)(hostile)(repugnant)(unfamiliar) ... (big) cat'.[7] In other words, the experiential, cognitive concept BIG-SMALL is inextricably interwoven with all sorts of "expressive" admixtures which may appear in different clusters. Sometimes the semantic ingredients of the latter kind tend to dominate or take over completely in defining the meaning of a lexical item; cf. e.g. such pseudo-Diminutives as *rocz-ek* 'year', *dzion-ek* 'day'.

Faced with this situation, traditional morphology has made painstaking efforts to establish a manageable inventory of derivational categories which would grasp the elusive diversity of the semantic patterns found in "expressive" word-formation. Consider, for example, labels such as Hypocoristics (Endearings), Pejoratives, Depreciatives, Intensives, etc. (see e.g. Grzegorczykowa (1979)). But attempts of this sort seem bound to fail. One might argue, in the first place, that the sense-classes identified within the lexicon of "expressive" formations do not merit being regarded as genuine categories of derivation.[8] In any event, as we have just shown, these putative categories are not accountable for in cognitive terms. Besides, certain recurrent clusters of emotive, evaluative and/or attitudinal content are simply hardly nameable, and cannot be

referred to by means of single, general labels.

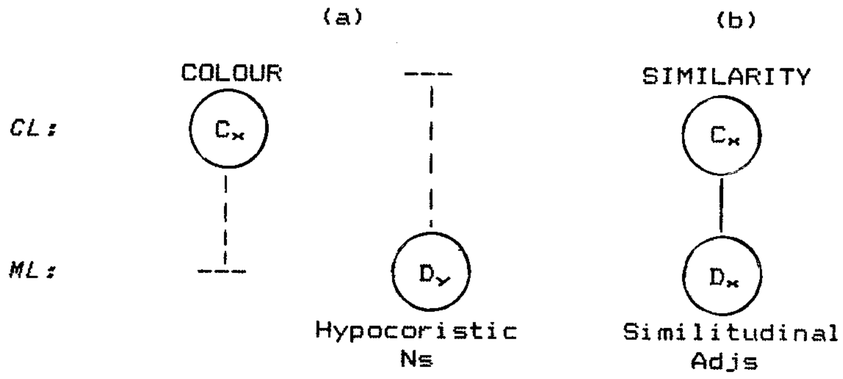
Above all, it should be pointed out again that there also are certain formal properties of morphological systems which would suggest that the underlying nature of so-called "expressive" word-formation is markedly different from the typical meaning-changing derivational operations. One such property is the notorious occurrence of "rival" forms (parallel derivations), i.e. the suspension of the Blocking Principle (see Scalise 1984), which typically characterizes other sections of morphology. For example, among the Diminutive/Expressive counterparts of the Polish noun *kot* 'cat' are the following "rival" formations: *kotek // koteczek // kotunio // kociunio // kotuś // kociuś // kiciuś // kocio // kicio*. The first two items are particularly interesting from the formal view-point, since the derivation of *kot-ecz-ek* involves a repeated attachment of the diminutive marker /+ʧk+/ to the neutral base *kot*. Affixal repetition of this sort, like other kinds of reduplication in morphology, is a device typically used for intensification, i.e. is a *par excellance* "expressive", rather than a content-bearing, mechanism.

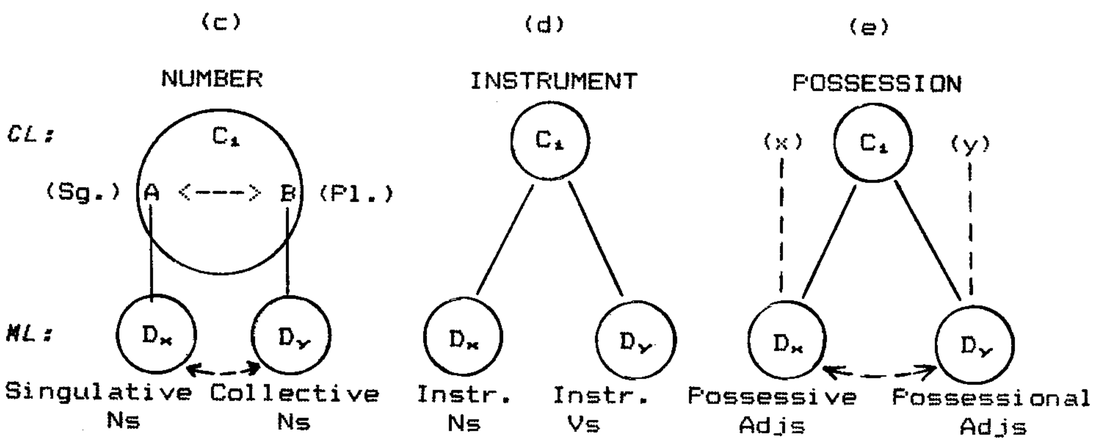
2.3.2.3. Summary

To sum up the argument developed in the preceding sections, we shall present now a diagram illustrating the typical relationships which obtain between categories of both levels, i.e. between the fundamental categories of cognition and the major categories of derivational morphology. In fact, we will begin with those few cases where no such relationship seems to

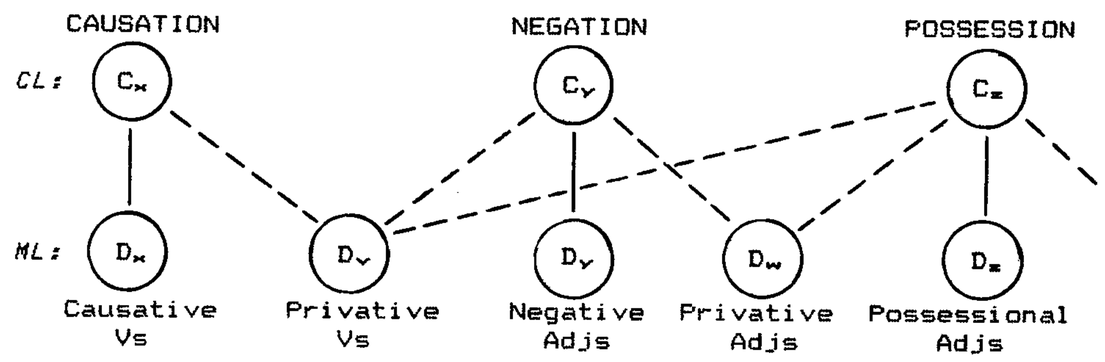
exist, i.e. cases where a given cognitive concept has no direct counterpart on the level of derivation or, the other way round, where a (traditionally recognized) derivational category finds no support in any of the basic cognitive concepts (cf. (a) below). Then we give an instance of a straightforward one-to-one correlation between categories on both levels (b). Next, we present again three substantively different examples of a two-to-one relationship between, respectively, derivational and cognitive categories. (c,d,e). And, finally, we draw a picture of an even more complex, many-to-one correlation between categories on both levels (f).

(49)





(f)



(complex relationship)

CL = Cognitive Level
ML = Morphological Level
(The circles on both levels stand for distinct categories)

* * *

The Cognitive Grounding Condition put forward in this chapter predicts a large number of categories for derivational morphology (some of the putative categories that are not thus predicted will be discussed in Chapter III). Indeed, it appears that, subject to some modifications and extensions," the hypothesis which underlies the Condition in question offers a solid foundation for constructing a complete categorial framework for the derivational system of a language.

Now it is obvious that languages differ immensely in their morphological patterning - in particular in the choice of the mechanisms and formal exponents that are used - but they also differ considerably in terms of the categories that they select and encode in derivation. Simply speaking, one language may have a few productive types of, say, Similitudinal adjectivization while in another language the concept of

SIMILARITY may not be expressed at all morphologically. In yet another language, the concept in question may be present only marginally on the level of derivation. This naturally leads to the problem of deciding, in a language-specific context, whether some basic concept should, or should not, be regarded as derivationally relevant for that language (some general guidelines to be employed in deciding this issue are given in the next chapter).

However, if we move away from the details of the morphological structure of any given language to a more abstract level, it should be possible now to give a tentative listing of the derivational categories predicted by the Cognitive Grounding Condition. However, since the discussion of certain categories continues into Chapter III, we relegate a summary presentation of the categorial inventory to the Appendix which concludes the present study. It should be stressed, though, that the list given there is not complete and no claim is being made as to its universal validity (after all, the evidence used throughout this study was mainly taken from Polish and English only).

Yet, given the combinatorial potential of the framework developed in these pages, it is assumed that a number of additional, cognition-based derivational categories, not included on the list, could be established to meet the needs of other morphological systems. The categories are divided according to the syntactic-class membership of the derived word (Nouns, Verbs, Adjectives). Each derivational category is associated with some specific cognitive concept(s) in which it is grounded. Approximate paraphrases as well as examples are provided to enhance the clarity of exposition (see Appendix).

CHAPTER III

THE DERIVATIONAL CATEGORY PROTOTYPE

(or: how to establish derivational categories)

"Linguistic categories are
kinds of cognitive categories".
G. Lakoff (1987:57)

3.0. Introduction

One apparent shortcoming of the categorial framework developed in Chapter II is that it does not account for certain derivational categories which have traditionally been recognized in the literature. In view of the Cognitive Grounding Condition (see 2.3.2.1.) in particular, quite a number of such traditionally established categories now appear to be spurious, irrelevant, or ill-defined. In section 1.2. we have given a few examples of functional classes of derived forms which, to all intents and purposes, cannot be regarded as legitimate categories of word-formation. Here we can mention again, for instance, some of the "sense groups" listed in Marchand (1969:516 ff), in particular those which involve affixes resulting from "secretion" (see Marchand 1969:210 ff). Consider, for example, derived nouns denoting kinds of 'drinks' (e.g. *gingerade*), 'shows' (*autorama*), 'shops' (*fruiteria*), etc. Quite plainly, lexical classes of this sort cannot be given the status of derivational categories. But, apart from these cases, one often comes across specific word-classes whose categorial status

is only slightly less dubious or questionable. Thus, in Polish, as we already said, one might ask whether we should recognize of a nominal category like 'names of vodkas', given the productive suffix *-ówk(a)* in *cytrynówka*, *orzechówka*, *pomarańczówka*, etc.

The problem faced here may not seem very serious but, in fact, when one goes through various studies which address the issue of morphological categorization, then it becomes apparent that their authors often stumble over analytic dilemmas as prosaic as the one just mentioned. One has to be cautious, in order to avoid the pitfalls of carrying categorization too far. Consider the following passage from Laskowski (1971:6-7) which illustrates the problem very clearly, although it refers to the specific data of one language, or rather a dialect (the Lach dialect of the Polish/Czechoslovak border):

"The existence of certain derivational formatives which are associated with some specific lexical meaning (e.g. *-'ak*, *-'an* in names of inhabitants, *-'isko* or *-ńa* in locative names) is not a sufficient justification for treating the group of nouns involving such formatives as a derivational category, especially if (as is the case with place names) formations which are diametrically different, structurally, would have to be assigned to the proposed category. In view of the well-known fact that certain formatives may be associated with some very specialized meanings, nothing would prevent us from identifying several other "derivational categories" of this sort (e.g., on the basis of the criterion just mentioned, one could identify, in the Lach dialects, a "category" of names of soups - suffixes *-'anka* and *-avka*, names of tool-handles - suff. *-'isko*, or words

for excrement - suff. *-'iñec*). Obviously, a move like that would not be justified from the view-point of the structure of the morphological system [...]" (translation mine, B.S.).

What we need then is a reliable evaluation metric which could be used in deciding about the categorial status of this or that class of derived forms. It seems that an evaluation metric of this sort can be arrived at if the problem is approached again along the lines of the prototype theory.

Inasmuch as it makes sense to speak of a particular derivational category as of a set of exemplars (complex lexemes), which differ from each other in the degree of prototypicality, derivational categories themselves may also be viewed as entities of sorts, which make up the more abstract **category of derivational categories**. In other words, one should consider the properties of an average, typical category in derivational morphology. Put differently, the question now is this: What makes a derivational category ? Or: What are the attributes of the **derivational category prototype** ? The sections to follow try to give an answer to this basic question.

3.1. Properties of the derivational category prototype

3.1.0. Introduction

In the remainder of this chapter we intend to identify several properties which, when taken together, should define a prototypical derivational category. The nature of these properties is quite diversified: some of them are fairly general, language-independent, and methodological rather than

substantive in character (e.g. psychological reality, conceptual generality, or the formal requirement of economy, which relates to the former two features). Accordingly, such properties will have to be identified and examined at an early stage in the categorization procedure, even before one comes to consider the strictly morphological characteristics of the derivational system under investigation. Other properties, however, are far more specific and language-internal in scope, as they relate to the details of the syntactic, semantic, lexical, and morphological patterning of a particular derivational system or, indeed, they may even be properties of individual categories arrived at in the course of analysis.

The property which comes first on our list is cognitive grounding. This property is considered to constitute the most general and most essential requirement on derivational categorialness. Also, given the strong version of the theory which is developed here, cognitive grounding, in contradistinction to the remaining properties, is to be viewed as a necessary, criterial property, in the sense that each derivational category *must* be grounded in some fundamental concept(s) of cognition. Alternatively, if we followed a weaker version of the theory, cognitive grounding would be treated on a par with the remaining prototypical attributes, which may or may not be present. Given this relaxed interpretation, it would be possible to posit derivational categories even in those instances when the Cognitive Grounding Condition is not met, provided that the category to be proposed possesses a number of other prototypical attributes.

It should be added here that, throughout this study, we

have tried to adhere as closely as possible to the strong interpretation of the Cognitive Grounding Condition, refusing to recognize the categorial status of those lexical classes which fail to meet the condition in question. It cannot be ruled out, however, that future research in morphological categorization may bring out the need to take a more liberal stand in this matter.

Let us illustrate the problem with the following example. Traditional accounts of Polish word-formation recognize as an independent derivational category the class of nouns denoting "names of young individuals" ("nazwy istot młodych", see e.g. Grzegorczykowa 1979:57). These are formations from [+animate] nouns, mostly names of animals. The derivatives in question are all [+neuter] and they are marked by a characteristic set of desinential endings: *-ę* in nom.sg., *-ęta* in nom.pl., etc. (phonologically, one should probably posit here an abstract suffix /+ĭnt+/). For example: *kot* 'cat' - *kocię*, *wilk* 'wolf' - *wilczę*, *królik* 'rabbit' - *króliczę*, etc. Now the point is that the class in question reveals a number of attributes which are prototypical for a derivational category. For instance, the class is marked by considerable productivity, syntactic and semantic uniformity, compositionality, etc. (see below for a discussion of these properties). Moreover, the semantic function which is ascribed to this class is also lexically relevant (cf. 3.1.8.). That is to say, the meaning "young individual from a species" underlies a number of word-pairs within the lexicon of underived Polish nouns; cf. *koń* 'horse' - *źrebię* 'foal', *krowa* 'cow' - *cielę* 'calf', *owca* 'sheep' - *jagnię* 'lamb', *świnia* 'pig' - *prosię* 'piglet', etc. However, in spite of all

these properties, the class of derived nouns mentioned earlier fails to meet the condition of cognitive grounding. Quite clearly, the identity of this morphological class rests on the concept of AGE: the paraphrase relates to an implicit contrast between 'young' and 'mature' ('old'). But the concept of AGE, though it is fairly general, does not seem to belong to the core inventory of fundamental cognitive categories (see 2.3.1.). And so, to that extent, the class in question cannot be regarded as a valid derivational category, if cognitive grounding is viewed as a necessary condition on *each* category of this sort.

Otherwise, the class of "names of young individuals" could be regarded as a legitimate category, though not as a prototypical one, provided that the attribute of cognitive grounding was viewed as an optional property, along the lines of the prototype theory.

It may appear then that the identification and interpretation of the prototypical categorial attributes is, largely, a matter of pure speculation. As we shall attempt to demonstrate, however, this is not necessarily so. The prototype approach does seem to offer a useful tool for the practical task of working out a categorization framework for morphology.

3.1.1. Cognitive grounding

It follows from the argument developed in the preceding sections that the most essential and most general criterion of derivational categorialness is cognitive grounding. The Cognitive-Grounding Condition was stated and discussed in section 2.3. and need not be repeated here in its literal formulation. Rather,

viewed now as the principal diagnostic in a categorization procedure, it might be given as follows:

A lexico-semantic class whose generalized meaning is directly accountable for in terms of any one or more of the fundamental concepts of cognition is a possible candidate for the status of a derivational category.

For instance, the class of Similitudinal adjectives is a possible derivational category because the generalized meaning (paraphrase) of such adjectives is 'resembling/similar to _' and so it can be derived in a direct manner from the cognitive concept of SIMILARITY. On the other hand, assuming that a language has some unique method of morphologically marking different days of the week, a noun class like that will not count as a possible candidate for a derivational category, because the morphologically expressed concept 'day of the week' has no analogue in the cognitive structure (cf. Polish, which comes close to the case in point: *poniedział-ek, wtor-ek, (środa), czwart-ek, piąt-ek, (sobota), (niedziela)*; English might serve as an even better example, provided that we treat the morpheme *-day* in *Monday, Tuesday*, etc. as a "semi-suffix").

A "possible category" need not mean a "likely category", and it certainly does not mean a "genuine derivational category". Following the approach of the prototype theory, we assume that the membership of an item within a category (in our case, the membership of a particular derivational category in the 'category of derivational categories') is a gradable notion. It depends on the number and weight of the prototypical attributes possessed by the given item (category in this case). That is to say, the degree or likelihood of derivational-

category status can be determined, for a given lexico-semantic class, only when a larger number of essential attributes are taken into account (cf. below). And here it should be noted that a few other general properties to be considered emerge as corollaries to the Cognitive-Grounding Condition. Witness the following.

3.1.2. Psychological reality

To claim that a given derivational category is grounded in cognitive structure is tantamount to saying that this category has a psychological reality. But these two propositions clearly do not mean the same thing. There are many aspects of the grammar (including morphology) which might be said to be psychologically real and which, nonetheless, bear no direct relationship to the basic cognitive concepts. Besides, each individual category within a derivational system may be truly justified from the cognitive view-point, and so attain psychological reality, but there may be something psychologically unrealistic about the very system this category is part of. For example: imagine that somebody comes up with an extremely elaborate categorization framework for a language, consisting of, say, 500 distinct derivational categories. Now it is *a priori* possible to have all these categories stem, somehow, from the cognitive conceptual core, but it is precisely their high number that makes this whole system highly suspect on the grounds of psychological reality. Indeed, any categorial system of such complexity would fly in the face of the requirement under discussion.

Thus, it seems that the criterion of psychological reality should be taken as an independent diagnostic in work on morphological categorization even though it is, no doubt, related to the Cognitive-Grounding Condition. It remains to be seen how exactly this concept ought to be implemented in constraining the class of possible categorization systems. At least in the hypothetical example just given, psychological reality may easily be translated into a more formal requirement: economy. But a more concrete application of the criterion of psychological reality seems to hinge upon investigating all sorts of external evidence, like morphological disturbances in aphasia, derivational errors or, above all, the problem of derivational-category acquisition.

3.1.3. Conceptual generality

Again, it seems to follow from the Cognitive-Grounding Condition that if some derivational category is so grounded, it must be conceptually general. It will be recalled that the fundamental categories of cognition, enumerated in 2.3.1. are, without exception, very general concepts. But, even so, a morphological categorization system could be devised which, being rooted in the cognitive structure, would, nonetheless, reveal an intolerable degree of specificity. That is to say, cognitive grounding alone is not a sufficient criterion. Sometimes conceptual generality turns out to be a useful auxiliary (and, in a sense, ancillary) criterion. It will rule out those putative categories whose generalized semantics is too detailed and specialized to be psychologically plausible or grammatically

relevant.

To illustrate this point, consider now the frequently discussed class of complex nouns in English which end in *-berry* and name different kinds of 'small fruit'. For instance:

(50)

cranberry

strawberry

blackberry

blueberry

Alternatively, one may consider the semantically parallel pattern of Polish nouns in *-in-/-yn-* which, in fact, serve as better examples of derived words since *-in-/-yn-*, unlike *-berry*, is a genuine suffix, at least from the formal point of view:

(51)

malina 'raspberry'

żurawina 'cranberry'

jarzębina 'rowan-berry'

jeżyna 'blackberry'

It seems that there are no grounds for regarding either the English or the Polish class as a legitimate derivational category. The first obstacle is the fact that a class defined as 'names of small fruit' cannot be accounted for in relation to any basic cognitive concept (beyond the quite obvious assertion that 'small fruit' belongs to the general category of OBJECTS). In fact, both languages provide other indications which also argue against viewing the semantic class in question as a derivational category. These indications include, for instance,

the virtual lack of productivity of both patterns (see 3.1.5. on productivity as a prototypical property). There is also the notorious non-compositionality of the items included therein: the English *straw* and *strawberry* seem to be associated as arbitrarily as *jeż* 'hedgehog' and *jeżyna* in Polish (it is symptomatic that a paraphrase like 'names of small fruit' makes no attempt to state the meaning of the forms in question in relation to the meanings of the base-forms; see next section for more discussion of compositionality). The irregularity of both patterns is further strengthened by the occurrence of "cranberry morphs" (residual morphs) in some of the words listed; cf. *cran-* in *cranberry* and *mal-* in *malina* 'raspberry'.

But the principal reason why these examples are mentioned here is the fact that a would-be derivational category defined simply as 'names of small fruit' would also fail on the score of conceptual generality. Indeed, the general meaning of this class is not general enough. It should be pointed out that once we recognize as derivationally valid the category of 'names of small fruit', a Pandora's box is opened with lots of similar semantic distinctions. One may then wonder about positing a noun-category of 'names of big fruit', or just 'names of fruit' in general. Likewise there would be room to speak of all sorts of other nominal categories, reflecting taxonomically valid distinctions; e.g. 'names of fish', 'names of trees', 'names of nuts' (cf. *peanut*, *coconut*, *hazelnut*), etc. Clearly, this is something we want to avoid. A derivational category cannot be established solely on the grounds that it mimics this or that taxonomic class. There are many taxonomic, or other meaning-based classes which are truly legitimate from the point of view

of lexical semantics and yet turn out to be virtually irrelevant in terms of the morphological system.

3.1.4. Semantic uniformity and compositionality

Other things being equal, a class of derived lexemes that is semantically uniform and involves semantically compositional members is a better instance of a derivational category than a class that does not have these characteristics (or shares them to a lesser extent).

To illustrate this point, we shall continue our analysis of certain types of Polish nouns in *-in-/-yn-* (cf. above). Consider the following examples:

(52)

(a)	'meat from _'
baran 'ram'	baranina
koń 'horse'	konina
sarna 'roe-deer'	sarnina
gęś 'goose'	gęsina
jagnię 'lamb'	jagnięcina
cielę 'calf'	cielęcina
(b)	'wood from _'
dąb 'oak'	dębina
sosna 'pine'	sośnina
wierzba 'willow'	wierzbina
buk 'beech'	buczyna
olcha 'alder'	olszyna
świerk 'spruce'	świerczyna

The derived nouns in (a) and (b) are fairly compositional; moreover, in each case we are dealing with a relatively uniform class, semantically speaking. The meaning of the derivatives in (a) is 'meat from _' while those given in (b) are paraphrasable as 'wood from _'. It might appear, then, that the *-in-/-yn-* nouns in both (a) and (b) ought to be considered as possibly constituting two independent derivational categories. However, this assumption turns out to be ill-justified as soon as we take into account a larger number of properties defining the derivational-category prototype. Take, for instance, the criterion discussed above, viz. conceptual generality. A paraphrase like 'meat from _' or 'wood from _' is about as specific as the designation 'name of small fruit'. Hence one cannot but conclude that the derivational classes in (a) and (b) do not meet the conceptual generality requirement. Besides, it is not possible to render the generalized meaning of the items included in either class in terms of the fundamental concepts of cognition. That is to say, the Cognitive-Grounding Condition is not satisfied, either. Specifically, the repertoire of the cognitive concepts that are available does not allow us to grasp the meaning difference between both classes. The final conclusion then is that the two classes of derived nouns, paraphrased as 'meat from _' and 'wood from _', do not represent independent derivational categories but rather ordinary lexico-semantic classes. To say this, however, does not imply that the nouns in question have no place within the limits of a rigidly defined system of morphological categories. On the contrary, there is a simple way to make them fit into the categorial framework. This can be done by increasing the

conceptual generality of whatever category is meant to account for them. Now it may be claimed that nouns of both types ('meat from _' and 'wood from _') belong, in fact, to a single derivational category. First of all, it will be noticed that the preposition *from* which appears in both paraphrases encodes an element of meaning shared by (a) and (b). The function of this preposition is ablative (or "genetic"). Secondly, it should be pointed out that the concepts of 'meat' and 'wood' which appear in the paraphrases are not so totally distinct from each other. Underlying both is a single cognitive concept of SUBSTANCE (Material) (the accompanying ablative function also seems ultimately derivable from conceptual primitives; cf. MOVEMENT + PATH). Thus, the two classes exemplified in (a) and (b) may be reduced to a single derivational category of Material/Ablative nouns (cf. the notionally related category of Material adjectives). The general meaning associated with this category might be given as 'substance (stuff, material) from _' (see Beard (1981:193 ff) for a similar analysis of analogous data from Serbo-Croatian).

This generalized interpretation of the *-in-/-yn-* nouns under discussion also explains one semantic property of the forms in (b) which has not been mentioned so far. Namely, nouns like *dębina*, *sośnina*, etc. are, in fact, polysemous. Apart from the meaning 'wood from _' they may also be used in the collective/material sense 'twigs/branches from _' as, for instance, when one speaks about the young twigs of some tree used for decoration (cf. *wieniec z dębiny* 'wreath made of oak twigs', *sala przystrojona sośniną* 'hall decorated with pine-twigs', etc.). This points, again, to the fact that the

derivational category which underlies all the forms in question should be conceived more broadly than was originally suggested by paraphrases like 'wood from _' or 'meat from _'. It appears now that a derivative which belongs to this general category of Material/Ablative nouns may, in principle, denote any kind of stuff or substance which comes from the thing named by the base-form (typically from a plant or animal) and which is considered by people as valuable and useful for some practical activity. This clearly demonstrates the culture-dependent nature of the derivational category under discussion. Cf. Beard (1981:195): "It is possible to establish an integral semantic class uniting these derivations, then explaining variations in significance in terms of pragmatic reference".

Thus, when talking about animal names, one could speculate that the category of Material/Ablative nouns should also incorporate in some languages lexico-semantic classes definable as, for instance, 'hide from _', 'fur from _' or 'fat from _'. This hypothesis is borne out by the Russian data: cf. the contrast between *baran* 'ram' - *baranina* 'meat from sheep, mutton' vs. *ovca* '(she-)sheep' - *ovčina* 'sheepskin'. Consider also the following Serbo-Croatian forms: *kun-ov-ina* 'marten fur', *dabr-ov-ina* 'beaver fur/fat' (Beard 1981:194).

And, similarly, when talking about different plant names, it should be possible to identify among their derivatives, for instance, a class semantically definable as 'fruit from _' or 'tops from _' (cf. P. *botwina* 'beet tops'), parallel to 'wood from _' and 'twigs from _'. In a language like Polish, most names of fruit-bearing plants are, in fact, used in an underived form to refer also to the fruit itself (e.g. *czereśnia*

(1)'cherry-tree', (2)'cherry-fruit'; cf. however *jabłoń 'apple tree' vs. jabłko* 'apple', *grusza* 'pear-tree' vs. *gruszka* 'pear', etc.). Additionally, there is also the formally marked class of 'names of small fruit', mentioned already in 3.1.3., i.e. nouns like *malina* 'raspberry', *jeżyna* 'blackberry' and so on. We argued against viewing this class as a legitimate derivational category, because its paraphrase fails to meet a sufficient degree of conceptual generality. But, at this point, some further objections may be added. Thus it may be argued that the principal meaning of the nouns in question is reducible to their being used as generic labels for different plants, while the meaning 'fruit' can be seen as semantically derivative and secondary (the qualifier 'small' must be viewed as redundant, in any case). And so, *malina* 'raspberry' means first of all a 'bush with small, sweet, yellow or red berries' and then also 'one of these berries'. Now it might appear that the semantic transition from 'plant' to 'fruit' is not overtly marked in these nouns. But this need not be so - an alternative, morphological, interpretation suggests itself here as well. In order to see what this interpretation might consist in, let us first note the characteristic behaviour of certain Polish names for trees and shrubs which, as was pointed out above, undergo productive Material/Ablative derivation (*-in-/-yn-* attachment), to mean 'wood from _', 'twigs from _', etc. (e.g. *sosna* 'pine' - *sośnina*). Now if a plant-name of this sort itself ends in *-in-/-yn-*, the Material/Ablative derivation is blocked; cf. *wiklina* 'osier' - *wiklin-ina. Instead, the underived noun can be used also in the Material/Ablative sense. Thus *wiklina* should be glossed as either (1)'osier' or (2)'wicker'. The phenomenon

of blocking evidenced here may be attributed to the effect of haplology (cf. a few similar nouns: *kalina* 'cranberry-tree', *kosodrzewina* 'dwarf mountain pine', *leszczyna* 'hazel'; on the haplological constraint, see Dressler 1977, Szymanek 1982).

In a like manner, it may be argued that the derivation of a noun meaning specifically 'fruit from _' is blocked in the case of *malina* 'raspberry', etc., in order to avoid the repetition of two identical VC sequences (cf. *malin-ina). Or else, a more formalistic solution would be to claim that *malina* (plant-name) is turned into an unattested **malinina* (fruit-name), but the latter form must undergo haplological truncation (*-in-* --> Ø).

Whatever the interpretation of this phenomenon, we hope that we have demonstrated one general trend in this lengthy analysis. Namely, it was shown that semantically defined classes of derived nouns, such as nouns meaning 'meat from _', 'hide from _', 'wood from _', 'fruit from _', etc. reveal a lack of several important properties which characterize the prototypical derivational category. Therefore, a morphologist who is faced with complex evidence of this sort should make an attempt to relate it to some independently established, general categories of the derivational system. Frequently, as was the case above, the primary task of the categorization procedure is reducible to identifying some cognitive common denominator for a variety of lexical classes which, seemingly, are only loosely related to one another, or not related at all. Thus, while (re)constructing a categorization framework for derivational morphology, one often needs to free oneself from the language-specific details of formal and semantic organization, in order to arrive at

categorial distinctions of a sufficient conceptual generality.

3.1.5. Productivity

Semantic uniformity and compositionality, which was the key issue in the previous section, was shown to belong to a larger set of criteria which may come in useful when establishing a category like the Material/Ablative nouns in Polish. The semantic uniformity of a class, and the semantic compositionality (coherence) of individual derivatives in particular, are properties often discussed in the context of relatively productive derivational processes. It is pointed out that, for instance, the compositionality of derivatives increases with the productivity of a process (type): "[...] the more productive a process is, the more easily can its semantic effect be specified" (Bauer 1983:95; see also Aronoff 1976:388f, Zimmer 1964).

Given this correlation, it might seem that a categorization procedure would benefit from substituting the poorly defined notion of semantic compositionality with the more "objective" (i.e. quantifiable) criterion of productivity. However, it rather appears that both these properties are essential indicators in categorization, since they are only partly dependent upon one another.

For one thing, one often comes across lexical classes of derivatives which, to all intents and purposes, are perfectly compositional and nevertheless represent a process which is only mildly productive, or not productive at all. We do not have to look far for examples illustrating the case in point. Recall, the

semantic class of Polish nouns meaning 'wood from _', as discussed above (*dębina* 'oak-wood', etc.). Derived nouns of this sort seem to be totally compositional (at least in the reading in question) and yet the productivity of the underlying morphological process is quite limited; cf. *jesion* 'ash-tree' - **jesionina*, *klon* 'maple-tree' - **klonina*, *jawor* 'sycamore' - **jaworzyna*, etc.

And, conversely, certain highly productive processes often turn out semantically incoherent items in their output. Consider, for instance, the productive Agentive nominalizer *-er/-or* in English. Even if the other functions of this formal unit are put aside (such as 'Instrument' in *open-er*, etc.), the compositionality of many forms in *-er/-or*, classified as Agentive, must be questioned. Indeed, if one is to retain the correlation between compositionality and productivity, then it must be stressed that, in the case under discussion, the former lags considerably behind the latter. Thus, for instance, it is obvious that *writer* is not normally used in just the sense of 'sb. who writes', the meaning of *actor* is not exactly equal to 'sb. who acts', and *professor* is reminiscent of 'sb. who professes' in only one meaning of the base verb.

As is well known, there is a technical solution which makes it possible to reconcile somehow the high productivity of a process with the poor compositionality of some of its products. The way out in such cases is to invoke the notion of lexicalization (noncompositional items can always be viewed as lexicalized). The fact remains, however, that the alleged correlation between compositionality and productivity should be approached with caution.

Let us stress, then, that productivity, taken alone, is an important diagnostic in assessing the categorial status of a class of derived words. The more productive a process is, the more likely its output is to represent a genuine derivational category.

The concept of productivity, as it is now employed in morphology, has been investigated by a large number of scholars. Consider, for instance, the contributions of Anderson (1985a), Anshen and Aronoff (1981), Aronoff (1976), Bauer (1983), Cutler (1980), Górska (1982, 1983), Kastovsky (1986) and Romaine (1983). To examine this concept now in all its ramifications would mean going beyond the limits set for this study. Let us just stress, after Aronoff (1976:36), that morphological productivity certainly should not be equated with the sheer number of derivatives. Aronoff prefers to speak about productivity in relative terms, using this criterion to compare one affix to another (see e.g. Anshen and Aronoff (1981) on the relative productivity of *-ity* and *-ness* in English).

To this we would like to add that the term 'productivity', when employed in work on morphological categorization, should be related, first and foremost, to a complete derivational category, and not just to any of its formal exponents. For instance, assuming that one intends to give some partial support for the English category of Agentive nominalizations, what needs to be determined in the first place is the ratio of verbs, in the English lexicon, which derive Agentives (by whatever means) to those verbs which do not derive Agent nouns. That is to say, it is not enough to concentrate on the productivity of this or that suffix (or even pairs of

suffixes). As is well known, *-er* is the most important, but there are also "rival" Agentive formatives like *-ant/-ent*, *-ee*, *-Ø* which contribute to the global productivity of Agentive derivation. This is what is meant here by the 'productivity of a category' vs. the 'productivity of a type' (on the 'category'/'type' distinction, see 1.5. above).

3.1.6. Change of meaning/function

A typical derivational category is characterized by a semantic change between the base and the corresponding derivative.

This property is fairly straightforward and it is often investigated in the studies on Slavic word-formation. The degree of the meaning-change effected in the course of derivation lies at the foundation of a general functional division of formatives (and, consequently, of derivational categories) into those that are "mutational", "modificational", and "transpositional" (see e.g. *Morfologia* 1984:319ff). The three basic types just mentioned are given in order of the decreasing semantic change involved and it may be argued that, other things being equal, a morphological pattern whose nature is "mutational" is a better instance of a derivational category than another pattern which is "modificational" in character. A "modificational" pattern, in turn, will serve as a better example of a derivational category than a "transpositional" one. Compare, from this point of view, the following three nominal categories, traditionally recognized in the literature: Agentives ("mutational"), Diminutives ("modificational") and Nomina Actionis ("transpositional").

A fourth type of formatives that is sometimes identified

is to be found in the so-called "tautological" derivations, like Polish *strona* 'page' - *stronica* 'id.' (see section 1.3.3. for more examples). Actually, derivatives of this latter kind fall completely beyond the scope of any categorization procedure, if only due to the fact that they are semantically vacuous and totally unproductive.

3.1.7. Syntactic uniformity

Derivational processes that are syntactically uniform in terms of their input represent more prototypical categories than other processes that are not so characterized.

The assumption that the output of any given derivational process, which realizes a particular category, must be syntactically uniform seems to be axiomatic in morphology. We follow this assumption, which is seen in the fact that, as a matter of principle, the syntactic range of each and any category that we posit is limited to derivatives which are either Nouns, or Verbs, or Adjectives only.

However, the requirement of syntactic uniformity is far more dubious if the input to a derivational process is taken into account. Aronoff's (1976) Unitary Base Hypothesis is a well-known example of an attempt to impose such a requirement also on the base of a word-formation process (strictly speaking, this is a condition on WFRs). In fact, the Hypothesis refers not only to the syntactic, but also to the semantic characteristics of the base, which makes it even more stringent: "the syntacticosemantic specification of the base, though it may be more or less complex, is always unique" (Aronoff 1976:48).

Since the time when the Unitary Base Hypothesis was put forward by Aronoff, several authors have presented evidence indicating that the constraint which is spelled out by this hypothesis seems to be too powerful. Thus, for instance, Scalise (1984:137ff) discusses a number of phenomena from English and Italian which evidently violate Aronoff's version of the Unitary Base Hypothesis. Yet, Scalise seeks to mend and defend the Hypothesis, by reformulating it along the lines of the X-bar theory. His Modified Unitary Base Hypothesis (MUBH) reads as follows: "A suffix may be attached only to bases that form a syntactic class specifiable in terms of a single syntactic category feature in X-bar theory terms" (Scalise 1984:139). This move makes it possible to view as syntactically uniform certain classes of base-forms which involve both Adjectives and Nouns ([+N]) or both Adjectives and Verbs ([+V]). And then "only suffixes which attach to both Nouns and Verbs would violate the MUBH, since these two categories do not have a syntactic category feature in common" (Scalise 1984:139). Next, Scalise explains away a few apparent counter-examples to MUBH in Italian, i.e. cases where a given rule of word-formaation seems to operate on both Nouns and Verbs.

While taking for granted the explanations of the individual cases mentioned by Scalise, one should stress, nonetheless, that the Modified Unitary Base Hypothesis still appears to constitute too strong a constraint, if it is to be taken as universally valid. After all, the literature on many languages (other than English or Italian) abounds in examples of single derivational affixes which attach quite productively to both verbal and nominal base-forms.

To give just one, recently discussed case of this sort, consider the account of Polish Locative nouns presented in Górska (1985). One of the Locative suffixes of Polish is *-arni(a)*. Its distribution can be characterized in syntactic terms as follows: "The *+arni(a)* WFR derives nouns from syntactically disjunctive bases. The majority of the *+arni(a)* derivatives come from nouns, e.g. *koszyk* 'basket' - *koszykarni(a)* 'basketry [workshop]'. Yet, there are a few instances of deverbal Locatives in this suffix, e.g. *wędzić* 'to smoke fish, meat' - *wędzarni(a)* 'smokehouse'." A remark that follows pushes this argument even further: "The formation of deverbal nouns in *+arni(a)* cannot be treated as a process of affix generalization [...]: the group of nouns in *+arni(a)* from verbal bases is continuously expanding. The process is not likely to stop since *+arni(a)* fills in a morphological "gap" created by the conditions on the application of the *+alni(a)* and *+ni(a)* locative WFRs, i.e. the *+arni(a)* rule applies to verbs in *+a*, the *+ni(a)* rule to verbs in *+ow*, while the *+arni(a)* rule "elsewhere" [...]" (Górska 1985:51).

Thus, there are good reasons to suppose that the requirement according to which the input to a derivational process must be syntactically uniform is not always tenable. This refers, in the first place, to Aronoff's (1976) Unitary Base Hypothesis but, to a limited degree, also to the Modified Unitary Base Hypothesis of Scalise (1984). The requirement turns out even less realistic if applied to a block of cofunctional affixation rules which jointly realize a particular derivational category. One might consider, as an example, the afore-cited set of four suffixes which are used as "rival" exponents of the

category 'Locative noun' in Polish, i.e. the elements represented in Górska (1985) as *+arni(a)*, *+alni(a)*, *+owni(a)*, and *+ni(a)*.[10] It cannot be denied that the syntactic domain of this derivational process taken *en bloc* (i.e. from the categorial view-point) ranges over input forms that are either Nouns or Verbs. Such a generalized interpretation of the problem is actually being advocated here, since, unlike Aronoff or Scalise, we are interested in categorially rather than affixally defined morphological processes.

Whatever the approach, the (Modified) Unitary Base Hypothesis ought to be re-examined. Conceivably, it may do more harm than good even in the analysis of the English data (on the basis of which it was originally put forward). Take, for instance, the following two classes of English derived nouns: (a) *baker, driver, painter, singer, ...* vs. (b) *potter, farmer, gardener, miller, ...* . In both cases we have the productive suffix *-er* which appears in personal nouns denoting individuals who "have some active role in a relationship" (see Leech 1981:209), i.e. these are nouns which, grossly speaking, encode the same semantic concept: Agent. Yet, if we adhere to the letter of the (Modified) Unitary Base Hypothesis, then (a) and (b) must be viewed as representing two totally distinct rules (processes). In the first place, the forms in (a) are deverbal while those in (b) are denominal and, secondly, there seems to be no "unique" semantic specification (paraphrase) for both (a) and (b). In other words, the (Modified) Unitary Base Hypothesis discourages a generalized, functional interpretation of the suffix in question. Incidentally, one may add here that Agentive derivations in languages other than English are often, and quite

openly, claimed to be both deverbal as well as denominal (see e.g. Laskowski 1971). Indeed, cross-linguistic evidence demonstrates that the separation of deverbal and denominal Agentives may be misconceived: it is frequently a matter of historical development or sheer coincidence that in one language a certain personal name is motivated by a verb, while - in another language - its equivalent is derivable from a noun; cf. English *sprint*$_V$ - *sprinter* vs. Polish *sprint*$_N$ - *sprinter*. To that extent, it is also accidental that, in English, *writer* is deverbal while *novelist* is denominal: one can sense the underlying sameness of the basic concept of a human Agent, implicit in the meaning of both nouns (a *novelist* is a kind of *writer*, after all).

Summing up this section, one should say that the property of a syntactically uniform input to a derivational process (which ultimately is to be linked with a derivational category) cannot be regarded as an absolute criterion on categorization. The property in question might be viewed as a tendency rather than as a strict principle. Luckily, the prototype theory offers a natural way of encoding this conclusion in a morphological theory: the syntactic uniformity of the base in word-formation can simply be regarded as a feature of prototypical processes/ categories only.

3.1.8. Lexical relevance

Other things being equal, a derivational category whose conceptual domain extends beyond morphology proper and encroaches upon the semantic organization within the lexicon

is more prototypical than a category that does not have this property.

There are a number of examples which illustrate this point and some of them will be presented briefly in what follows. The property in question is seen perhaps most spectacularly in the case of pairs of derivational categories, having the same syntactic specification, which are grounded in some basic, bipolar conceptual oppositions (see 2.3.2.2.1.). These oppositions can underlie, for instance, such pairs of derived-noun classes as Collectives vs. Singulatives, Diminutives vs. Augmentatives or Female names (derived from Male nouns) vs. Male names (from Female nouns).

We begin with the last mentioned case. It will be illustrated with some Polish data since in Polish, unlike English, nominal derivation based on SEX distinction is relatively productive. As is well known, a morphologically overt marking for SEX can be seen, in Polish, primarily in the case of personal nouns. In fact, one can distinguish three patterns here, from the point of view of the direction of the motivation (derivation) involved. The usual pattern covers derivations from the (unmarked) "Male" to the Female, e.g. *sąsiad* 'neighbour' - *sąsiad-k(a)*. The second pattern, much less common, comprises derivations going in the opposite direction: from the Female to the Male noun; e.g. *wdow(a)* 'widow' - *wdowi-ec* 'widower', *gwiazd(a)* 'female (film-)star' - *gwiazd-or* 'male star'. The third pattern is one where we should probably speak about (indirect) reciprocal motivation between the Male-Female counterparts. Consider, for instance, the nouns *rozwod-nik* 'divorcé' vs. *rozwód-k(a)* 'divorcée' (both nouns are directly

motivated by *rozwód* 'divorce'); likewise *narzeczon(y)* 'fiancé' vs. *narzeczon(a)* 'fiancée', where the two nouns are formally differentiated from each other by the distinct paradigms of (adjectival) declension they are subject to.

A similar patterning may be observed in the case of derivational Male-Female oppositions realized in the domain of nonpersonal nouns, like common animal names. Thus, on the one hand, one finds pairs of Female derivations of the following kind:

(53)

	[+Female]
kot 'cat'	– kotk(a)
indyk 'turkey'	– indyczk(a)
lew 'lion'	– lwic(a)
tygrys 'tiger'	– tygrysic(a)

On the other hand, one sometimes comes across derivations which take an unmotivated Female name and turn it into a morphologically marked Male counterpart. For instance:

(54)

	[+Male]
koz(a) 'she-goat'	– kozioł
gęś 'goose'	– gąsior

The third pattern mentioned above (i.e. reciprocal motivation) might be illustrated with the pair *kacz-k(a)* 'duck, female and generic' – *kacz-or* 'drake'.

What is of crucial importance here is the fact that the Male-Female distinction under discussion very often is not

encoded morphologically but rather lexically. That is to say, there may be two independent lexical items, of which one denotes the Male individual while the other its Female equivalent.

Let us now consider a few examples where the Male-Female distinction is expressed lexically. The examples are taken, again, from the field of animal names. List (a) involves pairs in which the Male (masculine) noun is more "basic" in the sense that it can also be used in the "sex-neutral", generic meaning, while list (b) gives pairs in which the generic function is attributed to the Female (feminine) form:

(55)

(a) [+Male]	[+Female]
koń 'horse'	– klacz
pies 'dog'	– suk(a)
jeleń 'deer'	– łania

(b) [+Female]	[+Male]
krow(a) 'cow'	– byk
kur(a) 'hen'	– kogut
pszczoł(a) 'bee'	– truteń

Needless to say, there are numerous animal names which do not encode the Male-Female distinction in any way, either lexically or morphologically (simply because the derivational process in question is not totally productive in Polish; cf. *struś* 'ostrich', *mysz* 'mouse', *mucha* 'fly', etc.).

As is well known, the semantic/conceptual contrast Male-Female is very important outside morphology proper, since, among other things, it is indispensable in analysing the

semantic structure of the lexicon (cf. 'kinship terms' as an example of a lexical field which involves this opposition). The contrast Male-Female is one of the so-called classemes, or semantic markers, often employed in structuralist and early transformational studies on lexical semantics (see Lyons 1977:326f for some discussion of these terms).

Now the fact that the distinction Male-Female is independently needed as a "semantic marker" within the lexicon of underived words and, moreover, that there are certain classes of words in which this distinction is encoded in part morphologically and in part lexically, provides strong support for viewing Male nouns and Female nouns as legitimate derivational categories.

Another typically derivational concept whose domain encroaches upon the dictionary of simplex nouns is the concept of AGENT. It is often pointed out that the morphologically manifested relationship in English between, say, *drive - driver*, *sing - singer*, etc. is parallel, semantically speaking, to the relationship observed within a pair like *steal* and *thief* (cf. also Polish *kraść - złodziej*). Thus *thief* appears to function as a lexical Agentive counterpart of the verb *steal* and, incidentally, it may be said to block the occurrence of the regular derived form **stealer*. If the pattern in question is viewed even more broadly, then a given simplex noun may be regarded as a semantic Agent, even though it cannot be paired with any specific verb; cf. *poet*, *king*, *pilot*, etc. There are also cases of quasi-morphological Agentive nouns: "For example, 'doctor' and 'author' are reasonably classified as agentive nouns (like 'actor', 'painter', etc.) and their stems are such

that they might be held to contain the agentive suffix *-er/-or*. But there is no verb whose stem is *doct-* or *auth-*" (Lyons 1977:524).

The examples just given demonstrate quite convincingly that the borderline between the morphological and lexical mode of expression need not be clear and well-defined. If we take such three nouns as *writer*, *author* and *poet*, there is a sense in which to regard them as functionally equivalent, i.e. as instances of (semantically defined) Agentive nouns. This is in spite of the fact that *writer* is derived, *poet* is lexical, and *author* stands somewhere in between. Obviously, in order to treat all such instances as underlyingly uniform, one needs to adopt a fairly general definition of agentivity: for example, that Agentives are "nouns denoting the person who has some active role in a relation" (Leech 1981:209).

Therefore we conclude again that the strictly lexical relevance of a concept like AGENT substantiates the recognition of its categorial status also in the realm of morphology.

Now we shall consider another representative example, one taken from verb derivation. The case in point is the concept of CAUSATION. The morphological vs. lexical significance of this concept has been analysed in, for instance, Comrie (1985:330ff) (see also Fillmore 1978:161-162, Miller and Johnson-Laird 1976:468ff for similar interpretations). Thus Comrie demonstrates that "a causative situation" may be expressed, cross-linguistically, by both morphological (synthetic) and lexical means (there is also the analytic (syntactic, periphrastic) method). A typical example of a morphological causative marker is given (the suffix *-dIr-* in Turkish). This is contrasted with

the frequently discussed lexical causative in English, namely the verb *kill*, vs. *die* or *dead*. Next, it is pointed out that "one should not be surprised to find borderline cases between synthetic and morphological or morphological and lexical" expression (Comrie 1985:331). That is to say, the concept of CAUSATION transcends the limits of any single grammatical component. The conclusion that we draw from these facts is in line with what has been suggested about the examples given earlier in this section: if CAUSATION is lexically relevant, then it is likely to be morphologically relevant as well, i.e. to constitute a derivational category.

Finally, we turn our attention to derived adjectives, in order to give just one more example of the property of lexical relevance. A concept that deserves to be mentioned here is NEGATION. In a language like English, the morphological facts alone seem to offer enough evidence for viewing NEGATION as a derivationally valid category (see the descriptive accounts in e.g. Marchand 1969, Zimmer 1964, Baldi, Broderick and Palermo 1985). However, the lexico-semantic view-point provides further justification for this claim: NEGATION is equally relevant in defining the network of functional relations in the lexicon. The concept must be used, for instance, in establishing the so-called contrary and contradictory oppositions which, quite often, are realized by pairs of simplex, unmotivated lexemes. Indeed, "[i]n many languages, including English, the most commonly used opposites tend to be morphologically unrelated (e.g. 'good':'bad', 'high':'low', 'beautiful':'ugly', 'big':'small', 'old':'young')" (Lyons 1977:275).

The facts gathered in this section seem to demonstrate

with enough forcefulness that, when establishing derivational categories, one would be well-advised to take into account the question of whether, and to what extent, the categorial distinctions to be proposed reflect the general semantic cuts that run across the whole lexicon. It must be stressed that this criterion, like perhaps all the remaining criteria discussed in this chapter, is not absolute (note that it is meant to define the prototypical derivational category).

Moreover, this particular criterion does not even seem to be applicable to certain, otherwise well-justified categories. To illustrate this problem, consider the derivational category of Similitudinal adjectives, based on the cognitive concept of SIMILARITY (cf., for instance, English *chalky, foamy, clownish, snobbish, catlike, sugarlike*; or Polish *gipsowat(y)* 'plaster-like', *iksowat(y)* 'x-shaped', *pudełkowat(y)* 'boxlike', etc.). Now this concept is clearly related to the human cognitive ability to compare things. Since the structure of a comparison event must involve at least two things (the Standard and the Target), it follows that a Similitudinal adjective, which encodes some physical or metaphorical similarity between these two things, must be derived and denominal. Which, in turn, means that, in principle, there can be no "Similitudinal" adjectives which are primitive, lexical.[11] Or, in brief, the conclusion is that the condition of lexical relevance does not apply to the category of Similitudinal adjectives, in the way it applies to many other derivational categories.

3.1.9. Morphological relevance

This section brings under a single heading a variety of properties which are peculiar to the strictly morphological structuring of a given language. In other words, we are looking now for those traits of the morphological system itself which may influence our judgement as to the categorial status of some functional class of derived forms. All such properties may be divided into those that are category-internal and those ones that are category-external, i.e. system-internal. Both kinds of properties will be discussed and illustrated in the remainder of this section.

3.1.9.1. Category-internal properties

Among the category-specific properties that need to be examined because they play a vital role in categorization judgements are the following: productivity, the number of exemplars, and the number of exponents.

The effect of productivity on category status was discussed separately in section 3.1.5. where it was argued that, if we disregard other parameters, the degree of prototypicality of a derivational category tends to correlate with the degree of its productivity. Intuitively, the more productive a process is, the more likely it is that its output will constitute a valid derivational category. It was also observed that the estimation of productivity, no matter how the latter notion is actually defined, ties up with the relatively simple task of specifying the number of category-exemplars. Many past works on morphology

are criticized now for not drawing a sharp line between the two concepts (i.e. productivity and the number of exemplars).[12]

We also think that these two aspects should not be confused. However, we believe as well that the number of exemplars, taken alone, is quite a significant parameter in assessing the morphological relevance of a proposed derivational category. This standpoint is a consequence of the fact that we have adopted here a categorial approach to word-formation: if a derivational category is, basically, a class of exemplars, just as any other non-linguistic category (e.g. a taxonomic one), then providing numerical information as to its size or membership seems to constitute an important part of its overall characteristics. In other words, 'the number of exemplars' is a concept from categorization theory, while 'productivity' is a concept from word-formation theory, and both these concepts may come in useful in defining the status of a derivational category.

It would be hard and hazardous to propose any exact number of exemplars as the lowest bound on derivational category status. But, quite clearly, a putative category whose membership is in the range of ten or fifteen items would be extremely suspect, precisely by virtue of the small number of exemplars. In a case like that, the issue of productivity need not even be addressed. Typically, productivity enters the scene when the number of exemplars which represent a particular category goes into tens or hundreds. It may be added here that a functional class of derived forms which consists of just a few items will be rejected from the inventory of legitimate derivational categories anyway, because it is almost sure not to meet a

number of other criteria for morphological categorialness. Thus, for example, it is hardly conceivable to have a category instantiated by just ten or fifteen derivatives, a category which, at the same time, would be cognitively rooted and conceptually general (see 3.1.1. and 3.1.3., respectively).

Now we shall turn to another category-internal factor which may come useful in deciding whether a particulaar class of derived forms merits the status of a derivational category. The factor in question is the manner and degree of exponence, i.e. the nature and number of morphological markers (formatives) which realize a given category.

If we narrow down the scope of the remarks below to the typological language-class with which we are most familiar, i.e. (in)flectional languages like Polish[13], then the following appears to be true: other things being equal, a derivational category which is marked by a few "rival" exponents is more prototypical than another category that has only a single exponent. Indeed, it seems that next to none of the central categories of Polish word-formation are associated with only one formative. Naturally, we are speaking here in terms of phonologically interpreted formatives, because the degree of phonetically observed variation in category expression is even greater, due to allomorphy.

Thus, if Polish adjectivization is considered from this point of view, it will turn out that, for instance, the category of Possessional adjectives is more prototypical than the traditionally recognized category of Attenuative adjectives (so-called "adjectival diminutives", see Grzegorczykowa 1979:70). This is because there are at least three productive

cofunctional suffixes which spell out the Possessional function. The suffixes are listed and illustrated below:

(56)

	-'ast(y)
kant 'edge'	kanciaste pudełko 'square-edged box'
żyła 'string'	żylaste mięso 'stringy meat'
	-at(y)
broda 'beard'	brodaty facet 'bearded fellow'
sęk 'knot'	sękaty kij 'knotty stick'
	-ist(y)
sok 'juice'	soczyste jabłko 'juicy apple'
muł 'slime'	muliste dno 'slimy bottom'

In contrast to the above situation, Attenuative adjectives are marked, in principle, by just one suffix, *-aw(y)*. For instance, *biał(y)* 'white' - *biaław(y)* 'whitish', *czerwon(y)* 'red' - *czerwonaw(y)* 'reddish', *grub(y)* 'fat' - *grubaw(y)* 'fattish', *łys(y)* 'bald' - *łysaw(y)* 'baldish', etc. (the pattern is quite productive). Consequently, Attenuative adjectives qualify as a poorly justified category, if the exponence criterion is taken into account.

On the whole, the criterion just outlined should not be taken as an absolute one.[14] Besides, as we already noted, its applicability seems to be typologically restricted.

To use exponence as a criterion in decisions about category status is not a novel idea. In fact, the property in question has been employed in several studies of Polish morphology, with the aim of providing a fairly strict, formal test for derivational categorialness. Namely, according to some

more radical structuralist proposals, an independent derivational category can be recognized only if it is marked by at least one exponent which "specializes" in rendering the particular categorial function (see e.g. Heinz 1965; Kleszczowa 1981 presents a critical appraisal of this position). That is to say, it needs to be a formative which does not appear outside the category examined. For example, the suffixes *-c(a)* and *-ciel* are used exclusively in the derivation of (personal) Agentive nouns in Polish (e.g. *władc(a)* 'ruler', *myśliciel* 'thinker') and, to that extent, the category of Agentive nominalizations is said to be well-justified.

Regrettably, there are serious problems with this view of the correlation between exponence and category-status, even as far as Polish is concerned. For one thing, most of the allegedly "specialized" formatives are no longer productive in the language. This is true, for instance, about the morphemes *-c(a)* and *-ciel* mentioned above. That is, they "specialize" in the function in question in a rather peculiar sense of the term - normally one would assume that the suffix which really "specializes" in deriving Polish Agentives is *-acz*, just because it is perhaps the most productive marker of this category (e.g. *gracz* 'player', *słuchacz* 'listener', *biegacz* 'runner', etc.). But then *-acz* is also found in derivations representing other traditional categories, e.g. Instruments (*odkurzacz* 'vacuum-cleaner'), or Nomina Attributiva (*brodacz* 'bearded man'). That is to say, the suffix cannot be said to "specialize" in the relevant sense of the term.

Secondly, for many otherwise noncontroversial categories it does not seem possible to point to their "specialized"

exponents. Recall, for instance, the typical Possessional adjective markers *-'ast(y)*, *-at(y)*, and *-ist(y)*, as illustrated in (56) above. However, these same formatives very often convey another conventionally identified function, i.e. that of Similarity (see Szymanek 1987). A few examples of such Similitudinal adjectives are given below:

(57)

	-'ast(y)
kartofel 'potato'	kartoflasty nos 'bulbous nose'
gąbka 'sponge'	gąbczasty mech 'spongy moss'
	-at(y)
mech 'moss'	mechaty dywan 'mossy carpet'
popiół 'ash'	popielaty proszek 'ashen powder'
	-ist(y)
jedwab 'silk'	jedwabiste rzęsy 'silky eye-lashes'
puch 'fluff'	puszysty śnieg 'fluffy (flaky) snow'

Admittedly, the Similitudinal function is more regularly conveyed in Polish by a distinct suffix, viz. *-owat(y)* (see 3.1.8.) but, again, this element is also found, at times, in derivations which are plainly Possessional; cf. *pieg* 'freckle' - *piegowat(y)* 'freckled', *por* 'pore' - *porowat(y)* 'porous', etc. That is to say, the claim about each category having a distinct, "specialized" exponent is contradicted by the notorious multifunctionality of most Polish derivational morphemes (see 1.4.1.).

Finally, one more difficulty faced by the "specialized exponent" requirement on categorization follows from the fact that most traditional accounts of Polish word-formation operate

with formatives represented in very superficial terms, phonologically speaking. For example, Diminutive formation is said to be carried out in Polish by means of four distinct suffixes: *-ik*, *-ek*, *-k(a)*, *-k(o)* (see e.g. Grzegorczykowa 1979:53). Given a modern, more abstract phonological approach, however, the three last-cited elements would be viewed as a single suffix, underlyingly, namely /+ɨk+/ (see e.g. Gussmann 1980a,b). Quite clearly, the decreased inventory of phonologically interpreted affixes renders the task of identifying a specific exponent for each category much less feasible than it might seem otherwise: it may well turn out that there are not enough formatives to go round. It will be recalled, for instance, that the "diminutive" element just mentioned (/+ɨk+/) is also used in a number of other categorial functions (see section 1.4.1. for details). In other words, phonologically "generalized" affixes automatically become more general also in terms of their function, i.e. they must become less "specialized".

We conclude then that the "affix-specialization" theory provides too powerful a constraint on categorization, at least when it is applied to the Polish data (one cannot rule out, though, the possibility that this constraint may be applicable to some more neatly organized derivational systems). Therefore, we return now to the more moderate, and empirically valid, statement of the correlation between exponence and category status, as formulated for Polish earlier in this section. We repeat: a category realized by a few cofunctional exponents is more prototypical than a category represented by just one formative.

Going a step further, it may be argued that a functional class of derived forms which is characterized by only one (or, at least one) overt exponent of the particular function counts as a better example of a derivational category than another class, associated with zero-exponence only (i.e. a class of lexemes derived by "conversion").

The kind of problems that emerge when one attempts to impose categorial status on lexical classes of the latter type are well obvious, for instance, in the study of English noun-to-verb conversion by Clark and Clark (1979). The authors distinguish eight principal "categories of denominal verbs" for English. The categories are as follows: Locatum verbs e.g. *blanket - to blanket*), Location verbs (*kennel - to kennel*), Duration verbs (*summer - to summer*), Agent verbs (*butcher - to butcher*), Experiencer verbs (*witness - to witness*), Goal verbs (*fool - to fool*), Source verbs (*piece - to piece (together)*), and Instrument verbs (*handcuff - to handcuff*).

The categories identified by Clark and Clark achieve a remarkable degree of conceptual generality: most of them are labelled with "the names for the case roles given by Fillmore 1968, 1971". Moreover, "[f]or each main category there is a general paraphrase that roughly fits most of its members" (Clark and Clark 1979:769). Besides, each of these categories represents a more or less productive pattern of English "verbalization". And yet the categorization schema that emerges from this study seems, somehow, unrealistic and exaggerated, from the purely morphological view-point. Indeed, it may be argued that the categories proposed do not meet the condition of morphological relevance. The main stumbling-block here is the

lack of any kind of non-zero, typically derivational exponence.

Additionally, it should be pointed out that Clark and Clark set up as well a separate class of "Miscellaneous verbs", i.e. verbs which do not fit any of the eight "main categories". The framework is further complicated by dividing the "main categories" into semantically delineated sub-classes. As has just been stressed, the "basic-level", categorial division is not complete and exhaustive (viz. the "Miscellaneous verbs"). But this is also true of the subdivisions. For instance, "Miscellaneous verbs" are further divided into 'Meals', 'Crops', 'Parts', 'Elements', and 'Other', i.e. there is a group of miscellaneous verbs within the main class (category ?) of "Miscellaneous verbs".

Clark and Clark are fully aware of the shortcomings of their categorization framework. They admit that "[t]hese categories don't really do justice to denominal verbs. Many examples don't fit neatly into these categories, and others have the characteristics of more than one category at a time (Clark and Clark 1979:780-81). It is true that the body of data selected for this analysis is extremely recalcitrant, category-wise, and it does not prompt any easy solution. One must conclude, nevertheless, that the categories put forward by Clark and Clark are very far removed from the derivational category prototype, as it emerges now from the preceding sections of this chapter. Indeed, one may well wonder if these categories are even derivational. Are they not, rather, purely semantic classes, a product of very fine distinctions which, however, are very remotely (if at all) relevant to the workings of the morphological system ?

The case just discussed may be contrasted with another class of zero-derived words in English, i.e. deverbal nouns like *to cook - (a) cook*, *to coach - (a) coach*, *to guide - (a) guide*, etc. From the formal point of view, deverbal nouns of the type $cook_V$ - $cook_N$ are analogical to the denominal verbs like $butcher_N$ - $butcher_V$ (except for the reverse direction of motivation). From the derivational-categorial view-point, however, the status of both classes is quite different. It will be noticed that the deverbal nouns *cook∅*, *coach∅*, etc. pattern themselves together with such overtly marked nominalizations as *bake - baker*, *act - actor*, *inform - informant*, *attend - attendee*. That is to say, English has a morphologically relevant derivational category of Agentive nominalizations. This category is realized by a few "rival" suffixes, which differ in productivity and "specialization", i.e. *-er/-or*, *-ant/-ent*, and *-ee*. In a small number of cases, English verbs happen to derive their Agentive counterparts by conversion. Now the fact that we are dealing here with several cofunctional exponents provides, in itself, strong support for viewing the category of Agentives as morphologically valid in English. But the same fact also substantiates the recognition of a special type within this category, i.e. zero-derived nouns.

One need not add, perhaps, that the categories of noun-to-verb derivation postulated in Clark and Clark (1979) come nowhere near revealing this sort of interplay between overt affixal and zero exponence. In this sense, the latter categories are not morphologically relevant.

3.1.3.2. Category-external properties

In this section we intend to focus on those properties that relate one derivational category to another, and are category-external in this sense. However, the properties to be discussed below are quite significant, in that they may be used in arguing for or against a particular derivational category; also, they reveal certain facts about the organization of the morphological system peculiar to a given language.

Some characteristic relationships that may hold among the different derivational categories of a language have already been signalled in section 2.3.2.2. Thus it was pointed out that, for instance, a given cognitive concept can motivate two (or more) distinct derivational categories, due to the multiplying effect of syntactic categorization (see 2.3.2.2.3.). And so, *a priori*, one can have in a language, for example, Instrumental nouns as well as Instrumental verbs or Privative verbs as well as Privative adjectives. It is hard to tell whether this one-to-many syntactic/derivational realization of cognitive content is prototypical or not, but it certainly has some practical significance from the point of view of the categorization procedure. To generalize, if, in the course of a morphological analysis, one arrives at a legitimate derivational category A, based on the cognitive concept C, and the available evidence seems to suggest the positing of another (syntactically distinct) category B, anchored in the same cognitive concept C, then B may be taken as a likely candidate for category status. In this manner, the "existence" (i.e. prior recognition) of the category of Privative verbs lends potential support to the

recognition of Privative adjectives (or the other way around, depending on which of the two is first established as valid on independent grounds).

In a more remote manner, a functional class of derivatives that is complex conceptually appears to be a good instance of a derivational category, for the language in question, if it can be related to two, or more, notionally simpler categories which actually exist in this language. Thus, for instance, English Privative adjectives appear to be well-justified, as a category, primarily because there exist in the language the independently established categorial classes of Possessional and Negative adjectives. In other words, it is good if a complex derivational concept like 'Privativity' is accountable for in cognitive terms (POSSESSION + NEGATION), but it is even better if each of the two elementary concepts is actually realized derivationally in the system under investigation. Intuitively, it may well turn out to be true that, for a given language, there is no de- rivational expression of a complex concept C, if the language does not also express derivationally its component concepts A and B. In other words, it seems unlikely for a language to have a derivational category of Privative adjectives, if it does not make use, as well, of the categories of Possessional and Negative adjectives.

If the above assumptions are correct, it follows that a number of specific categorization decisions can be substantiated, partly at least, as a result of thoroughly investigating the inter-categorial relationships within the derivational system of a language. But one derivational category may also motivate another derivational category in a completely different

way. In order to see how this is possible, we now need to take a general look at the problem of factors conditioning the operation of word-formation processes. As is well known, there are many different types of conditions and constraints on word-formation. For example, there are conditions whose nature is phonological, morphological, syntactic, semantic, or even pragmatic (the literature on WF conditions is quite extensive; see, e.g., Aronoff 1976, Bauer 1983, Booij 1977, Dressler 1977, Scalise 1984, Schultink 1975, Siegel 1979, Szymanek 1980, 1985).

Now, the categorial view of word-formation leads to the recognition of yet another type of conditioning: conditions which are statable in terms of derivational categories themselves or, in brief, categorial conditions. The most economic method of constraining the operation of some derivational processes is to cite one category as a condition on another category/process. For example, the following statement seems to hold true for Polish: prototypical Nomina Essendi cannot be derived from prototypical[15] Relational (transpositional) adjectives. Consider the following forms:

(58)

Noun	*Rel. Adj.*	*Nom. Ess.*
		'(quality of) being A'
poczta 'post(office)'	pocztowy[16]	*pocztowość
kolej 'railway'	kolejowy	*kolejowość
noc 'night'	nocny	*nocność
woda 'water'	wodny	*wodność
burak 'beet'	buraczany	*buraczaność

The limitation evidenced above is remarkable, *vis-à-vis*

the high productivity of de-adjectival abstract-noun derivation in Polish. Normally, the process affects not only the simplex, underived adjectives, but also many denominal, "qualitative" forms (cf., respectively, *ostry* 'sharp' - *ostrość*, *nagi* 'naked' - *nagość*; *głos* 'voice' - *głośny* 'loud' - *głośność*, *wiara* 'faith' - *wierny* 'faithful' - *wierność*).

The constraint comes into operation also in those infrequent cases when a particular denominal adjective is ambiguous, being Relational in one of its senses only; cf. *religijny problem* 'problem of religion' - **religijność problemu* vs. *religijny człowiek* 'religious man' - *jego religijność* 'his religiousness' (for more details on the formal and semantic aspects of denominal adjective derivation in Polish, see Szymanek 1985 and Post 1986, respectively).

What the above examples clearly demonstrate is that a certain derivational category may be sanctioned because it needs to be referred to in the grammar as a condition on another category. Here, one might advance a counter-argument saying that the constraint under discussion, which affects Polish Nomina Essendi derivation, could be encoded in an alternative way: one could refer to the prohibited Relational-adjective input by simply listing the relevant "relational" suffixes: *-ow(y)*, *-n(y)*, *-'an(y)*, plus a few others. This would mean reducing the limitation to a morphological condition. A solution like that, however, seems inferior to the categorial constraint. First of all, the category-based constraint is much simpler: it involves just one categorial label [Relational Adjective], instead of a list of several morphologically specified input classes. But, more importantly, the categorially expressed constraint is also

more accurate, since the "relational" function is not so much a property of the individual suffixes in question, but rather a property of particular derivations (virtually all the "relational" suffixes are, in fact, multifunctional; cf. the contrast between *głos* 'voice' - *głosowy* 'of voice, vocal' vs. *głośny* 'loud', *cena* 'price' - *cenowy* 'of price(s)' vs. *cenny* 'valuable', etc.).

What makes the situation even more complex is the fact that the relationship between the two classes under discussion (i.e. Nomina Essendi and Relational adjectives) happens to be reciprocal, and the generalization affecting both categories can be expressed in two ways. It may be claimed, for Polish, that (1) prototypical Nomina Essendi cannot be derived from prototypical Relational adjectives (as shown above), or that (2) Relational adjectives, as a rule, cannot be derived from Nomina Essendi.[17] Consider now a few examples which illustrate the latter case:

(59)

Adj.	*Nom. Ess.*	*Rel. Adj.*
krótki 'short'	krótkość	*krótkościowy
stary 'old'	starość	*starościowy
podły 'mean'	podłość	*podłościowy
religijny 'religious'	religijność	*religijnościowy

We conclude from the above evidence that the categorial status of Nomina Essendi in Polish is strengthened and sanctioned derivationally, through the formation of Relational adjectives, since the former category must be referred to as a condition on the latter.

To sum up, we have seen how the intricate relationships among the units of a categorial system of word-formation may be employed in providing at least a partial justification for the proper choice of morphologically relevant categories. Generally speaking, the greater the strictly morphological relevance of a word-class, the greater its categorial legitimacy.

CONCLUSION

A well-balanced approach to morphology gives equal prominence to both form and function. Units of form, which are typically affixes, are taken as the point of departure in most contemporary morphological investigations. Occasionally, these units are also the sole object of analysis (as when scholars focus upon their phonological or distributional characteristics). But there are also studies of a different kind, which, by analysing formal units, seek to give a systematic account of the functional underpinning of various morphological systems. The latter type of approach appears to be superior, although it faces formidable problems, given the elusive nature of the relationship between morphological forms and functions. As is well-known, this relationship is rarely isomorphic: what one usually finds are different types of deviations from the ideal one-to-one correlation between meaning and form.

In word-formation, the functional units are traditionally referred to as derivational categories. Research in derivational categories has not developed much in recent years. The term itself, in fact, is seldom used in contemporary Western writings on morphology. In particular, it is hard to come across specific proposals which would elucidate the nature of derivational categories, their mutual relationships, and their provenance. The present study is meant as a contribution to this relatively neglected domain.

Thus, we argued at the outset that derivational categories can be conceived of in a simple yet concrete manner as functional classes of derived words. The internal organization of such classes seems to be best described in terms of the prototype theory of categorization: some exemplars (i.e. derivatives) are better instances of a category than others. Also, some exemplars may even belong to two categories at the same time, which indicates that the boundaries between derivational categories need not be well-defined, either formally or functionally.

What emerges as the central problem of this study is the question of the conceptual origin of derivational categories (Chapter II), and the related issue of deciding what properties define a legitimate derivational category for a particular language (Chapter III). Questions like these are of great importance, given the proliferation of categorial distinctions found in the morphological literature and the apparent lack of principled criteria which could be employed in categorization procedures. And so we claimed that the prime requirement on derivational categorialness is cognitive grounding (hence the Cognitive Grounding Condition). That is to say, a legitimate derivational category should be rooted in, and derivable from some fundamental concept(s) of cognition like OBJECT, SUBSTANCE, PERSON, NUMBER, POSSESSION, NEGATION, SIMILARITY, etc. A limited set of such cognitive concepts/categories was established on the basis of the relevant linguistic and psychological literature. Next, we demonstrated how these concepts are to be used in constructing a potentially rich and elaborate categorial morphological framework. In order to demonstrate this, it was

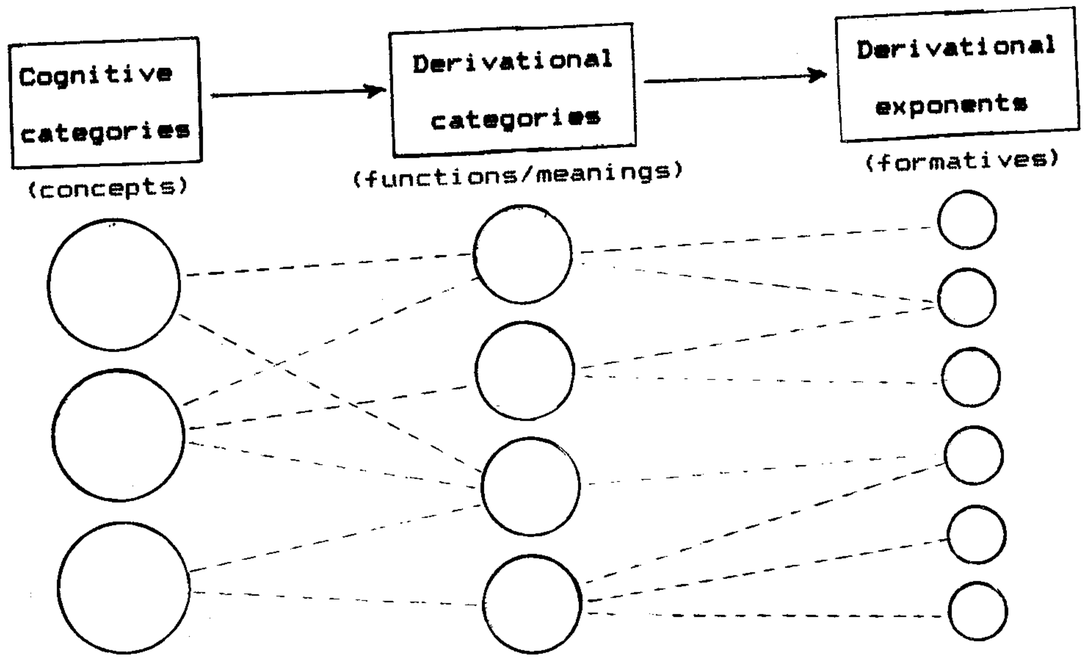
necessary to investigate the nature of the links that hold between the cognitive level and the morphological level. And so, it was found that a direct one-to-one correlation between the categories of cognition and those of derivation obtains in some cases only. For example, the derivational category of Similitudinal adjectives corresponds to (is grounded in) the concept of SIMILARITY (cf. English *chalk - chalky*, Polish *klej* 'glue' - *kleisty* 'gluey').

Typically, however, the correlation between the fundamental concepts of cognition and the categories of derivation is more complex and is not isomorphic. Thus, it was shown that, on the one hand, a single cognitive category may motivate two derivational categories. This may happen, for example, in the following circumstances: (1) when a given cognitive category implies a bipolar conceptual opposition, as in the case of NUMBER (Singular <--> Plural). Then each of the two poles may become a target for morphological expression; i.e. NUMBER > Singulative nouns and Collective nouns (cf., respectively, Polish *robak* 'worm' - *robactwo* 'worms', *trawa* 'grass' - *trawka* 'a blade of grass'); (2) when a cognitive category involves a "relational" concept, implying two reversible arguments, as in the case of POSSESSION ('X possesses Y' or 'Y belongs to X'). Hence we have two derivational categories, Possessive adjectives and Possessional adjectives (cf. Polish *posażna (panna)* 'dowered maiden' vs. *panieński (posag)* 'maiden's dowry'; and (3) when there is a multiplying effect of syntactic categorization ("part-of-speech" assignment), in the sense that a single concept underlies two syntactically distinct morphological categories. Thus, for instance, the cognitive category

INSTRUMENT reveals itself in both Instrumental nouns and Instrumental verbs (cf., respectively, English *open - opener* and *hammer - (to) hammerØ*).

On the other hand, a single derivational category which is notionally complex may be motivated by two (or more) cognitive categories. For instance, the morphological category of Privative adjectives appears to be accountable for in terms of a combination of two concepts: POSSESSION + NEGATION (cf. English *seed - seedless*). The related derivational category of Privative verbs would then require three concepts: CAUSATION + NEGATION + POSSESSION (cf. English *flea - deflea*), while the category of Ablative verbs would appear to rest on a combination of four concepts: CAUSATION + MOVEMENT + PLACE + PATH (cf. English *saddle - unsaddle*).

In short, the relationship between cognitive concepts and derivational categories is often not one-to-one, just as in the case of the better studied links between morphological functions and forms. The three relevant levels of representation, and the connections between them, are shown schematically in the following diagram (this is a generalized extension of figure (24) in section 1.4.1.; the arrows symbolize the "top-down" approach):



Cognitive grounding is just one of a larger set of properties which characterize derivationally valid categories. The set includes properties like morphological and lexical relevance, syntactic and semantic uniformity, productivity, etc. However, in order for a functional word-class to be recognized as a legitimate category of a given word-formation system, it need not possess all these properties. Taken in their totality, the attributes in question define **the derivational category prototype.** Accordingly, one can speak about a category of derivational categories. In this sense, the prototype theory applies not only to individual categories of word-formation but also to the morphological system as a whole.

The present approach to categorization in derivational morphology seems to have several advantages, compared to previous frameworks. Firstly, it establishes an explicit

relationship between morphological categories on the one hand, and cognitive concepts on the other. To put it differently, it allows us to account for the conceptual origin of derivational categories in a direct manner. Secondly, this approach provides a principled and relatively well-constrained basis for distinguishing the major categorial divisions in morphology, independent of any particular language. In the light of the Cognitive Grounding Condition, it is assumed that a fixed inventory of the fundamental concepts of cognition can be positively identified. Thirdly, it is now more feasible to distinguish between those derivational categories that are legitimate and those ones that are spurious and ill-justified for the particular language under investigation. This is possible because of the notion of the derivational category prototype. Fourthly, we are now in a position to grasp the conceptual relatedness of certain derivational categories within a language (for instance, Privative verbs and Privative adjectives are mutually related because these two categories share the concepts POSSESSION + NEGATION). Finally, the framework developed here offers a natural basis for contrastive research, since the derivational categories of two languages can be compared in relation to language-independent cognitive concepts (see Appendix).

These are some of the conceivable advantages that would follow from adopting a cognitive approach to categorization in morphology. We hope that we have presented some compelling evidence in favour of the claims just summarized. But we are also aware of the fact that what we have accomplished here is more of an outline than a fully articulated theory. The present

account is incomplete in several ways and for a number of reasons. First of all, it is incomplete in terms of the data covered. A full analysis of the whole spectrum of English and Polish derivation probably lies beyond the limits of a single study. Therefore we have focused on what we consider a representative selection of the derivational processes operative in both languages. Secondly, the inter-disciplinary nature of the present approach may have resulted, at times, in an oversimplification of the argument, especially in those parts where we discuss the cognitive side of our morphological problem. Obviously, research is developing vigorously in these areas and it is not always possible to reconcile the results coming from different quarters. Hence important issues continue to be debated, for example, the exact number and identity of the basic cognitive concepts. Further research is likely to expand the set of concepts that we have adopted. If this can be legitimately done, then the number of logically possible combinations of concepts will increase and so the descriptive adequacy of this categorization framework should be strengthened. Notice, however, that not all logically possible combinations of concepts are actually admissible. Apart from such clear incompatibilities as, for instance, the combination AGENT + INSTRUMENT (given a derivative with a *single* meaning and assuming two independent categories of Agentive and Instrumental nouns), there are probably other unacceptable configurations which are subject to some more or less general constraints. This, again, is a matter that must await further investigation.

We also have to acknowledge the failure of our framework, in its present form, to account for certain traditional

categories of Polish and English morphology. For instance, it is hard to see what concept(s) should be selected in order to encode the function inherent in Attenuative adjectivizations like English *fattish* or Polish *łysawy* 'baldish'. In other cases the set of concepts adopted seems insufficient for different reasons. For instance, the categories of Possessional and Possessive adjectives are both linked with the single concept POSSESSION. Now, while this association is fairly obvious and in line with our Cognitive Grounding Condition, it does not reveal the functional difference between the two categories. Ideally, each category of a given derivational system should be interpreted in terms of the cognitive concepts in such a way that it is distinct from the remaining categories (cf. the distinctive-feature theory in phonology), unless we assume that the distinguishing factor is supplied by the grammar.

Some of the shortcomings of this study may also be due to the unsatisfactory state of morphological theory in general. Within morphology itself, a number of notions which are of crucial importance for the present framework are, like the concept of a derivational category, still rather vague and imprecise. Examples of such notions are productivity, motivation, lexicalization, and paraphrase. We hope that this contribution will lead to a better understanding of one of these concepts.

NOTES

[1] The phenomenon of purely category-changing operations may be considered more broadly, so as to encompass certain syntactic as well as morphological devices; cf. English *be* + N,A, used for predication (which is a typical function of the Verb). It may be claimed that "like the major syntactic categories N, A, V themselves, there is at least some purely category-changing morphosyntax in almost all (if not all) natural languages" (Croft 1984:57).

[2] According to some accounts of Polish morphology, adjective-to-verb transposition obtains in "stative" derivations like *chory* 'ill' - *chorować* 'be ill' (see, for instance, *Morfologia* 1984:494).

[3] The suffix is given phonologically as /+ɨni+/ because, in forms like *monarchini*, its attachment does not trigger the 1st Velar Palatalization (cf. **monarszyni*). Hence a back vowel is posited suffix-initially. In some other forms, however, where major palatalizations do apply, the quality of the vowel in question would have to be adjusted: ɨ --> i (cf. *zdrajca* 'traitor' - *zdrajczyni*).

[4] In some cases, the suffix *-ic(a)/-yc(a)* may be exclusively associated with either function, e.g. *car* 'czar' - *caryca* 'Fem.' (only) vs. *panna* 'maid' - *pannica* '(mildly) Pejor.' (only).

[5] Cf., for instance, Zwanenburg (1980, 1984) who introduces the term "derivation type" in a sense roughly equivalent to that of our "derivational category": A derivation type is defined as "a set of derivation processes which are characterized by the use of bases of a given lexical category and of a set of suffixes of a given lexical category and which have the same global meaning" (Zwanenburg 1984:138).

[6] The actual meaning of many such Possessional adjectives involves the additional trait of abundance (cf. *kamienisty* 'stoney') or excess (e.g. *brzuchaty* 'big-bellied').

[7] In appropriate contexts, typically Augmentative formations can even be used in the Diminutive/Expressive function; cf. *kochane kocisko* 'dear/lovely cat'.

[8] A similar conclusion is drawn, for instance, in Laskowski (1971), as a result of analysing the relevant data of the Lach dialect (a Polish/Czech dialect characterized by a highly developed "expressive" morphology): "In spite of a number of properties, by which expressive nouns are distinguished from other motivated nouns, one cannot speak here [...] about a

distinct word-formation category, because formations of this kind represent very diversified types of formal and semantic structure" (Laskowski 1971:11, translation mine - B.S.).

[9] One dimension along which this framework probably needs to be extended is the domain of modal content (volition, intention, probability, potentiality, etc.), since there exist productive derivational processes whose function cannot be fully defined without reference to modal meaning. Consider, as an example, English objective/potential adjectives in *-able* (*breakable*, *observable*, *thinkable*, etc.), paraphrasable as 'that *can* be V-ed'. See Miller (1978:115) who analyses the semantics of the *X-able* adjectives in terms of the primitive concept POSSIBLE. See also Johnson-Laird (1983:413 f) on the cognitive status of such concepts as Possibility, Permissibility, Intention, etc).

[10] In fact, since the four putative suffixes exhibit a common morphemic element *+ni(a)*, three of them could be viewed as allomorphic extensions of this principal suffix. Given this interpretation, the case against the (Modified) Unitary Base Hypothesis can be made even stronger.

[11] Except for cases involving "lexical suppletion", i.e. N - A pairs like *egg - oval*, *cat - feline*, etc.

[12] Cf., for instance, the relevant discussion and criticism in Anderson (1985a:16 ff), and the following paragraph in particular, which brings to light the essence of the problem:
"Perhaps the simplest sense of productivity refers to the absolute number of forms included in the scope of a given word formation process. By this standard, a process instantiated in, say, ten forms is always more productive than one instantiated in five, regardless of other factors. Few authors would seriously defend the linguistic significance of such a purely numerical criterion; but nevertheless, the evidence offered for characterizing particular processes as 'unproductive' often consists simply of showing that they describe very few forms in the language. On this basis, if the lexicon of a language happened to contain more nouns than verbs, it would follow that nominal inflection was more 'productive' than verbal inflection. This is clearly not the desired conclusion, at least in the general case" (Anderson 1985a:16).

[13] This provision is necessary because the property in question does not seem to hold, for instance, for typical agglutinative languages.

[14] A category that may seem exceptional in the sense under discussion is the category of Negative adjectives. In Polish (unlike English), Negative adjectives are formed productively by means of just one affix, viz. *nie-*, in spite of the fact that this is, no doubt, one of the most basic categories of derivation. Notice, however, that Polish also makes use, sporadically, of the ubiquitous Latinate negative elements; cf. *moraln(y)* 'moral' - *amoralny* 'amoral', *racjonalny* 'rational' - *irracjonalny* 'irrational', etc.

[15] By "prototypical" members of a category we mean here, in particular, items that are non-lexicalized and compositional, i.e. whose meaning corresponds very closely, if not exactly, to the categorial paraphrase.

[16] If we take into account English phrases like *postal code*, *parental decision*, etc., it will turn out that the Latinate Relational adjectives of English also, as a rule, fail to derive the corresponding abstract nouns; cf. **postality of a code*, **parentality of a decision*.

[17] Dictionaries of Polish list several apparent counter-examples to this claim, i.e. adjectives of the form *X-ość-ow(y)*, but perhaps in all cases they are derived from lexicalized nouns in *-ość*; cf. *ilościowy* 'quantitative', *osobowościowy* 'of personality', etc.

APPENDIX

The list presented below brings together some main categories of derivational morphology, most of which have been discussed at various points in the present study. Once again, we intend to show the correlations that can be established between the categories of morphology and the fundamental concepts of cognition. Each derivational category on the list is coupled with some suitable cognitive concept(s). It must be added, however, that the cognitive grounding thus achieved is tentative and approximate in a few cases; further research is still required to put the links between the two levels on a permanent footing.

The list aims as well at illustrating a tacit assumption of the present study. Namely, it is believed that the cognitive grounding of the derivational categories peculiar to a language offers a natural vantage-point for contrastive research, i.e. for comparing the morphological systems of two (or more) languages. The cognitive concepts to which derivational functions are related and, ultimately, reduced, provide the necessary *tertium comparationis* for investigating the similarities and differences between the morphologies of the languages which are being compared. As we have argued in section 1.2., language-internal comparison and the classification of affixes, etc. is "hardly conducive to deeper insights" (Malkiel 1978:141), if approached from a formal, rather than a functional angle. But the need for a functional or overtly cognitive approach becomes

even more evident in cross-linguistic studies of word-formation: "Since formal comparisons of individual lexical items across languages do not seem to yield themselves to any significant generalizations, a CS [contrastive study] of word formation is better off if it is based on some conceptual framework. Such an analysis could involve a comparison of various means employed in the derivation of *nomina actionis*, *nomina agentis*, *nomina loci*, of adjectives of intensity, inclination, possibility, ability, or of verbs of process, causation, instrument, and so on [...]" (Krzeszowski 1987:88).

In our case, the languages we have investigated have been English and Polish. Obviously, their systems of word-formation are characterized by remarkable differences. For instance, consider the great significance of compounding in English, on the one hand, or the key role of aspect-related prefixal verb morphology in Polish, on the other. Phenomena exemplifying unilateral overbalances of this sort are hardly amenable to comparison and hence find virtually no reflection in the sketch that follows (another point is that in order to be able to grasp all the semantic nuances involved in, for instance, Polish verb prefixation, one would probably have to expand the set of cognitive concepts employed here; see *Morfologia* (1984:467 ff) for a detailed functional classification of derived verbs in Polish).

For this reason, and also for reasons of space, we have focused on several major categories, realized in both languages by affixation (partly also by conversion). Even within such limits, the differences between the English and Polish word-formation systems are, evidently, considerable. Individual categories may differ in the two languages in terms of such features as productivity, compositionality, number of exemplars, etc. (see Chapter III). For instance, the category of Diminutives plays an important role in Polish noun derivation while, by comparison, the status of this category in modern English is quite marginal. Regrettably, it will not be possible to mark such differences in the folowing outline, where each category is only illustrated with examples showing its main, characteristic exponents. In one or two cases, a category will be mentioned which, to all intents and purposes, plays no significant role in either English or Polish derivation (though it could be more salient in the system of some other language). Such is the case with the category of Male nouns (derived from Female (or"generic") counterparts). This category is introduced only to complement the class of Female derivatives, i.e. to signal the categorial slot which arises due to the bipolar nature of the concept SEX.

The list of categories as given below is by no means complete or exhaustive, even in terms of a general, contrastive overview (for instance, whatever categories there are related to the concept of TIME are not included). Quite simply, this is as far as we could go in our present investigation. Nevertheless, we hope that the framework which has been developed here has enabled us to give an account of a fair part of the word-formation systems of the two languages under analysis, that it provides a principled basis for comparing these systems to each other, and that it may constitute a viable theoretical proposal in the study of the categorial organization of other morphological systems.

LIST OF SOME MAJOR CATEGORIES

(derivational categories) (cognitive concepts)

I. DERIVED NOUNS

- Nomina Actionis OBJECT (+ ACTION)

'act(ion) of V-ing'

E. *adaptation, resentment, arrival, departure, coverage, inquiry, acceptance, merger, launch∅*
P. *czytanie* 'reading', *myślenie* 'thinking', *mycie* 'washing', *bieg∅* 'running', *orka* 'ploughing', *kontynuacja* 'continuation'

- Nomina Essendi OBJECT (+ PROPERTY)

'quality of being A'

E. *freshness, hostility, cruelty, honesty, elegance, innocence, accuracy, exactitude, precision, likelihood, freedom*
P. *ostrość* 'sharpness', *zuchwalstwo* 'impudence', *dobroć* 'goodness', *głupota* 'foolishness'

- Agentive AGENT

'one who V-s'

E. *worker, director, informant, typist, escapee, cook∅*
P. *badacz* 'investigator', *dawca* 'donor', *myśliciel* 'thinker', *pływak* 'swimmer', *pracownik* 'worker', *piekarz* 'baker', *tłumacz∅* 'translator', *spekulant* 'profiteer', *komentator* 'commentator'

- Instrumental INSTRUMENT

'thing with which one V-s'

E. *eraser, perforator, stimulant, lift∅*
P. *zszywacz* 'stapler', *zapalnik* 'detonator', *lutownica* 'soldering-iron', *zapałka* 'match', *wiertarka* 'drill', *liczydło* 'abacus'

- Patientive OBJECT + PERSON

'one who is V-ed'

E. *employee, nominee, arrestant, cônvert∅*
P. *wychowanek* 'ward', *posłaniec* 'messenger', *uczeń* 'pupil', *ewakuant* 'evacuee' (*ewakuowany* 'id.')

- Objective[1] OBJECT

'thing that is V-ed'

E. *deposit∅, trânsplant∅, printout, clipping, attachment, enclosure*
P. *zgub∅-a* 'lost thing', *wkładka* 'insert', *czytanka* 'reading'

- Attributive {PERSON / OBJECT} + POSSESSION + {PROPERTY / OBJECT}

'person/object that is A/has (the property) N'

E. *slacker, fatty, dullard, simpleton; wit∅*
P. *głupiec* 'fool', *wesołek* 'jester', *obłudnik* 'hypocrite', *ponurak* 'spleeny man', *oryginał* '(an) eccentric'; *brodacz* 'bearded man'

- Locative PLACE

'place of V-ing/related to N'

E. *storage, anchorage, refinery, brewery, dump∅, hide∅(-out)*
P. *bieżnia* 'running track', *wędzarnia* 'smokehouse', *kopalnia* 'mine', *czytelnia* 'reading-room', *łowisko* 'fishery', *składnica* 'store'; *mleczarnia* 'dairy'

- Material/Ablative SUBSTANCE

'stuff from N'

E. (*goose, oak*)[2]
P. *baranina* 'mutton', *gęsina* 'goose-meat', *dębina* 'wood/twigs from oak'

- Collective NUMBER

'aggregate of Ns'

E. *jewelry/jewellery, pottery, gadgetry, jewry, clientage/clientele, readerage/readership, priesthood*
P. *pierze* 'feathers', *robactwo* 'worms', *nauczycielstwo* 'teachers', *studenteria* 'students', *biedota* 'the poor'

- Singulative NUMBER

'single instance of N'

E. (*a straw, a grain*)[3]
P. *trawka* 'a blade of grass', *słomka* 'a straw', *śnieżynka* 'snow-flake'

- Female SEX

'female equivalent of N'

E. *hostess, tigress, executrix, usherette, heroine*
P. *aktorka* 'actress', *mistrzyni* 'mistress', *robotnica* 'fem. worker', *lwica* 'lioness', *markiz0a* 'marchioness'

- Male SEX

'male equivalent of N'

E. *widower*
P. *wdowiec* 'widower', *gwiazdor* 'male (film-)star', *kozioł* 'goat'

- Diminutive DIMENSION

'small N'

E. *booklet, kitchenette, knobble*
P. *stolik* 'small table', *domek* 'sm. house', *kółko* 'sm. wheel', *deseczka/deszczułka* 'sm. board'

- Augmentative DIMENSION

'big N'

E. (*mega-pack, super-block*)
P. *domisko* 'big house', *brzuszysko* 'big belly', *ptaszydło* 'big bird', *nochal* 'big nose', *paluch* 'big finger', *szpila* 'big pin' (from *szpilka*)

* * *

II. DERIVED VERBS

- Stative STATE

'be A/N'

E. *slack0; doctor0*
P. *chorować* 'be ill', *obfitować* 'be abundant'; *królować* 'be king', *gospodarzyć* 'be farmer'

- Inchoative PROCESS[4]

'come-about to be A/N'

E. *faint0, darken* [illegible]
P. *łysieć* 'become bald', *twardnieć* 'harden', *głuchnąć* 'become deaf'; *próchnieć* 'rot'

- Causative CAUSATION

'cause to be A/N'

E. *free0, formalize, purify, activate, benumb, enrich, quieten, embolden*
P. *bogacić* 'enrich', *prostować* 'straighten', *formalizować* 'formalize'

- Reversative CAUSATION + NEGATION

'cause to be not A/V-ed'

E. *demoralize; unfasten, disconnect*
P. *odkonkretnić* 'deconcretize', *delegalizować* 'delegalize'; *odblokować* 'unblock', *rozszyfrować* 'decipher'

- Ornative CAUSATION + POSSESSION

'cause to have N, provide with N'

E. *label0, begrime, aromatize, beautify*
P. *oliwić* 'oil', *witaminizować* 'vitaminize'

- Privative CAUSATION + NEGATION + POSSESSION

'cause not to have N, deprive of N'

E. *deflea, unmask, dismember, behead, scale0 (fish)*
P. *odwodnić* 'dewater', *odrdzewić* 'remove rust', *dezodoryzować* 'deodorize'

- Ablative CAUSATION + MOVEMENT + PLACE + PATH

'put out of, expel from N'

E. *derail, dislodge, unsaddle*
P. - (unattested)[5]

* * *

III. DERIVED ADJECTIVES

- Relational ("transpositional")

'related to N'

E. *consonantal, industrial, polar, allergic, churchly, evolutionary,*
P. *domowy* 'of house/home', *uniwersytecki* 'of university', *szkolny* 'of school', *gruźliczy* 'of tuberculosis', *ziemniaczany* 'of potatoes', *sierocy* 'orphan _'

- Possessional POSSESSION

'having N'

E. *juicy*, *talented*, *faithful*, *gnarly*, *porous*, *knowledgeable*
P. *żylasty* 'stringy', *brodaty* 'bearded', *soczysty* 'juicy', *piegowaty* 'freckled', *odważny* 'courageous', *wszawy* 'lousy'

- Possessive POSSESSION

'of N, possessed by N'

E. (genitival constructions)
P. *Janowy* 'John's', *człowieczy* 'man's', *sułtański* 'sultan's'

- *Negative* *NEGATION*

'not A'

E. unusual, *non-abstract*, *insufficient*, *discontinuous*, *amoral*
P. *nielegalny* 'illegal', *irracjonalny* 'irrational', *amoralny* 'amoral'

- Privative POSSESSION + NEGATION

'not having N'

E. *seedless*, *sugarfree*
P. *bezzębny* 'toothless', *beznogi* 'legless', *bezołowiowy* 'unleaded'

- Similitudinal SIMILARITY

'resembling N'

E. *sugarlike*, *chalky*, *owlish*, *arched*, *silken*, *globular/globose*
P. *iksowaty* 'x-shaped', *kleisty* 'gluey', *anielski* 'angelic'

- Material (OBJECT +) SUBSTANCE

'made of N'

E. *wooden* (plus compounding)
P. *wełniany* 'woollen', *stalowy* 'steel _', *srebrny* 'silver _'

- Destinative (SUBSTANCE +) OBJECT‹4›

'(fit/suitable) for making N'

E. (compounding)
P. *sukienkowy (materiał)* '(fabric) for making dresses'

- Objective/Potential (OBJECT +) POSSIBILITY

'that can be V-ed'

E. *observable*, *reversible*, *flexile*
P. *porównywalny* 'comparable', *czytelny* 'legible', *tłoczliwy* 'drawable', *kośny* 'mowable'

* * *

Remarks:

‹1› This category is considered to comprise, as a special semantic sub-class, the so-called Resultative nouns; cf. English (*a*) *drawing* or Polish *rysunek* 'id.' In order to make the scheme even more general, one could collapse Objective (impersonal) and Patientive (personal) nominalizations into a single category of Object nouns. Note that, within the class of Patientives, the concept PERSON can be interpreted, metaphorically, as a manipulated OBJECT.

‹2› If we stretch somewhat the concept of conversion, this English type can be viewed as belonging to word-formation, from [+countable] noun to [-countable] noun: *oak* 'tree' --> *oak* 'wood'. Cf. Quirk *et al.* (1985:1563): "The notion of conversion may be extended to changes of secondary word class, within the same major word category: for example when noncount nouns are used as count nouns or vice versa".

‹3› Cf. above. This time, however, conversion affects a [-countable] noun and produces a [+countable] form.

‹4› See Hurford and Heasley (1983:212) for a diagram showing the relationship between the Inchoative and Causative verbs.

‹5› Except, perhaps, for *wykoleić* 'derail'.

‹6› The concepts given properly encode the link between a SUBSTANCE (Material) named by the head noun and an OBJECT that can be made of it, denoted by the adjectival base. Some further concept is perhaps called for to make explicit the notion of 'Destination' (suitability).

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