Vorbemerkung

Mit dem vorliegenden Band gratulieren Kollegen, Freunde und Schüler Ilse Zimmermann zum 60. Geburtstag. Alle Beiträge nehmen auf grammatische Themen Bezug, die in den Arbeiten der Jubilarin einen zentralen Platz einnehmen und zu denen sie beachtenswerte und viel beachtete Arbeiten verfaßt hat. Der Titel des Bandes stellt zwei Aspekte der Sprachstruktur heraus, deren innerer Zusammenhang Ilse Zimmermann seit vielen Jahren beschäftigt, Wortstruktur und Satzstruktur. Ihre Untersuchungen zu Nominalisierungen im Russischen und Deutschen machten sie frühzeitig auf einen Faktenbereich aufmerksam, der in der Entwicklung der Grammatiktheorie der jüngsten Zeit eine wichtige Rolle spielen sollte. Ausgerüstet mit fundierten Faktenkenntnissen und einer Sensibilität für theoretische Probleme gehörte sie zu den Linguisten, die als erste die allgemeinen Anregungen lexikalisch orientierter Entwicklungen der Grammatiktheorie aufgriffen und in sorgfältiger Detailarbeit systematisch ausbauten. Die in den vergangenen Jahren erschienenen Arbeiten von Ilse Zimmermann sind Bausteine zu einer theoretischen Erfassung der Beziehungen zwischen Syntax und lexikalischer Struktur, an deren Zusammenfügung die Jubilarin weiterarbeitet. Auch die Beiträge zur Satzmodusanalyse sowie zu topologischen Aspekten der Syntax verdanken Ilse Zimmermann wichtige Anregungen und helfende Kritik. Das ausgeprägte Interesse der Jubilarin an der Diskussion wissenschaftlicher Probleme verbunden mit der Fähigkeit, Partner anzuregen, bewirkte in nicht wenigen Fällen, daß Ideen aufgegriffen und verarbeitet wurden, ohne daß deren Quelle genügend deutlich wird.

Mit diesem Band bedanken sich die Beiträger ganz herzlich für die mit menschlicher Wärme und kollegialem Verständnis vermittelten Anregungen und Kritiken der Jubilarin, die sie auch in Zukunft nicht missen möchten.

Berlin, März 1989 W. Motsch

Manfred Bierwisch

EVENT NOMINALIZATIONS: PROPOSALS AND PROBLEMS

1. Introduction

The relation between constructions like those in (1) and (2) has been a permanent topic in the development of Generative Grammar:

(1)(a) He called me shortly before you arrived in Berlin.
(b) 'He called me shortly before your arrival in Berlin.

(2)(a) It took them two years to reconstruct the building.
(b) The reconstruction of the building took them two years.

Early attempts to account for the relation in question considered the (b)-sentences as transformationally related to the (a)-sentences in pairs like (1) und (2). The classical study of LEES (1960) provided the most extensive analysis exemplifying that period. An important reorientation concerning these and a wide range of other phenomena was proposed in CHOMSKY (1970), initiating the so-called Extended Standard Theory. Within this framework, the relation between the (a)- und (b)-sentences was not based on syntactic transformations, but rather on lexical processes relating pairs like arrive/arrival, construct/construction, etc. Further elaboration and modification of the theory, including in particular work on Lexical Morphology in KIPARSKY (1982), on the principles of X-Bar-Syntax and on the theory of θ-Roles as summarized in CHOMSKY (1981) and related work, clarified the nature of this sort of lexical relatedness and its syntactic consequences. The picture emerging from this development can provisionally be characterized by the following traits:

(A) Nominalization -- like other processes of derivational morphology -- is based on an intralexical morphological operation which determines the morphological, syntactic, and semantic properties of the derived noun (to the extent to which these properties are systematic, i.e. predictable).

(B) A crucial factor determining the syntactic properties of a lexical item is its θ-Grid, i.e. the argument structure of the item in question. A constitutive aspect of the operation in (A) is thus the specification of the derived θ-Grid of the resulting noun.

(C) Since nominalization is a lexical process, derived nouns are subject to various sorts of idiosyncrasies, which are not predictable from their constituent parts.

In the following discussion, I will explore some of the consequences and problems resulting for event nominalizations from the picture indicated by (A) - (C).

For the sake of concreteness, the discussion will center on event nominalization in German, leaving aside the question whether and in which way specific parameters of German must be switched in order to account for similar phenomena in other languages. Although the idiosyncrasies acknowledged in (C) are pervasive, bound to both language particular and item specific conditions, the focus of the discussion will be on the general principles involved in (A) - (C) on the basis of which the idiosyncrasies arise, rather than the irregularities as such.

The morphological operation mentioned in (A) will be restricted to affixation as exemplified in pairs like warn-en/Warn-ung (warn/warning), erober-n/Erober-ung (conquer/conquest), etc. I will not deal with the problem whether all morphological processes -- including so-called zero-derivation as in fall-en/Fall (fall/fall), or alternations as in spring-en/Sprung (jump/jump) -- are to be assimilated to affixation. It will become obvious, though, that the principles involved in affixation are relevant for morphological processes in general.

In order to give a brief account of the principles involved in (A) und (B), I will sketch the structure of lexical entries in section 2 and the basic assumptions about affixation in section 3. In section 4 to 6 some of the consequences and problems emerging from this account with respect to (C) will be discussed.

2. The structure of lexical entries

To begin with, I will assume that the Lexical System LS specifies the structure of the lexical knowledge involved in the knowledge of a particular language. LS consists of the system LE or lexical entries E of the language in question and the rules and principles determining the structure of possible entries of LS. LE contains all and only those entries which are not predictable on the basis of other elements of LE and the rules and principles of LS. In

other words, LS is a computational system determining the structure of possible lexical entries E, a subset of which constitutes the system LE of unpredictable, i.e. idiosyncratic entries. Notice that the elements of LE, although unpredictable in one way or the other, are nevertheless subject to the general rules and principles of LS. The unpredictablity concerns merely the particular information specifying the elements of LE.

LE contains a proper subset BLE of basic lexical entries, which are morphologically primitive. Elements of LE that are not in BLE are morphologically complex, but still unpredictable in one way or the other. Thus words like Beginn (beginning), Umstand (circumstance) are morphologically complex, although their properties are not fully derivable from basic elements by general rules and principles. Let CLE be the set of complex elements of LE. Obviously, CLE will contain among others nominalizations with idiosyncratic, unpredictable properties.

For the sake of completeness, we might designate by PLE the set of possible lexical entries determined by LS. PLE will comprise LE and the set of fully predictable complex items, which might be called the set VLE of virtual lexical entries. What we are primarily interested in here ist the way in which LS determines the structure of elements of VLE, but also the light it sheds on the structure of elements of CLE.

Although it might not always be easy to determine whether a given element belongs to CLE or to VLE, the distinction in principle is sufficiently clear. Some of the problems arising in this respect will be taken up below.

It might be useful for the further discussion to contrast the lexical system LS with the mental lexicon ML which specifies the actual representation of lexical knowledge in memory. ML can be construed as a specific implementation of the computational system LS in the brain. Formally it comprises a proper subset of PLE together with properties and relations not determined by LS, such as frequency of use, preferred interpretation, etc. The point to be noted here is that ML might contain virtual elements alongside with basic und unpredictable, but complex elements of LE. Hence the distinction between fully predictable and idiosyncratic elements,

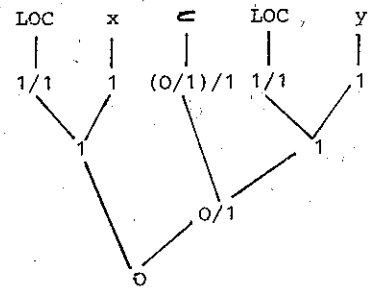
which has a principled status in LS, does not necessarily play the same role in ML. Although I will not enter into the problems related to the structure of ML, it will be helpful to keep in mind the distinction to be made between the computational structure of LS and its implementation in terms of memory structures serving processes of access and recognition in language use. For further discussion of this distinction see BIERWISCH (1987).

Elements of PLE, irrespective of whether they are basic, complex, or virtual, are to be considered as data structures organized in accordance with the rules and principles of LS. Each element of PLE consists of four components:

(3) (a) a specification of the phonological form PF
(b) a structured set GF of grammatical features
(c) a θ-Grid indicating the argument structure
(d) a specification of the semantic form SF

The phonological form PF of an entry E is a (three dimensional, multi-tiered) array of features specifying the contribution of E to the PF-representation of expressions containing E. GF consists of binary features specifying the syntactic category of E, further grammatical properties such as Gender, Number, Case, Person, etc. and morphological properties like inflection class, etc. The θ-Grid consists of a sequence of θ-Roles determining the specific combinatorial properties of E, to which we will return immediately. The semantic form SF of E specifies the linguistically determined conditions which E contributes to the conceptual interpretation of expressions containing E. Hence SF is not a representation of the actual meaning of E, but rather a more abstract condition which lexical knowledge imposes on possible meanings of E. More formally, SF can be stated as an expression of category O in a categorial system based on categorized constants and variables, where O is the category of propositions and 1 the category of objects or entities. For the sake of illustration, suppose that the SF of the locative preposition in specifies the condition that the location of some object x is contained in (or is part of) the location of some object y. Formally:

(4)



Based on this notion of semantic form, a θ-Role can be considered as a lambda operator binding a pertinent variable in SF. In the present case, we get two θ-Roles, turning the propositional condition (4) into a two-place relation. Dropping the categorization, we have (5) indicating the SF and the θ Grid of locative in:

(5) $\underbrace{\hat{y}\ \hat{x}}_{\text{θ-Grid}}\ \underbrace{[[\ \text{LOX x}\ ]\ [\subset [\ \text{LOC y}\ ]]]}_{\text{SF}}$

On this account, the syntactic combination of a lexical head with a complement to which it assigns a θ-Role amounts to functional application as the corresponding semantic operation. Abbreviating the SF of Berlin by a semantic constant BERLIN of category 1, this can be illustrated as follows:

(6) (a) $[_{PP}\ [_{P}$ in $]\ [_{NP}$ Berlin $]\ ]$
(b) $\hat{y}\ \hat{x}\ [\text{LOC x} \subset \text{LOC y}]$ BERLIN
(c) $\hat{x}\ [\text{LOC x} \subset \text{LOC BERLIN}]$

(6a) ist the syntactic structure corresponding to the functional application of (5) to the SF assigned to the NP Berlin, as represented in (6b). By standard lambda conversion, (6c) is derived from (6b). Details aside, assignment of a θ-Role to a syntactic argument amounts to lambda conversion, eliminating the θ-Role in question from the θ-Grid. Thus in a rather specific sense the θ-Grid of a lexical entry E constitutes the interface between the syntactic and semantic information of E: It makes variables in SF available for syntactic specification, thereby determining the combinatorial properties of E. Two further points are to be added in this respect.

First, a lambda operator $\hat{x}$ constituting a θ-Role of E must be associated with Case or other grammatical features identifying the grammatical properties of the pertinent syntactic argument. In the case of locative in, which requires a Dative-NP as its object, the θ-Role $\hat{y}$ would have to be associated with the feature [+ Oblique], assuming that this distinguishes Dative from Accusative. A still simplified representation of in would now look as follows:

(7) /in/ ; [-V, -N, -Dir] ; $\underset{|}{\hat{y}}$ $\hat{x}$ [LOC x ⊂ LOC y]

[+Obl]

PF GF θ-Grid SF

Grammatical features associated with θ-Roles are assigned either by structural conditions or as idiosyncratic, lexical information. Both structural und lexical assignment of feature to θ-Roles is subject to principles belonging to the rules and principles of LS. It might be noted that under this perspective the principles of Case assignment discussed in CHOMSKY (1981) are to be construed as conditions determining the association of grammatical features with θ-Roles.

The second point concernes yet another aspect in terms of which the θ-Grid interrelates semantic and syntactic information. What is at issue is the fact that further principles determine the structure of possible θ-Grids, depending on the syntactic categorization of their lexical entries. In order to sketch these principles, three additional properties of θ-Roles are to be introduced:

(8)(a) A θ-Role is either referential or non-referential.
(b) A θ-Role is either external or internal.
(c) A θ-Role is either obligatory or optional.

To begin with (8c), an optional θ-Role may or may not be realized. If it is not realized, the corresponding variable in SF cannot be syntactically specified and functions as a parameter to be fixed by conditions of conceptual interpretation.

Turning to (8b), an internal θ-Role must be assigned to a complement properly governed by the lexical head assigning the θ-Role. The status of an external θ-Role is somewhat more complicated. As a matter of fact, an external (or designated) θ-Role is to be realized in a number of different, category-specific ways, which I will not spell out here in detail.

As to (8a), the crucial property is that of a referential θ-Role, by means of which a lexical head (together with its syntactic arguments) may or must become referential, i.e. interpreted as referring to an appropriate sort of entity. The most obvious case in point is provided by simple nouns like table or water with only one θ-Role in their respective θ-Grid, by means of which they may be used as referring to an suitable entity.

According to what has been said above, a θ-Grid is constituted by a sequence of lambda operators (9), where the ordering determines the successive discharging of θ-Roles with $\hat{x}_1$ being the final θ-Role to be discharged:

(9) $\hat{x}_n \ \hat{x}_{n-1} \ \ldots \ \hat{x}_2 \ \hat{x}_1$ for $n \geq 1$

We can now state some of the conditions on θ-Grids as follows:

(10)(a) There is exactly one designated θ Role for each θ-Grid.
(b) $\hat{x}_1$ is a referential θ-Role for the θ-Grid of Nouns and Verbs (i.e. the primary categories defined by [±V, -±N]).
(c) The designetad θ-Role is $\hat{x}_2$ for the θ-Grid of Verbs, $\hat{x}_1$ otherwise.
(d) Internal θ-Roles precede the designated θ-Role, i.e. $j > i$ for $\hat{x}_i$ the designated and $\hat{x}_j$ an internal θ-Role.
(e) $\hat{x}_1$ cannot be associated with lexically determined features.
(f) Only internal θ-Roles can be optional.
(g) Optionality of θ-Roles is lexically specified for -N categories, i.e. for Verbs and Prepositions.
(h) Internal θ-Roles of +N categories, i.e. Nouns and Adjectives, are normally optional.

I will not discuss and motivate these principles in detail. Notice, however, that it follows from (10)(a), (b), and (c) that for Nouns the designated and the referential θ-Role must be identical, while for Verbs they must be distinct.

I will conclude this sketch of the structure of lexical entries with two examples illustrating an additional point, which will become important for event nominalizations. Consider the following oversimplified entries for a relational noun and a simple transitive verb:

(11) /zo:n/; [+N, -V, +Masc]; $\hat{y}\ \hat{x}$ [[x CHILD-OF y] ∧ [MALE x]]

(12) /ret/ ; [-N, +V] $\hat{y}\ \hat{x}\ \hat{z}$ [z INST [x RESCUE y]]

Whereas the SF of Sohn (son) should be selfexplanatory, that of retten (rescue) requires some comments. The proposition [x RESCUE y] abbreviates a more complex condition the details of which need not concern us here. This proposition is to be instantiated by an event or situation z. This instantiation, provided ba a functor INST of category (O/1)/O, relates a proposition to an event or situation. It is a characteristic component of the SF of verbs by means of which they yield a referential interpretation.

Concerning the θ-Grids of (11) and (12), we notice first that $\hat{y}$ constitutes the only internal θ-Role in both entries. According to (10h), $\hat{y}$ is optional in (11), whereas the $\hat{y}$ in (12) is obligatory, because it is not lexically marked for optionality. According to (10c), $\hat{x}$ is the designated θ-Role in both (11) and (12), and it is furthermore the referential θ Role in (11), while for (12) the referential θ-Role is $\hat{z}$, as determined by (10b). Since this distinction is due to general conditions on θ-Grids, it has interesting consequences for the effect of event nominalization: While for the verb retten the designated θ-Role is different from the referential θ-Role, the corresponding event noun Rettung must use its referential θ-Role as its designated θ-Role. We finally notice that structural Case features will be assigned to $\hat{y}$ in (11) and (12), but only in (12) also to the designated θ-Role $\hat{x}$. More specifically, the features specifying Genitive will be associated with $\hat{y}$ in (11), while in (12) the features for Accusative and Nominative are assigned to $\hat{y}$ and $\hat{x}$, respectively.

For further details and motivation concerning the structure of lexical entries sketched so far, see BIERWISCH (1987a, 1988).

3. Principles of affixation

Assuming the general structure of lexical entries as sketched so far, we will turn now to the principles by means of which the lexical system LS generates complex lexical entries. The orientation of the following proposal is based on the concept of word syntax as developed in SELKIRK (1982) and lexical morphology as initiated by KIPARSKY (1982). A more detailed exposition of the principles of affixation to be sketched below will be found in BIERWISCH (in preparation).

The starting point is the assumption that the set BLE of basic lexical entries comprises the system of (productive) affixes of the language. Affixes are entries with specific properties, determining their role in the formation of complex entries. Although a systematic account of affixation would have to include both derivational and inflectional elements, I will restrict attention here to derivation.

How, then, do affixes differ from major category entries of the sort illustrated in (11) and (12)? Apparently, affixes may exhibit special properties with respect to all four components of a lexical entry. As each of these components is subject to the rules and principles of LS, and furthermore the information contained in each of these components must operate according to the rules and principles of grammar in general, these specificities are not unrelated and completely arbitrary. It seems, in fact, that they are all related in one way or the other to a specific property of the θ-Grid, namely:

(13) $\hat{x}_n$ of an affix is associated with a feature [α F] identifying a lexical category.

One might consider (13) as an additional condition on θ-Grids alongside with the conditions in (10). Let me briefly comment on the content and consequences of (13).

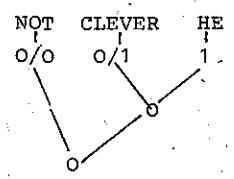
Notive first, that $\hat{x}_n$ ist the "topmost" θ-Role to be assigned to the closest (and generally only) argument of the affix. As a matter of fact, for affixes typically (but not necessarily) we have $\hat{x}_n = \hat{x}_1$. Secondly, the assignment of [α F], identifying a major lexical category X^O, must be a lexical property, as it defines the affixal character of the entry in question. From this, it follows that an affix by its very lexical properties takes a lexical element as its argument, forming a complex constituent of which it is the head. Let us suppose that this constituent, unlike other head-complement constructions, where the complement is itself a maximal projection of some lexical head, is not a phrasal, but a lexical constituent, i.e. it remains on the basic level in terms of X-Bar theory.

If an affix is the head of the construction it creates, it must determine the syntactic and grammatical features assigned to it, as

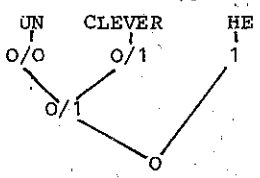
is required by the principles of X-Bar theory. And in fact, the GF-component of complex lexical items is determined by that of its suffix (in German, and other languages subject to the Right Hand Head Condition for lexical items): trink-bar (drinkable) is an Adjective formed from a Verb, Türm-chen (little tower) is a Neuter Noun derived from a Masculine Noun, etc. In order to be projected according to general principles, these features must constitute the GF-component of the affix. From these considerations, it follows that e.g. -bar must have a GF-component comprising [+V, +N], while its (only) θ-Role must be associated with [+V, -N]. But now we seem to run into a conflict with the conditions stated in (10): If -bar is categorized as an Adjective, its θ-Grid is to contain a designated θ-Role, possibly alongside with optional internal θ-Roles, instead of the θ-Role characteristic of an affix. As a matter of fact, -bar makes an Adjective, but isn't an adjective (as has been pointed out to me by Wolfgang KLEIN, contrary to what e.g. HÖHLE (1982) and others claim). We can resolve this conflict by giving (13) the required interpretation: If (13) applies to the θ-Grid of a lexical item, the conditions of (10) are suspended. This boils down to the consequences that a lexical entry satisfying (13) is not a major lexical category, but will derive one by affixation. Further problems arise in this connection with prefixes (which cannot be proper heads), and inflections, but I will skip them here.

The most important property related to (13) concernes the way in which the θ-Role of an affix as assigned to the pertinent argument. Formally, an affix combines with its argument not by functional application, as illustrated in (6) for major lexical categories, but by functional composition. The difference in question can be indicated by the following oversimplified illustration:

(14)(a) er ist nicht klug



(b) er ist unklug



Although both nicht (not) and un- are semantically of category O/O, they combine with their respective arguments in different ways:

NOT turns, by functional application, a proposition into a proposition, UN combines by functional composition with a property into a (complex) property of the same category. In other words, the complex predicate formed by UN inherits the argument position of the original predicate. This is in fact the crucial property of affixes, known as inheritance of argument structure. The problem to be accounted for can clearly be seen in the examples in (1): arrival, although a Noun whose head ist the affix -al, inherits the argument structure of the Verb arrive, albeit with the specific conditions for their realization associated with the nominal character of arrival.

We can derive this particular property of affixes from the condition stated in (13): Whereas ordinary θ-Roles of major category items are to be assigned to phrasal constituents with a head whose θ-Roles must all have been discharged previously, the θ-Role of an affix looks for a lexical entry that comes along with all its unsaturated θ-Roles. The lambda operator of the affix cannot cope, so to speak, with the full, complex semantic category of major lexical entries. Hence it skips the initial operators of the θ-Grid, until it finds an expression that fits the category of the variable on which the lambda operator is based. Thus from the lexical category features associated with the θ-Role of an affix it follows that the affix assigns its θ-Role by means of functional composition, and from the semantic category of its variable it follows which operators of the θ-Grid of its argument are to be skipped -- and hence inherited by the derived complex item. Let me illustrate this point by the prefix un-, whose lambda operator looks for an expression of category O:

(15) /un-/; [∅]; $\hat{x}_{[+N,-V]}$ [UN x]

(16) /klu:g/; [+N, -V]; $\hat{z}$ [CLEVER z]

(17) /un-klu:g/; [+N, -V]; $\hat{z}$ [UN [CLEVER z]]

As UN is a constant of category O/O, its argument x must be of category O. Hence $\hat{x}$ requires an argument of category O, which is provided by the pure SF of the Adjective that un- combines with. Thus (17) derives by functional composition of (15) with (16), where the proposition [CLEVER z] substitutes for the variable x in

(15) by lambda conversion, with the θ-Role $\hat{z}$ of the Adjective being skipped by the affix and thus inherited by the derived Adjective. (I have assumed here that un-, being a prefix, cannot project grammatical features to the dominating constituent and therefore its GF-component is empty. But this is inessential in the present context.)

I will not go into the details of the PF-component of affixes, although most of the specific options permitted there, including empty arrays or superimposed features resulting in alternations in the segmental structure of the host, can again be related to (or derived from) (13), more specifically from the fact that due to (13) the resulting construction must be a lexical entry and thus subject to lexical phonology.

The SF-component of affixes meets the general conditions introduced earlier, i.e. it is a configuration of constants and variables forming an expression of category O. A case in point is the SF [UN x] of the prefix un-. As we will see shortly, the SF of affixes might again be impoverished, consisting, in the limit, simply of a variable of category O.

To summarize, the essential feature of lexical entries for affixes ist the fact that $\hat{x}_n$ is associated with major lexical category features. As has been outlined in somewhat simplified manner, most of the characteristic properties of affixes discussed in the literature can be derived from this property, together with independently motivated principles.

Let me illustrate this sketch by the affix -bar (-able/-ible), a typical derivational suffix. What an analysis of -bar has to account for is the near synonymy of pairs like these:

(18)(a) Das kann gerettet werden. (This can be saved)
(b) Das ist rettbar. (This is savable)

Details aside, -bar must bring in the possibility component of the modal verb, and it must turn the internal θ-Role of the transitive Verb it combines with into the designated θ-Role of the resulting Adjective -- much like the passive, which turns the internal θ-Role of a transitive verb into its designated θ-Role. Assuming the above principles of affixation, the following entry for -bar can be set

up, which yields, by functional composition with (12), the derived entry in (20):

(19) /-bar/; [+V, +N] $\hat{x}$ [POSS [[x u] e]]
[+V,-N]

(20) /ret-bar/; [+V, +N]; $\hat{y}$ [POSS [e INST [u RESCUE y]]]

Notice that x in (19) is a variable of category (O/1)/1, hence $\hat{x}$ requires an argument of this category. Therefore, the composition of -bar with the stem of retten skips the internal argument of the Verb, substituting its SF plus the designated and the referential θ-Role for the variable x in (19). These θ-Roles are subsequently satisfied by u and e, respectively, which remain as parameters of SF to be fixed by contextual conditions (in fact by some sort of generic reference). Now by general conditions on θ-Grids, the θ-Role $\hat{y}$ inherited from the Verb becomes the designated θ-Role of the derived Adjective. Notice that from this requirement it follows without further ado that -bar yields regular Adjectives only from transitive Verbs.

The entry for -ung deriving event nouns in German can now be stated as follows:

(21) /-ung/; [-V, +N, +Fem]; $\hat{x}$ [x]
[+V,-N]

By general assumption, x must be a variable of category O, hence -ung adds nothing to the SF of the Verb it nominalizes. The only change it effects is to turn the θ-Grid of the Verb into that of a Noun. This is illustrated in (22):

(22) /ret-ung/; [-V, +N, +Fem]; $\hat{y}$ $\hat{x}$ $\hat{z}$ [z INST [x RESCUE y]]

According to the conditions in (10), $\hat{z}$ is now both the referential and the designated θ-Role, while $\hat{x}$ and $\hat{y}$ are both optional, internal θ-Roles, the realization of which is subject to general conditions on Nouns, which cannot be spelled out here. Notice that on this account the Noun Rettung is referential with respect to an event instantiating the proposition [x RESCUE y], exactly as desired. Both variables of this proposition are syntactically specified in a construction like Peters Rettung der Passagiere (Peter's rescue of the passengers).

Let me conclude this section with a remark on the status of affixes in the mental lexicon ML. While affixes are regular, though specific, elements of BLE, i.e. entries of LS, they need not be assumed to be separate elements of ML. It might in fact be that ML has affixes stored only as components of actual complex elements of ML. Whatever the proper solution to this problem might be -- and I take the problem to be an empirical one --, it does not interfere with affixes as entries in the computational system LS.

4. Idiosyncratic affixation

Having outlined the structure of affixes and the operation of affixation following from it -- including in particular the inheritance of argument structure --, I will now explore the consequences of these proposals concerning the observations (A) and (B) above for the idiosyncrasies acknowledged in (C). The starting point is, of course, the entry for -ung, which is one of the regular means to derive event nouns in German.

There are clearly rather different types of idiosyncrasy and irregularity to be recognized, and not all of them can be dealt with here. In this section, I will look at what might be called idiosyncratic choice of affixes, in section 5 and 6 two different problems concerning primarily the semantic form of derived nouns will be explored.

Before turning to the details, a general remark with regard to the type of account to be given for irregularities seems to be in point. As irregularities are a widespread, in fact typical phenomenon in word formation as opposed to phrasal syntax, JACKENDOFF (1975) has made a radical proposal according to which derived lexical items are generally stored as elements of LE, related to the base of derivation only by rules of correspondence or analysis. On this account, idiosyncracies are in fact what is to be expected in morphologically complex words. I cannot go into the concrete details of this approach; I want to point out, though, that it might be a plausible approximation to properties of ML, but inappropriate as an account of LS. Not only is the formal status of the rules of analysis dubious, missing crucial generalizations of the type discussed above. Even the idiosyncrasies cannot be characterized with respect to their proper status, as will be seen as we proceed. The point at issue is essentially this: Idiosyncratic lexical

properties are specific, irreducible options on the basis and within the limits of general, but specific principles, and it is precisely with respect to these principles that they have to be accounted for. The reason for this claim is not merely that it promises a more interesting theory, but that it appears to be the only way to come to grips with what e.g. ARONOFF (1976) has called the mysteries of derivational morphology.

To sum up this point: The system LE of lexical entries must contain all complex items whose properties are not fully derivable from other items by independently motivated rules or principles, and it is in this sense that LE ist the actual locus of idiosyncratic information. But it is only with respect to the general rules and principles of LS that idiosyncrasies can be identified as what they are. As a matter of fact, the confusion between LS and the rather different requirements to be met by an account of ML has blurred much of the discussion about "analogy", "productivity", etc.

Turning now to idiosyncratic affix selection in event nominalization, we notice that -ung is presumably the neutral option, but can by no means combine freely with arbitrary verbs. Three types of restrictions might be distinguished for expository reasons:

First, there is a whole range of alternatives, illustrated, without completeness, in (23):

(23)(a)	warn-en (warn)	Warn-ung
(b)	fahr-en (drive)	Fahr-t
	ver-lier-en (lose)	Ver-lus-t
(c)	glaub-en (believe)	Glaub-e
(d)	tret-en (kick)	Tritt
	spring-en (jump)	Sprung
	fall-en (fall)	Fall
(e)	ver-hör-en (interrogate)	Ver-hör
(f)	nomin-ier-en (nominate)	Nomin-ier-ung
(g)	ex-port-ier-en (export)	Ex-port
(h)	spekul-ier-en (speculate)	Spekul-at-ion
(i)	ras ier-en (shave)	Ras-ur
(j)	re-par-ier-en (repair)	Re-par-at-ur
(k)	kon-stru-ier-en (construct)	Kon-struk-t-ion

Six comments are to be made with respect to this list.

1. For the time being, different variations in semantic interpretation of the examples given here are to be ignored. The only point of interest at the moment is that all of them do have an interpretation correctly determined by the SF given in (21) for -ung, viz. [x]. Deviations from this interpretation will be taken up in section 5.

2. Whether or not some of these examples are to be listed in LE -- possibly for semantic reasons in one of the readings not at issue at the moment -- is to be left open for the time being. The decision will depend on the question whether or not the relevant properties of the complex items can be derived in independently motivated ways. This, however, is an empirical issue, and it is the rules and principles that would account for the derivation of the relevant properties that are to be determined.

3. Besides ordinary cases of proper segmental suffixation, I have included cases of segmental alternation and zero-affixation, for reasons that should by now be obvious: except for the specific properties of PF, all other information contained in (21) is required for the other cases as well (including phonologically empty ones), except differences in GF determining Gender -- and the conditions determining the idiosyncratic choice of affix.

4. The latter conditions concern the main point of the list: choice of affixes is by no means free, in fact there is a strict specification for all of the cases in (23) which verb combines with which affix. The account of this selection turns out to be the essential point with respect to the present type of idiosyncrasy.

5. Obviously, there is a certain ranking in type-frequency of affixes ranging from neutral -ung to exceptional cases like Export. Hence the envisaged account of affix-selection must be susceptible to some sort of markedness hierarchy. Furthermore, there are constraints distinguishing native stems and affixes in (a) to (e) from non-native ones in (f) to (k). I will not deal with the empirical details of these two aspects, but I will indicate where they show up in the proposed account.

6. Finally, in cases like Spekulation or Reparatur we have some kind of dubble affixation, one being presupposed by the other, which the choice of affixes must also be able to determine.

Secondly, we have cases like (24), where one verb can be the argument of two alternative suffixes:

(24)(a)	wend-en (turn)	Wend-ung	Wend-e
(b)	streich-en (cross out)	Streich-ung	Strich
(c)	identifiz-ier-en (identify)	Identifiz-ier-ung	Identifik-at-ion
(d)	block-ier-en (block)	Block-ier-ung	Block-ade

These cases are, as a matter of fact, a subtype of the first one, so that the above comments apply here as well -- with two amendments:

7. We do not only have different verbs for one affix (which is the very essence of affixation), but also different affixes for one verb. Hence, the selection between verbs and nominalizing affixes is many-to-many, but of course still strictly determined. The non-trivial point of this observation ist this: Although the choice is many-to-many, there is an overwhelming asymmetry. While only very few verbs have two options (and not more, for proper event nominalization), most affixes allow for an indefinite number of verbs.

8. In some cases, alternative affixes of the same verb induce differences in (preferred) semantic interpretation, Streichung vs. Strich being a case in point. It is not obvious whether these differences have to be captured in SF (we will return to this sort of problem below), but if so, this idiosyncrasy has to be determined together with the choice of the affix -- or simply listed by means of a complex entry in LE.

Third, there is a fairly long list of verbs that do not allow for any of the event nominalizations. Examples are:

(25)(a)	zeigen (show)	(b) hören (hear)
(c)	vergessen (forget)	(d) lauschen (listen)
(e)	hüpfen (hop)	(f) bummeln (stroll)

Other verbs do allow for the affixes in question, but do not form event nouns. Examples are dichten (write) with Dichtung (poetry) or ahnen (foresee) with Ahnung (idea, foreboding).

The most plausible way to look at (25) seems to be to take these cases as yet another subtype of the first one, with the verbs not selecting any of the affixes in question. The three types of idiosyncrasy in affixation then simply boil down to verbs selecting one, two, or none of the affixes.

How, then, is the selectional mechanism between verbs and affixes to be accounted for? As has been shown in section 3, suffixes are heads, assigning a θ-Role to their stem (hence acting as functors) and projecting their GF-component to the dominating node. Being heads, the affixes thus should select their complement -- as they do anyway by means of the category features [α F] associated with their θ-Role. And this is in fact the general view held in this respect, as formulated e.g. in MOTSCH (1988), where it is claimed that rules of affixation have to provide "restrictions defining the class of base words to which the affix is attachable". As the above comments (and simple considerations of plausibility) cogently show, this view is in blatant conflict with the facts. Not only is it clearly an idiosyncratic information about the verb which affix it allows for, rather than about the affix which idiosyncratic class it applies to. It also seems to be impossible to specify the subclasses in question in any way independent of the very choice of affixes. (For example alongside with (25b) hören excluding *Hörung, we have anhören (hear) with Anhörung (hearing).) But then, do we have to discard the notion that suffixes are heads? Or do we have to assume that it is in fact the complement that selects its head? As will be seen, the question is simply put the wrong way.

Before showing how the apparent conflict can be solved, I will indicate entries for some of the concurring affixes:

(26)(a) /-ung/; [+N, -V, +Fem], $\hat{x}_{[+V,-N]}$ [x]

(b) /-t/; [+N, -V, +Fem], $\hat{x}_{[+V,-N]}$ [x]

(c) /Ablaut/; [+N, -V, +Masc] $\hat{x}_{[+V,-N]}$ [x]

(d) /-ion/; [+N, -V, +Fem] $\hat{x}_{[+V,-N]}$ [x]

Notice that this is not a simple, unstructured list: The SF, the θ-Grid, and also the category features of GF are identical for all entries. We thus might assume that (26) constitutes an organized subsystem of BLE. Depending on the empirical motivation of relevant notational devices, this might also be made explicit in formal terms. I will refrain from arbitrary proposals here, but will return to one substantial point shortly. Suppose, then, that each subsystem of this sort is identified by the common properties of its elements. On this background, each affix can be assigned a unique place within its pertinent subsystem, and hence in LE.

Suppose furthermore, that the place of an affix in its subsystem is not arbitrary, but reflects conditions associated with their respective differences, e.g. the condition that (26d) combines with (and is itself) a non-native entry, while (26b) and (26c) require native entries and (26a) is neutral in this respect. Furthermore the conditions in question might reflect some sort of priority ranking, thus giving rise to the markedness phenomena mentioned in comment 5. In general, then, each affix is identified in non-arbitrary ways by its place in LE according to the subsystem it belongs to and the relative position within this subsystem. The conditions determining membership in a subsystem and the place within it must be assumed to be part of the principles of LS, imposing computationally relevant structure on LE. It is therefore both a theoretical and an empirical task to determine their form and content. I cannot go into these issues here; it should be obvious, however, that these conditions have to do with the systematic limits LS provides for the organization of idiosyncratic information in LE. On the basis of these considerations, the place of an affix in LE, i.e. its identity as an entry, can be expressed by a kind of feature combination, which we might label provisionally by $[AF_i]$ (for Affix Feature i). $[AF_i]$ can be thought of as an address of its affix. The crucial point is, that this address is anything but arbitrary, but rather derives, by some sort of self-addressing, from the principles determining the place of an affix. More specifically, $[AF_i]$ consists of two components, one identifying the subsystem to which the affix belongs -- in the present case constituted by the properties shared by affixes for event nominalization --, the other specifying its place within the subsystem

according to its particular properties. Thus for -ung, [AF_i] would be something like [EN, Q], where EN identifies Event Nominalizers and Q the place of -ung among them. These arbitrary labels must be replaced by systematic features in accordance with the conditions mentioned above. Like those conditions, the features reflecting them must be determined on empirical grounds. Although I cannot go into these matters here, I will assume that the two components will be spelled out in terms of standard binary features, presumably subject to canonical markedness conventions, among others. (Alternatively, one might consider EN as a multivalued feature and Q as its value, using features of the type proposed in GAZDAR et al. (1985), a possibility which I will not adopt here.) In any case, the partition into the two components EN and Q is not only determined by the structure of LS, it has further consequences, to which we will return. For the sake of simplicity, I will continue to use AF_i to refer to the systematic address of affixes established so far. We now can face the problem of specifying the selection mechanism of affixes.

The basic means have already been introduced and don't need any further ado: We simply include AF_i alongside with the category features identifying the complement of the affix into the feature complex assigned to the θ-Role of the affix, and also into the GF of all verbs selecting the affix in question. The essential consequences of this move are simple and obvious, determining exactly the right stem-affix combinations. Some comments will elucidate its implications, though.

First, the puzzle of what selects what is solved appropriately: stem and affix select each other, just like key and lock, in exactly the way in which heads and complements select each other in general.

Secondly, there is an important difference in the status of AF_i in the (selecting) affixal head and the (selected) lexical complement, which corresponds precisely to the intuition that in a crucial sense the stem selects the affix. Let us look at this point a bit closer. For affixes, on the one hand, the content of AF_i has the systematic nature described above: it follows directly from the place in LE determined by the hypothesized principles of LS organizing LE. We might in fect assume that for this reason AF_i need not

be listed as idiosyncratic information of the affix, but is rather supplied by a general convention which assigns the features identifying its place in LE to the characteristic θ-Role of the affix. We will see shortly that this is a natural assumption to be made for affixes on independent grounds. For major lexical categories, on the other hand, AF_i is essentially idiosyncratic, not following from anything besides the fact that it may serve as the complement to the affix in question. Hence it must be fixed as idiosyncratic lexical information. In other words, whereas the status of AF_i as a complex of features assigned to the θ-Role of the affix is systematic and largely predictable, its inclusion into the GF of a lexical entry is idiosyncratic, which is the actual ground for the intuition that information about selection is a diacritic property of the stem rather than the affix. This is not at variance with the fact, though, that technically the affix carries the condition to be met by the complement, hence acting as a proper head.

Third, we automatically get a natural account for cases like those in (25) disallowing event nominalization. While it would be bizarr to mark certain (or all?) affixes with idiosyncratic information excluding certain elements, things are straightforward under the present key-and-lock-account: The verbs in question are either marked in their GF with [EN, Ø], where Ø does not identify a place in the system of EN-affixes, or simply lack the corresponding AF_i altogether. The choice between these options is again an empirical one, based on considerations to which I will return below. Verbs of type (24) allowing two different affixes would, of course, have two different AF_i in their GF.

Fourth, the features included in AF_i have a special status in the grammar in that their content is dependent merely on the organizational structure of LS. I would, in fact, conjecture that all features specifying morphological class membership, like strong and weak inflection, alongside with (derivational) affix selection, are of this type. More generally, besides the primitives of PF and SF, we have the following types of binary features:

(27) (a) Category features
(b) Grammatical features
(c) Morphological features

As discussed in section 2, the category features determine, first of all, the structure of θ-Grids. From this, their role for the organization of syntactic structure follows, due to their projection by principles of X-Bar syntax and θ-theory. Grammatical features like Case, Number, Gender, Person, Tense, etc. do not determine the structure of θ-Grids, but mediate θ-Role assignment and are also freely projected by the principles of X-bar syntax. Morphological features represent purely organizational properties of LS and cannot be projected outside the X^0 level of X-bar syntax. Whereas categorial and grammatical features presumably have a general interpretation in Universal Grammar, morphological features arise only via the particular structure of the lexical system of given languages, albeit by means of general principles. All three types of features can appear in GF and be assigned to θ-Roles. However, morphological features cannot appear in the GF of a projected phrasal category. Assignment to θ-Roles, on the other hand, concernes either grammatical features identifying phrasal arguments, or category features identifying lexical arguments, the latter automatically accompanied by the AF_i-address of the affix the θ-Role in question belongs to. These rather sketchy considerations show why it is plausible to associate AF_i with the θ-Role of affixes: Morphological features are intralexical both in origin and distribution.

I will summarize this proposal by (28), which is related to (13) in an obvious way and determines a further characteristic property of affixes:

(28) A θ-Role associated with a lexical feature [α F] is automatically assigned the AF_i representing the address of the entry containing the θ-Role.

From this condition, it follows that affixation can be subject to idiosyncratic constraints not available for the choice of phrasal arguments by major lexical categories. (No verb can require e.g. a subject or complement belonging to a particular inflection class, etc.)

Finally, we will consider the relation of virtual lexical elements originating from (idiosyncratically constrained) affixation to corresponding complex elements of LE. A useful way to look at this relation is indicated by the following question:

(29)(a) Let CLE contain the entry (22) for Rettung.

(b) What are the conditions that switch (22) into an element of VLE, i.e. give it the status of a virtual entry?

Assuming the organization of LS discussed so far, the crucial condition for the switch in (29b) is, of course, that LE contains the entries (26a) and (12), for -ung and rett-, respectively. By virtue of (28), the θ-Role of -ung will automatically contain [EN, Q] in the bundle of features assigned to it. The interesting point to be noted is this: While the assignment of [EN, Q] to the θ-Role of -ung is an automatic consequence following from the very existence of the affix-entry, the inclusion of [EN, Q] into the GF of rett-, which is a further condition for the switch in (29b), must be inferred from the existence of (22). In other words, to the extent to which AF_i is an idiosyncratic component of the GF of a lexical entry (we will return to the impact of this premis immediately), it must be derived from the existence of a complex item for which it is relevant. Hence idiosyncratic morphological information can enter the lexicon only via actual complex elements of CLE, which might, however, subsequently be eliminated in favor of virtual elements. Hence the answer to (29b) is this:

30)(a) The existence of an entry for the affix

(b) The existence of an entry for the stem

(c) The inclusion of the address of the affix into the GF of the stem.

Of course, the complex entry (22), whether an actual element of CLE or a virtual element of VLE, does not contain the AF_i component any more. Hence the inclusion of it into the GF of the stem presupposes the independent existence of the affix the address of which provides the features of AF_i. From this perspective, the twopartite structure of AF_i becomes relevant: The first component, identifying the affixal subsystem -- EN in the case at hand -- indicates that the type of morphological process is available, in the present case, the formation of an event noun, in other cases Plural- or Case-formation etc. The second component indicates the actual entry realizing the process in question.

Now, contrary to the premis made above, the features to be included according to (30c) into the GF of a lexical entry are not

fully arbitrary and unpredictable. First, the type component of AF_i largely follows form the semantic and grammatical properties constituting the subsystem in question. Thus verbs normally allow event nominalization, nouns allow plural formation, transitive verbs usually allow adjectives with -bar, etc. Hence the type component EN is predictable to some extent by redundancy or default rules, the specific properties of which cannot be discussed here. Secondly, the conditions on actual realization of a given type of process, indicated by the second component of AF_i, are subject to preferences to be reflected in markedness conventions, as already mentioned. We thus might assume that e.g. verbs are specified for [Q], unless marked otherwise. Hence, again, default rules or markedness conventions will provide the relevant features in the neutral case.

As these considerations show more clearly, the choice of features representing AF_i is by no means a matter of arbitrary notational convention. The place of an affix within its subsystem depends, among others, on the degree and the way in which its occurance is predictable. This place must furthermore be represented in terms of features which allow the principles and conventions of LS operating on them to make appropriate predictions. This in turn requires a systematic and explicit account of these principles and conventions, constraining not only the content of the individual entries, but also the overall organization of LE. To mention one case in point: The decision mentioned above concerning the verbs in (25), which do not allow for event nominalization, depends both on the features and the principles applying to them. If, as provisionally suggested above, [EN, Q] ist in fact the neutral option for verbs following from default principles and markedness conventions, the respective features will not be included in the idiosyncratic information of verbs like retten; they rather follow from the principles in question. The content of these principles would be something like the following:

(31) If the θ-Role of an affix is associated with [α F, AF_i], and AF_i contains only unmarked feature values, then AF_i is included into the GF of all lexical entries the GF of which contains [α F] and no features conflicting with AF_i.

The formulation of(31) is highly provisional, but it shows that (31) is a general convention of LS, even though its operation is dependent on idiosyncratic, language particular information of LE. But now, verbs like hören, hüpfen etc. cannot simply lack features concerning event nominalization, as this would not prevent them from forming *Hörung, *Hüpfung, etc. They rather would have to be marked by something like [EN, Ø] excluding the choice of any affix from the subsystem addressed by [EN]. This, however, is a kind of negative information, the origin of which is not plausibly determined by the above considerations concerning the source of idiosyncratic morphological features. As this example shows, farreaching consequences are involved in the determination of the features and principles in question.

Another aspect that must be captured by the features in question is the rather intricate structure of morphological classes created by the AF_i features included in the GF component. This point might be illustrated by verbs selecting the affix (26b), the PF of which was loosely indicated by /Ablaut/. Whatever the correct specification of this PF-property might be, the affix must be restricted to verbs that for independent reasons select affixes determining systematic vowel change. Suppose that the address of (26b) is [EN, R], then [R] should have a form which allows to systematically exploit the fact that its inclusion into the GF of a verb presupposes the occurance of a feature [S] indicating the selection of affixes inducing ablaut. In other words, [R] must identify a subclass of [S]-verbs.

Yet another factor that enters the content of morphological features is the information expressed by levels of affixation in Lexical Morphology as proposed in KIPARSKY (1982). This information determines in effect the operation of phonological rules and principles, and I will not comment on it here.

In general, then, a great deal of systematic exploration is needed, in order to correctly determine morphological features and the principles referring to them. Although I cannot go into these matters any further, the guidelines of such explorations, turning both on theoretical considerations and empirical detail, should be sufficiently clear. Let me point out in this connection, however,

that it is in this area of research that work on the structure of derivational and inflectional systems, including conditions of "system adequacy" and morphological regularization as proposed in WURZEL (1984), must find its proper place. In somewhat simplified terms, the shift towards "system adequacy"is essentially the replacement of marked by unmarked features in the second component of AF_i in the GF of lexical entries. We will observe part of the mechanism involved in those shifts shortly.

Let us get back to the relation between actual and virtual complex entries as outlined in (29) and (30). One point to be added according to the previous remarks is a qualification of (30c), which now is to be replaced by (32):

(32) The inclusion of unpredictable or marked feature values in the address of the affix into the GF of the stem.

These idiosyncratic features would then prevent (31) from supplying unmarked morphological information.

Notice next that in the light of our observations regarding (29) and (30), the blurred borderline between CLE and VLE, i.e. actual and virtual complex entries, becomes a plausible phenomenon. This can be seen as follows: For so-called productive affixes, viz. those selected by a large number of stems (on the basis of features that are, moreover, to some extent predictable), the switch indicated in (29b) relieves the set LE in obvious ways. For unsystematic affixes. on the other hand, the corresponding switch does not actually simplify the lexical system: To eliminate a true element of CLE not based on an independently established affix requires not only the affix to be inserted into the pertinent subsystem, but also the pertinent address features to be created and inserted into the GF of the entry of the stem. In somewhat simplified terms, (un)systematicity corresponds to the amount of (additional) information required to meet (30a), (30b), and (32). Thus the fact that the status of borderline cases like Export and Import is difficult to decide (if at all), neatly follows from the pinciples of idiosyncratic affixation developed here.

It should be noted in passing, that so far we are dealing with semantically "transparent" complex entries exclusively. Problems of semantic idiosyncrasy will be taken up in the next section.

A further remark should be made concerning entries like Zeitung (newspaper) or Währung (currency), which are small in number and in no way related to event nominalization inspite of the fact that they contain -ung -- or rather its PF and GF -- in their representation. There is simply no stem in LE that would grant their elimination from CLE, at what expense ever. I will not enter here the discussion of a side issue related to examples like these, viz. the question whether they are true complex entries, and if so, whether and how they are related to the actual entries corresponding to their components. This relation, whatever it might be, has nothing to do with affixation proper.

Let me turn next to some observations concerning the acquisition of affixation emerging from the foregoing discussion. Notice first of all that the switch characterized by (29) and (30) can be related in a natural way to principles of language acquisition. According to well established assumptions (see e.g. PINKER (1984), CLAHSEN (1988)), the acquisition of lexical entries has major lexical categories, which are moreover represented as elements of BLE, as its initial phase. Hence the initial set of LE does not contain affixes. Some sort of systematization in the corresponding ML, exploring semantic, phonological, and overt syntactic information, leads to the reorganization of ML, relating elements of BLE according to recurrent parts. This reorganization might in fact be thought of as determined by rules of analysis or correspondence of the sort envisaged by JACKENDOFF (1975), which might, however, be given a more principled character on the basis of the present considerations. Based primarily on the information concerning the stem, these (implicit) processes of reorganization yield complex lexical items. In terms of LS, this means that alongside with the by now complex entries, an entry of their common stem is constructued, thus meeting condition (30b) for the elimination of the complex entries from CLE. The crucial step with respect to affixation is the construction of an independent entry for the affix involved in the complex entries in question. CLAHSEN (1988) provides interesting evidence, showing that this is indeed a separate and rather consequential step. In terms of the computational system LS, this provides condition (30a) for the elimination of the complex entries from CLE. According to the principles of LS proposed here, the construction of an affix

entry implies the assignment of its address-features to its key θ-Role. The natural prediction to be made in this stage is that the relevant complex entries are switched to VLE, exploiting (31) as far as possible in order to meet condition (31c) -- or (32) for that matter. Exploitation of the default- and markedness-conventions which (32) makes use of, produces the well-known overgeneralizations in ontogenetic development, and the tendency towards regularization or system adequacy in language change. In a somewhat simplified schema, the acquisition of affixation starts with the premis (29a) and effects the switch in (29b) by stepwise fulfillment of (30)(b), (a), and (c). It goes without saying that the switch of an entry from CLE to VLE does by no means imply its elimination from the stored elements of ML. It implies, however, the stepwise construction of the complex organization of LE expressed in the features used in the necessary AF_i.

If this general picture is correct in principle, as I suppose, it makes non-trivial predictions, which can be explored by means of observation and experiment. Notice that these predictions concern the development of affixation, given the principles of Universal Grammar, and also the continuous elaboration of LE by new elements of CLE, new affixes, and the pertinent organization of LE in terms of subsystems. These are interacting, though essentially different developments: The acquisition of affixation involves setting parameters of UG, such as the head parameter, giving suffixes -- but not prefixes -- the status of proper heads in German, whereas the incorporation of new entries simply exploits the rules and principles already given. From this exploitation it follows without further stipulation that morphological change should be directed towards systematization ("system adequacy"), rather than simplification in some absolute sense.

Returning to more specific problems of event nominalization, we have to show how the idiosyncratic properties of so-called double affixation in nouns like Repar-at-ur (repair), Spekul-at-ion (speculation), In-filtr-at-ion (infiltration), etc. are to be accounted for. In principle, there are three possibilities to analyze these cases:

(33)(a) [[spekul at] ion]
(b) [spekul [at ion]]
(c) [spekul ation]

In (33c), we do not actually have double affixation, but rather an additional single affix -ation to be added to the system EN, creating its specific address, say [EN, T], for which the pertinent verbs are then to be marked in the usual way. It might be that this is in fact the correct analysis of these cases in German. If so, we simply have additional detail in LE, but no further comment is needed. However, as we have to account for double affixation anyway, I will consider the implications of (33)(a) and (b) in turn. The features required to identify the place of -ion wil be indicated by [EN, U] for the sake this discussion.

The interesting point to be noted about -at is its degenerate character: It cannot be affixed alone, as -ion in fact can, e.g. in Rebell-ion (rebellion), Konvers-ion (conversion), etc. (Actually, things are slightly more complicated, as there is another affix -at, deriving a different, but related type of nominalization, as in Konzentr-at (concentrate), besides Konzentr-at-ion (concentration), or Deriv-at (derivative), besides Deriv-at-ion (derivation). For the time being, I will ignore these result nominalization.) Nor does it contribute to the SF of the complex word, as each of the affixes in ordinary cases like arbeit-et-est ((you) worked) in fact does. It thus operates as a dummy morphological marker, which is, however, obilgatory for the pertinent class of verbs, viz. those marked [EN, T] according to version (33c).

The following entry will automatically yield the desired result in accordance with (33b):

(34) /at/; [+V, -N, EN, U]; $\hat{X}_{[+V,-N,EN,T]}$ [x]

The features [EN,T] must automatically be assigned by (28), which means, in effect, that (34) has to be assigned place T within the subsystem EN. This is an unpleasant consequence, especially in view of the GF marking /at/as a verbalizer, contrary to the very nature of EN. It is required, though, for the affix -ion to take at as its complement to form at-ion. Combining -ion by functional

composition with (34), we derive (35), which would actually be the unanalyzed entry required according to (33c):

(35) /at-ion/; [+N, -V, +Fem]; $\hat{x}$ [+V,-N,EN,T] [x]

Notice that the features assigned to the θ-Role are inherited -- together with the θ-Role -- from the affix /at/. They do not follow by (28) from the address of (35). Except for this technical point, (33b) and (33c), not surprisingly, turn out not to be essential alternatives. In effect, (33b) treats ation as a virtual suffix, while (33c) treats it as an actual complex suffix, not requiring the problematic entry (34).

What seems to be more surprising at the first glance is that (34) also supports the analysis (33a), all other things being equal. To see this, we need only to realize that (34) can apply to verbs marked by [EN, T] (as presupposed for the pertinent class), turning them by functional composition into verbs marked by [EN, U], to which then -ion can apply, as desired. The fact that the latter step is obligatory, as spekul-at is neither a real verb nor noun, can assumed to follow from the fact that [EN, U] is at variance with verbal inflection, hence the derived item cannot enter any further combination, except composition with -ion. The analysis (33a) thus seems to reduce to the same assumptions about LS as (33b).

If this were the whole story, we would have to turn to phonology, in order to try to decide the case -- presumably in favor of (33a). There is, however, a further observation to be made. The inclusion of /at/ into the subsystem EN was motivated by the assumption that stems like spekul-, ventil-, etc. are marked by [EN, T], appropriate for the complex EN-affix (35). Suppose now, that the stems in question are not marked for event nominalization, but rather for the auxiliary affix /at/, which is not a member of EN. Suppose furthermore that the address of this affix is [DA, T], where DA abbreviates a subsystem of dummy affixes, T indicating the place of /at/ in this system. Obviously, the verbs in question will now be marked [AD, T], rather than [EN, T]. With these assumptions, (34) would have to be replaced by (36):

(36) /at/; [+V, -N, EN, U]; $\hat{x}$ [+V,-N,DA,T] [x]

Actually, (34) is not replaced by (36), but rather assigned a different place in BLE, from which the assignment of [DA, T] instead of [EN, T] follows by convention (28). Combining (36) with the appropriate stems yields "expanded" verbs to be nominalized by -ion, as desired.

Notice that the reassignment just discussed supports, once again, the alternative analysis (33b) as well. But now a further observation is to be made. Whereas the expansion of ventil- into ventil-at , which then undergoes proper nominalization, is a natural step, the composition of at with ion into a complex affix, absorbing a dummy "verbalizer", is somewhat artificial. This impression is corroborated by the following observation.

In a large number of cases, nominalization by at-ion alternates with verbal stem formation with -ier-, which can be accounted for by the following affix entry:

(37) /i:r/; [+V, -N, VI]; $\hat{x}$ [+V,-N,DA,S] [x]

VI abbreviates the AF_i in terms of which verbs formed by -ier- are selected by their inflectional affixes. It is plausible to assume that (37) belongs to the same system of dummy affixes as (36), where S indicates its place. As a matter of fact, (36) and (37) differ only with respect to PF and the AF_i component in GF. This is a natural basis for including them into the same subsystem. But now assume that the features representing the place S and T of (37) and (36), respectively, are to be chosen in such a way that they share an element, say [+ K]. Then all verbs selecting both -ier-en and -at-ion are to be marked [DA, +K] instead of [DA, S] and [DA, T], expressing the proper generalization. The situation arising from this assumption is strictly parallel to that of e.g. an NP neutralized for the distinction between Nominative and Accusative, like es (it), which can be selected both as subject or object by corresponding θ-Roles. Although the generalization thus achieved still does not logically exclude the analysis (33b), it makes (33a) even more plausible, according to which -at- (as well as -ier-) serves stem formation, rather than complex affix formation. I will not go

into further arguments pointing in the same direction. Although the whole story is even more complex, if we include double affixation of the type Nomin-ier-ung and their constraints, I will leave it at that, adopting tentatively entry (36) and analysis (33a), which is in fact supported by independent considerations about affixation based on inflectional affixes, which we cannot deal with here.

So far, I have considered only one type of event nominalization which in essence turns the referential θ-Role of a verb into that of a noun. There are, however, three other ways to effect a similar change, illustrated in (38) - (40):

(38) Sing-en (singing) Trampel-n (trampling) Rett-en (rescuing)

(39) Sing-er-ei (") Trampel-ei (trample) Rett-er-ei (")

(40) Ge-sing-e (") Ge-trampel-e (") Ge-rett-e (")

All three types raise additional questions, which I will comment on rather briefly:

I take the corresponding cases in (39) and (40) to be synonymous, but different from event nouns discussed so far. They require the event referred to to be some sort of repeated (and somewhat chaotic) activity of the verbs designated argument. I will, somewhat ad hoc, represent this conditions as [x REPDO y], where y and x correspond to the referential and the designated θ-Role of the verb, respectively. The common part of the affixes involved in (39) and (40) can thus be represented as (41):

(41) $[+N, -V]; \underset{[+V,-N]}{\hat{z}} \quad \hat{x} \quad \hat{y} \quad [[x \text{ REPDO } y] : [[z\ x]\ y]]$

In order to insert the condition REPDO on x and y, the affixes must access these variables. They hence skip only the internal θ-Roles of the verb, searching for an expression of category (0/1)/1 to be substituted for z. Notice that the component REPDO imposes a semantic constraint on the verbs that can be selected: Only verbs compatible with the activity requirement are acceptable arguments of (41). This rules out derivations like ?Seherei (from see), ?Besitzerei (from possess). The constraint is purely semantic: As soon as you allow for some sort of activity interpretation of the verb, the derivations become interpretable as well. It is not clear

to me whether another pecularity of these nominalizations is to be accounted for in the same vein, namely that all other arguments inherited from the verb are not really optional, but practically blocked: Constructions like (42) are rather awkward:

(42)(a) ?Peters Singerei der Nationalhymne (Peter's singing of the national anthem)

(b) Ihr Getrampel in der (?die) Küche (her trample in(to) the kitchen)

It seems as if the somewhat chaotic action is incompatible with more specific arguments and prefers them to be unspecified parameters. I will not speculate further on these matters.

The morphological realization of (41) needs further comments. First, both alternatives involve some sort of double affixation, although of a different sort: The cases in (40) consist of the suffix -e, which introduces the Gender features [-Masc, -Fem] and requires a stem prefixed with ge-. The cases in (39) are based on the suffix [-ei], which introduces [+Fem] and requires either a dummy affix -er- or a bisyllabic stem ending in a liquid.

Second, the prefix ge- has exactly the distribution of the same prefix used in participle formation and thus constrains the type (40) on independent grounds: We do have Gemorde (murder), but neither *Ersteche nor *Geersteche (stabbing). From this, it follows that the structure of (40) must be [[ge sing] e], with the dummy prefix having the same origin as that of the past participle, the details of which need not concern us here. But now the problem arises: How does the suffix -e identify its complement? A somewhat ad hoc answer would run as follows: Although prefixes, which are not proper heads, cannot project category features, they can project morphological features, say [+Px] in the case at hand. Now the suffix -e would have to have the feature [+Px] assigned to its key-θ-Role. This yields the correct result, if ge- is appropriately marked. This solution, however, is clearly ad hoc in the present framework. An equally ad hoc alternative would require that the suffix -e can look for the actual phonological prefix of its complement. Pending further argument, I will leave it at that.

Third, access to phonological information in the key-θ-Role of the affix seems to be unavoidable for the suffix -ei involved in

type (39), if the above generalization is correct, viz. that -ei requires a bisyllabic stem ending in a liquid. The dummy affix -er- under this assumption simply provides a syllable ending in /r/, in case the stem does not meet the conditions by itself. If this move is correct, it raises a whole number of further questions, which I will not enter here.

Finally the nominalized infinitiv in (38) is by far the most regular and systematic event noun in German. Using the Infinitiv morpheme, it turns the verbal stem into a Neuter noun with the pertinent consequences for its θ-Grid. It does not appear to induce any morphological idiosyncrasies, hence whatever its address might be, the features identifying it are automatically included in the GF of all verb stems. Like the nouns in (40) Gesinge etc. the Infinitiv allows Case inflection, but no Plural formation. (Unlike (40), the nouns in (39) can be pluralized: die Singerei-en.) These facts can tentatively be summarized in (42):

(42) /-n/; [+N, -V, -Masc, -Fem, -Plur]; $\hat{x}_{[+V,-N]}$ [x]

For the epenthetic expansion of /-n/ into /-ən/, see WIESE (1986). In actual fact, however, there are two nominal infinitives in German. Besides the one captured by (42), there is a kind of Gerund construction using the same morpheme, but with different syntactic properties, as illustrated by the following examples:

(43)(a) Peters Vorlegen/Vorlage der Abschriften
(Peter's submitting of the copies)
(b) sein promptes die Abschriften Vorlegen
(his quick(ly) submitting the copies)

In cases like (43b), the nominalization is sort of incomplete: Like verbs, this infinitive is head final and assigns Accusativ to its internal argument. Actually, constructions like (43b) have a somewhat problematic status in German. Their relation to proper nominalization resembles that of Gerunds in English discussed in CHOMSKY (1970). I will not go into this rather different sort of problems here.

Let me conclude this section with the observation that all event nouns discussed here -- irrespective of semantic variation -- inherit their reference to events from the verbs they are based on.

(Strictly speaking, nouns derived by (41) do not inherit the θ-Role $\hat{y}$ from the verbal complement, but re-establish it, so to speak. But they too exploit the variable instantiating the proposition of the SF of a verb.) There are however simple, non-derived nouns exhibiting the same sort of event reference. (44) is a case in point:

(44) /sturm/; [+N,-V,+Male, AF_i]; $\hat{x}$ [x INST [STORM]]

Here STORM is a constant of category O, abbreviating the proposition that the air moves heavily. Such basic event nouns are by no means a borderline case. It is not always clear, however, whether a given event noun is basic or is related to a corresponding verb by zero-affixation. The first situation seems to hold for Marsch (march) on which the verb marsch-ier-en is based (possibly by means of an exceptional application of (37)), the second situation has been supposed to hold for Fall (fall), Sprung (jump), etc. In general, however, event nouns can be identified on the basis of their GF and SF, independently of their morphological status.

5. Semantic Variation

The idiosyncrasies and the constraints imposed on them to be considered in this section are of a rather different type. As we will see in more detail, they are essentially independent of the morphological peculiarities discussed so far. For the sake of exposition, I will distinguish two types of problems, which might be called semantic separation and conceptual shift. Both have to do with what is sometimes called lexical drift, i.e. the emergence of unpredictable possibilities of semantic interpretation, where to some extent conceptual shift is the origin of semantic separation. It therefore seems to be plausible to discuss them in that order. As before, I am primarily interested in the aspects that constrain apparent or real idiosyncrasy. These are essentially of two types: First, conditions on the SF component of lexical entries, second principles of conceptual knowledge determining the interpretation of linguistic expressions. As we will see, this distinction, although important for both empirical and theoretical reasons, is not always easy to draw, primarily due to our lack of explicit knowledge about the principles of conceptual structure. Hence much of the following discussion will be provisional and inconclusive. For some illustration and discussion of the problems involved, see BIERWISCH (1981, 1983), GERGELY and BEVER (1986).

Before turning to phenomena of conceptual shift, I will point out a type of variation which is actually quite regular, strictly following from the principles of affixation. What I have in mind is the fact that nominalizations like Eroberung (conquest), Verhör (interrogation), Identifikation (identification) can refer to actual events, while this is a dubious claim for nominalization like Hoffnung (hope), Meinung (opinion), Glaube (belief), Intention (intention). What they can refer to, are mental states, attitudes, or something of that sort, but not events. Analogous comments apply to Lage (position), Haltung (posture, attitude), Geltung (value, validity), Haftung (obligation), and many others. The problem we are facing here is one of terminology rather than of substance. I am using the term event in a rather broad, but well founded, sense, including states, processes, and proper events. (For some discussion of the problems involved, see BACH (1986).) In general, the 'content' of a proposition determines the sort of entity that can instantiate it. Hence the proposition contained in a verb's SF determines whether its referential θ-Role goes for a state, a mental attitude, a process, or an event. This choice is simply carried over to the derived noun through inheritance of θ-Roles. The entries in (26) therefore correctly predict the kind of variation just illustrated. Lacking a better term, I will continue to talk about event nominalization.

In view of this generalization, a great deal of de-adjectival nominalizations can also be classified as event nominalization. Suppose that nouns like Klugheit (cleverness) relate to Klug-sein (being clever) essentially like Eroberung relates to the nominalized infinitiv Erobern. We then would have to represent Klugheit as in (45). Assuming that klug has the entry (46), (45) would follow by means of the affix (47):

(45) /klu:g-heit/; [+N, -V, +Fem]; $\hat{y}$ $\hat{x}$ [x INST [CLEVER y]]

(46) /klu:g/; [+N, +V, AN, Q]; $\hat{y}$ [CLEVER y]

(47) /hajt/; [+N, -V, +Fem]; $\hat{z}$ (+V,+N,AN,Q) $\hat{x}$ [x INST [z]]

What is to be noted in (47) is the additional θ-Role $\hat{x}$ it brings in, not inherited from the adjective. It is this θ-Role, and the component INST to which it is related, that creates event (or rather

state) reference of the derived nouns. Let me note in passing that (47) accounts in fact for the semantic relatedness of Klugheit and Klug-sein, if we assume the independently motivated entry (48) for the copula (see BIERWISCH (1988)):

(48) /zaj/; [+V, -N, AF_i]; $\hat{v}$ $\hat{y}$ (+Pr) $\hat{x}$ [x INST [v y]]

The feature [+ Pr] is to be construed as identifying a non-directional PP, a predicative NP, or an AP to be θ-marked by the copula. Suppose now that klug is such an AP, if the morphological features [AN, Q] are dropped from its GF, and may thus become the internal argument of the copula. Hence /zay/ would take (46) as a phrasal argument, wheres /hajt/ would take it as a laxical argument, the former using functional application, the letter functional composition. As a consequence of functional application, the SF of (46) together with its θ-Role substitutes for v in (48), which by further lambda conversion yields the SF of (45). The nominal character of Klug-sein must be assumed to be due to Gerund formation of the type mentioned above.

Returning to semantic variation of event nominalizations, we notice that event nouns, whether de-verbal, de-adjectival, or basic elements, all share the configuration (49), where P is a proposition:

(49) /PF/; [+N, -V,...]; ... $\hat{x}$ [x INST P]

The variation between states, processes, and events in the narrower sense simply follows from the content of P. On the background of this generalization, we will turn to the problems of conceptual shift. A well known and widespread phenomenon relevant here is the result interpretation shown in the following examples:

(50)(a) Die Ordnung der Bücher kostete ihn drei Tage.
Arranging the books took him three days.
(b) Die Ordnung der Bücher war schwer wiederherzustellen.
The arrangement of the books was difficult to restore.

(51)(a) Seine Rekonstruktion des Vorgangs war rasch abgeschlossen.
His reconstruction of the event was quickly finished.
(b) Seine Rekonstruktion des Vorgangs war irreführend.
His reconstruction of the event was misleading.

(52)(a) Die Bebauung des Gebiets wurde unterbrochen.
The construction of buildings in the area was interrupted.
(b) Die Bebauung des Gebiets wurde eingeebnet.
The buildings in the area were leveled down.

The result emerging from an event can vary between a state, i.e. another event in the general sense of the term, as in (50b), and a physical object, as in (52b). Within that range, further variation is possible, as shown in (53), where (a) refers to an event, (b) an object, and (c) an imagined event or object, depending on what the planning is about:

(53) Peter hat die Überdachung (a) geleitet (b) abgerissen (c) geplant
Peter (a) directed (b) destroied (c) planned the roof construction

Thus it seems that the choice of the result instead of the event interpretation depends to a large extent on the contextual setting, more specifically on situational and encyclopedic knowledge, i.e. conceptual information relevant to the context.

Likewise, the character of the result is determined by the conceptual knowledge related to the type of event, just as the type of event was shown to depend on the proposition it instantiates. This observation is directly related to the fact that result interpretations are difficult to obtain, if at all, for verbs like springen (jump), reiten (ride), werfen (throw), zweifeln (doubt), deklamieren (recite), since in these cases the events do not lead to a result distinguishable from the occurrance of the event itself. Hence Sprung (jump), Ritt (ride), Wurf (throw), Zweifel (doubt), Deklamation (recitation) refer to the event, not a result of it.

There are numerous complications involved here, which I will not pursue any further. I will rather turn to three general points to be made here.

1. The most important observation is that the type of variation we are considering now must in no way be taken as a specificity of event nominalization, or derivational morphology, for that matter. The variation simply reflects the overall phenomenon of polysemy. More specifically, the alternations illustrated in (50) - (53) are strictly parallel to those observed e.g. for basic items like book,

letter, novel, newspaper, which can be used to refer - among others - to an informational structure of some sort or a physical object representing it. Similarly, school, parliament, university, bank, etc. refer either to a social institution, or a building where the institution is located. As I have argued in BIERWISCH (1983), those alternations -- alongside with various similar changes -- are determined by conceptually motivated shifts creating varying families of concepts clustering around the respective core concept. One of the important points of these families is that they relate concepts of different ontological type -- such as abstract structures, physical objects, social institutions, events or processes, and a numer of others. Without going into the farreaching -- and largely unexplored -- problems arising here, I will merely point out that the shift in interpretation of event nouns participates in exactly this sort of shift creating families of concepts. Two observations will support and clarify the claim a bit.

First, the result interpretation of event nominalizations participates under appropriate conditions in the type of shift just mentioned with respect to book etc.:

(54)(a) Die Übersetzung der Bibel war in wenigen Wochen abgeschlossen.
The translation of the Bible was finished in a few weeks.
(b) Die Übersetzung der Bibel enthält einige Fehler.
The translation of the Bible contains some errors.
(c) Die Übersetzung der Bibel ist dicker als das Original.
The translation of the Bible is more voluminous than the original.

The event of (54a) is shifted to the resulting information structure in (54b), and this into the representing physical object in (54c). Under sufficiently specific conditions, the event-interpretation is, by the way, available even for nouns like book:

(55) It was only after his second book that he became famous.

Secondly, ontologically different concepts can simultaneously interpret one and the same expression, if their relation is sufficiently close. This is born out e.g. by conjoined predications requiring different types of entities as argument, as in (56):

(56) The book is entertainging, inexpensive, and easy to take along.

(57) Peter hat die Überdachung geplant, geleitet und wieder abreißen lassen.

(57) shows that this holds for event nominalizations as well. Further constructions illustrating the same fact, as well as the conceptual limits imposed on it, could easily be adduced.

2. As these observations show, the availability of the different interpretations under discussion emerges from conceptually organized encyclopedic knowledge, including the ontological types and principles underlying it. It is for this reason that the variation in question is in an important way independent of the lexical system of particular languages. In this respect, the variation discussed here is crucially different from the phenomena involved in idiosyncratic affixation.

The conceptual origin of the variation in interpretation does not automatically imply, though, that it is not entrenched in some way in the lexical system. We will return to this question shortly.

3. The variation at issue results from an intricate mixture of idiosyncratic and predictable conditions, albeit in a completely different way than the morhological idiosyncrasy in affixation. A preliminary orientation in this fairly obscure area might be achieved if we realize that the actual phenomena are determined by (at least) three different types of conditions, viz. those belonging to LS, those belonging to the autonomous conceptual system, and those belonging to ML, implementing the computational structure of knowledge. The conditions in question differ in two distinct ways: On the one hand, linguistic knowledge (including LS), and conceptual knowledge are two autonomous, though interacting, systems of mental structure. On the other hand, both belong to the computational organization of knowledge which is implemented by memory structures and mechnisms of processing, to which ML belongs. Now, ML need by no means reflect in any simple and direct way the modular organization of the computational system it implements. The actual storage in memory might well be a partial integration of linguistic and encyclopedic information.

Hence what shows up at the surface as a fuzzy domain of semi-predictability bothering research in word formation, must be explained in terms of the different factors involved, which then are

likely to exhibit a great deal of systematicity, constraining specific idiosyncrasies. With respect to LS, which we are primarily interested in, the question will primarily concern the status of complex lexical items, to which I will return.

Suppose now, for the sake of argument, that the alternation illustrated in (50) - (52) would have to be reflected in LS, i.e. in the SF component of the entries in question. A natural way to incorporate this assumption in the present framework would require representations like (58), besides the event interpretation (59):

(58) Ordnung: $\hat{x}\ \hat{y}\ \hat{z}$ [[z RES e] : [e INST [y ARRANGE x]]]

(59) Ordnung: $\hat{x}\ \hat{y}\ \hat{z}$ [z INST [y ARRANGE x]]

The proposition [z RES e] has a fairly wide range of interpretations, all identifying z as an entity resulting from the event e, where z might be another event (or state) produced by e, or an appropriate type of object that comes into being through e. The proposition [z RES e] is connected to the rest of the SF as a precondition to be met for the rest to be applicable. (Technically, this is indicated by the colon, which is to be construed as an SF-constant of category (0/0)/0).It is now easy to realize that (58) would result from (59) by means of the operator (60) combining with (59) through functional composition:

(60) $\hat{v}\ \hat{z}$ [[z REZ e] : [v e]]

For [v e] to be a component of category 0, v must be of category 0/1, hence the application of (60) to (59) skips only two of the lambda operators, such that $\hat{z}$ [z INST [y ARRANGE x]] will be substituted for v in (60), where then e will replace the original variable z by lambda conversion, yielding (58). So far, we have simply exploited conditions on SF. But what could be the status of (60)?

Notice first of all that there is an affix -<u>at</u> in German, which derives result nominalizations like <u>Derivat</u> (derivative), <u>Konzentrat</u> (concentrate), <u>Resultat</u> (result), <u>Kondensat</u> (condensation). As already mentioned, this affix is clearly distinct from the dummy affix discussed earlier. As (61) shows, the entry of this affix contains (60) as its SF:

(61) /a:t/; [+N, V, -Masc, -Fem]; $\hat{x}_{[+V,-N]}$ $\hat{y}$ [[x RES e]:[x e]]

Likewise, result nouns like Konstrukt (construct), Transform (transformation), Produkt (product) appear to require an affix differing from (61) only by its PF, hence forming a further entry of a subsystem RN.

If (60) is therefore part of BLE anyway, in fact the crucial configuration of a specific subsystem of result affixes RN, one might now wonder whether certain elements of EN have a homonymous counterpart in RN. Under this assumption, the alternative interpretations illustrated in (50) - (53) were cases of proper ambiguity, originating from two different, but homophonous affixal heads, much like e.g. kommt (come/comes) is ambiguous between Plural Imperativ and 3. Person Singular Present, due to the ambiguity of /-t/. The ambiguity between event and result nominalization would thereby become a strictly structural phenomenon in LS.

Before I'm going to discuss reasons and means for an alternative treatment, I will briefly show how some other putative facts about event nominalization can be incorporated in this analysis.

The following generalizations are supposed to hold for event nominalization in English (see GRIMSHAW (1988) for a recent account):

(i) Only result nominals, but not event nominals can be pluralized.
(ii) Only event nominals preserve the argument structure of the verb, optionally suppressing certain argument positions, whereas result nominals do not allow arguments at all.
(iii) Result nominals, but not event nominals, are available for more idiosyncratic interpretation (i.e. for "lexical drift").

On the assumption that there are homonymous affixes for event and result nominals, (i) is captured by a morphological feature in the GF of the event affix blocking the application of a Plural affix. (ii) is slightly more complicated. We notice first that what GRIMSHAW calls suppression of an argument is tantamount to not realizing a θ-Role -- usually an optional one. As I have supposed without further argument, optionality holds for all but the designated θ-Roles of nouns. (This assumption might be in need for further elaboration, introducing certain dependencies between the realization of optional θ-Roles. I will not go into these refinements.) The crucial point in (ii) is, however, that result nominals are supposed to have no θ-Roles whatsoever except, of course, the

referential θ-Role. Formally, the elimination of a θ-Role can be effected in the present framework by a free variable absorbed by the pertinent lambda operator, as e.g. in the entry (19) for -bar, repeated here as (62):

(62) /bar/; [+V, +N]; $\hat{x}_{[+V,-N]}$ [POSS [[x u] e]]

Here, u and e each kill one θ-Role of the verb -bar combines with. If the generalization (ii) is empirically correct, the elimination of θ-Roles cannot appropriately proceed that way, since the number of θ-Roles to be eliminated by the result nominalizer would vary according to the verb it applies to. This, however, is not the case for (62). What seems to be necessary is an additional stipulation, which says that inherited optional θ-Roles are automatically dropped from the θ Grid of result nominalizations. This stipulation must of course be a lexical property of the result affix. Other affixes, e.g. those deriving nominals like Singerei and Getanze discussed above might be marked for similar reduction of the inherited θ-Grid. I will not formulate such an additional operation on θ-Grids, as I have doubts about its empirical validity, for reasons to be discussed shortly. Suppose however for the sake of argument, that there are two affixes -ion_e and -ion_r, the first excluding pluralization, the second excluding internal θ-Roles. On this account, (iii) would simply say that only nominals formed by -ion_r are subject to lexical drift.

Notice now, that if (i) and (ii) are empirically correct generalizations, a nominal like destruction either takes complements, but no plural (due to ion_e), or it pluralizes, but doesn't allow complements (due to ion_r). Hence (63) would have to be ruled out:

'63) (a) Each of the three destructions of Carthago
(b) John's and Eve's conflicting reconstructions of the burglery

Other nominalizations are equally in conflict with the putative generalizations:

(64) (a) several of John's proofs of the theorem
(b) his premature criticisms of the book

Notice that it would not help to say that the PP's in (63) and (64) are not complements, but modifiers of the head noun, because that would make the whole argument circular. (As a matter of fact, (64a)

is the paradigm case that motivated the analogy of nominal and verbal constructions in CHOMSKY (1970), which would be pointless, if the nominal did not have arguments.) Moreover, (63a) does not even seem to rule out the event interpretation, as it could well be the subject of came as a surprise or began with a siege.

I cannot go into the interesting details concerning these constructions, but I will point out, that (i) and (ii) don't hold for German. Notice, incidentally, that (iii) becomes pointless under these circumstances. If it is neither pluralization nor lack of argument structure a drifted noun characteristically shares with result nominalization, than it might just as well be said to have drifted from an event nominalization. At least for nouns like Sitzung (meeting, session), Vorstellung (performance), or Spannung (voltage) this is more plausible than the intervention of a result.

As to (i), there are clear violations in both directions. (65) illustrates pluralized event nominalizations, (66) shows that result nominalizations do not necessarily allow pluralization:

(65) (a) Seine drei Sprünge über die Latte eröffneten den Wettkampf.
His three jumps over the pole opened the competition.
(b) Die Umdispositionen des Dirigenten zogen sich über Tage hin.
The rearrangements of the conductor went on for days.

(66) (a) Er ließ die Bebauung(?en) des Gebiets einebnen.
He had the buildings in the area leveled down.
(b) Er rügte die strikte(*n) Isolierung(*en) der Häftlinge.
He criticized the strict isolation(*s) of the prisoners.

The result nominalizations in (66) seem to have properties of mass nouns, and therefore no plural.

Again, things are more complicated with (ii), primarily because of the constraints on adnominal complements in general and the dependencies involved in the realization of optional complements in particular. Without going into these intricacies, it is easy to see that result nominals may have complements. In (66), we have the Accusative θ-Role of the verb realized by a Genitive NP, as required by structural Case assignment of nouns. In (67), the Genitive NP realizes the designated θ-Role of the verb:

(67) (a) Die Überlegung(en) des Direktors war(en) bekannt.
The consideration(s) of the director was/where well known.
(b) Die Disposition des Produzenten wurde mehrfach revidiert.
The disposition of the producer was repetedly revised.

Thus, there is no reason to assume that result nominals are deprived of the θ-Roles event nominalizations inherit from the verb. Notice that even the dependencies in the realization of optional θ-Roles do not conform to this distinction. For both event and result nominals, there seems to be a preference to assign the Accusative θ-Role of a transitive verb base, rather than its designeted θ-Role, to the Genitive NP governed by the nominals in question. And once again, this preference can be overridden for both event and result nominals by semantic conditions: If we replace des Produzenten in (67b) by der Aufführung (of the production) the switch in θ-Role assignment is mandatory. The same holds for the event nominalization in (68), if we replace der Aufführung by des Produzenten:

(68) Die Erläuterung der Aufführung dauerte mehr als eine Stunde.
The explanation of the production took more than an hour.

To summarize: Although there is more to be said about the realization of optional θ-Roles, conditions on pluralization and argument structure cannot plausibly be reduced to different entries for affixes deriving event and result nominals, respectively. Hence a different account for the alternation in question is needed.

Given the earlier observations concerning the conceptual origin of varied interpretation, the natural assumption seems to be that we are dealing here with a phenomenon of conceptual, rather than lexical structure. This might in fact be the correct solution to the problem. It is, however, difficult to evaluate without a better understanding of the principles of conceptual structure and its interaction with LS. I will therefore outline an alternative proposal, according to which the distinction between event and result nominals is represented in LS without invoking actual ambiguity of affixes -- or separate complex lexical entries, for that matter.

The essence of the proposal is the assumption that LS provides restricted (and conceptually motivated) means to adapt compositionally derived SF representations to the requirements of conceptual

interpretation. To make this proposal more concrete, I will assume that affixes for event nominalization have the properties discussed in section 3 and 4, systematically specifying conditions for reference to events. Suppose now that the contextual requirements on interpretation, deriving both from the syntactic environment and the discourse setting of the resulting complex entry, are at variance with reference to the event type thus determined, but would be met by reference to the result emerging from that event. Thus for example the compositionally derived entry Ordnung (arrangement) might regularly appear under conditions, where its ordinary representation given in (59) would be inappropriate, while the expansion given in (58) would grant a conceptually coherent interpretation. As already pointed out, the necessary expansion can be effected by functional composition, applying (60) to (58) as its argument. Let us assume, therefore, that LS has available the operator (60), repeated here as (68):

(68) $\hat{v}\ \hat{z}\ [[z\ \text{RES}\ s] : [\ v\ e\ ]]$

Let me call (68) an SF-templet. As the availability of (68), and SF-templets in general, is the main point of the proposal under discussion, I will add a few comments.

1. The main contribution (68) makes to the SF of an entry it applies to is the component [z RES e] based on the constant RES, a primitive provided by UG. However, this component must be interlocked with the SF of the event nominal in specific ways: Added as a precondition, the component must switch the binding of the referential Θ-Role of the noun from the variable representing the event to that representing its result. Therefore, the device effecting the result interpretation cannot simply be the result component, but must be the more complex configuration (68).

2. This configuration, as we have seen, is to be identified as the defining structure of the affixes effecting result nominalization. As an SF-templet, however, it does not carry any grammatical information, neither assigned to the lambda operators, nor as a GF-component. (68) is subject to the standard conditions on SF: The lambda operators are prefixed to an SF-expression of category O, the structure of which requires the variables v and z to be of category O/1 and 1, respectively. Hence as a whole, (68) is of category

(O/1)/(O/1), a functor that combines by functional composition with an argument in the same way as affixes do, but not on the basis of grammatical information. It therefore cannot have any syntactic or morphological, let alone phonological consequences or conditions. It is in fact a purely semantic change constrained by the structure of the expression to be interpreted. With necessary precaution, one might think of this operation as a kind of invisible, purely semantic affixation.

3. The proposal is not completely ad hoc. As I have conjectured in BIERWISCH (1983), the semantic phenomena of conceptual shift might be the result of SF-templets in a more general way. For instance, the place-interpretation for school, bank, etc. might be effected by a templet of the following type:

(69) $\hat{z}\ \hat{x}\ [[x\ \text{PLACE-OF}\ y] : [\ z\ y\ ]]$

For a number of reasons, which need not concern us here, (69) cannot be the actual templet, but it illustrates the gist of the generalization of SF-templets. In a similar vein, the phrase ein Jahr nach Tschernobyl (one year after Chernobyl) clearly requires an event interpretation of the NP Tschernobyl, which could be effected by the following templet -- given again in a merely suggestive form:

(70) $\hat{z}\ \hat{x}\ [[x\ \text{INST}\ P] : [x\ R\ y] : [\ z\ y\ ]]$

P is a variable of category O to be fixed by a propositional condition specified by encyclopedic knowledge (the power plant accident, for the case at hand); R is a parameter of category (O/1)/1, conceptually fixed by a relation connecting the event x and the object y identified by the predicates contained in Tschernobyl. In BIERWISCH (1987), I have discussed a templet of a somewhat different type, which provides a gradable reading for absolut adjectives like green, round, male etc.

Although these hints need a great deal of clarification, they should suffice to give an idea of the function of SF-templets.

4. In a sense, then, SF-templets are well formed SF-configurations, floating around in LS, as they are not attached to any grammatical or phonological information. They are available if need arises to achieve conceptual interpretation. In order to prevent this proposal from vacuousness, the existence of those templets must be restricted on principled grounds. I will therefore assume that each

SF-templet has to be supported in LS by its occurrence as a (distinguished part of a) proper lexical entry. In other words, LS-templets must be established on independent grounds on the SF-level of LS. For the templet creating result nominals, there are two sources: a direct and an indirect one.

The entries directly supporting (68) are the result affixes of the subsystem RN, exemplified by (61). As already pointed out, (68) results from (61), if only its SF and the prefixed lambda operators are picked out.

(68) is furthermore indirectly supported by complex entries of LE whose SF is that of a result nominal, but cannot be reduced to a fully predictable, i.e. virtual entry. Abfall (garbage) might be a case in point, because its specific condition (the result must be useless) does not compositionally arise from stem and affix. (We will turn to these phenomena below.) Those complex entries support (68) only indirectly, as they do not exhibit the templet explicitely, but only the configuration that would arise from its application, if there were an appropriate stem.

The interesting point about indirect support of this sort is that it exploits the same mechanism by which proper affixes are established, if our comments on their acquisition and the switch from actual to virtual complex items are correct. On this account, indirect support is not an ad hoc stipulation to justify SF-templets, but follows rather from general principles determining the organization of LE.

If this account of conceptual shift is on the right track, it gives the variablity of interpretation a principled status between proper ambiguity (as e.g. in trunk) and mere vagueness (as exemplified by e.g. the variety of interpretations all meeting the conditions of write). Lexical ambiguity has two (or more) structures fixed in LE, vagueness does not specify differences of interpretation in terms of LS at all. Conceptual shift does not fix alternative interpretations in LE, but it allows possible options to be represented in terms of SF. It constitutes, so to speak, an elusive, i.e. improper, type of ambiguity.

With this construal of conceptual shift, we have got a fairly plausible account of what is systematic, and what is idiosyncratic,

from the point of view of LS, in the variable interpretation of derived nouns: SF-templets, which must be supported by LE, provide the systematic patterns chanelling the flexibility of conceptual interpretation. The variety of factors inherent in the conceptual domain impose the idiosyncrasies of interpretation. What is idiosyncratic from the point of view of the lexical system might, of course, bei strictly systematic according to principles of conceptual knowledge. This is a natural consequence of the autonomy of the computational systems involved.

In sum, then, the SF-templet proposal requires almost no arbitrary stipulation; it mainly exploits independently motivated assumptions about LS, from which it derives a fair range of plausible consequences. It is based on certain general assumptions about the organisation of LS and the division of labour between LS and the conceptual system. Especially the latter assumptions are anything but obvious, given the present state of knowledge about the conceptual system. Therefore, a better understanding of the conceptual system might lead to revision of the proposal under discussion. Since the explanation of the event-result-alternation in terms of proper ambiguity seems to be inappropriate, however, the only real alternative to the present proposal would have to treat the alternation in question in purely conceptual terms, without any intervention of the lexical system. This alternative does not seem to lead in the right direction, though. I will therefore tentatively adopt the present proposal in the remainder of this paper.

Result interpretation is obviously not the only option available for event nominalization. A slightly more restricted, but still pretty general possibility is the means or instrument interpretation, as illustrated in the following examples:

(71) (a) Die Isolation des Kabels war defekt.
The isolation of the cable was defective.
(b) Die Verpackung der Waren ist zerbrechlicher als der Inhalt.
The packaging of the goods is more fragile than the content.
(c) Die Polsterung des Sessels ist aus reiner Wolle.
The upholstery of the armchair is all woollen.

Cases like these are transparent, as they are related to regular event nominalization by a templet that shifts the reference from the

event to the means or materials needed for the event to happen. A crucial side effect of this SF-templet is that it blocks the designated θ-Role of the underlying verb. The SF-templet in question must therefore be something like (72):

(72) $\hat{v}\ \hat{x}$ [[x MEANS-OF e] : [[v y] e]]

In the way described earlier, y eliminates a θ-Role of the underlying verb -- more specifically: its designated θ-Role, as v must be of category (O/1)/1, hence substituted by the SF of the verb plus its designeted and referntial θ-Roles --, e transfers the binding of the referential θ-Role of the verb to the new referential θ-Role $\hat{x}$.

Whether (72) is directly supported by a proper affix is not quite clear, depending on the analysis of instrument nominalizations like Bohrer (drill), Ordner (file), Ventilator (ventilator), Kondensator (condenser), etc. It might in fact be, that these nouns are based on affixes by which (72) would be supported in the way described above. In any case, (72) is supported indirectly by entries in CLE. Pertinent examples are Leitung (cable, pipe), Liege (day--bed), Glotze (TV-set (colloquial)), Nahrung (food), probably Wohnung (residence), to which I will return below, Heizung (heating), Kleidung (clothing), etc. As a matter of fact, the distinction between cases like those in (71) and the latter examples is not quite clear. This is a natural consequence of the nature of semantic separation, to which we turn shortly.

It might furthermore be noted that result and means interpretation are not clearly distinguishable either in certain cases. Consider e.g. (73), where the object referred to might be construed as the result or the means of the event:

(73)(a) Die Markierung der Bäume war verblaßt.
The marking of the trees has faded out.
(b) Der Anstrich des Hauses blättert ab.
The coat of paint of the house peels off.

Such ambivalence is precisely what should be expected under the SF-Templet proposal: As templets are purely semantic, their intervention has no overt grammatical consequences. They cannot even create unresolved ambiguities in cases like (73), where the conceptual interpretation might in fact be unequivocal. As a matter

of fact, undecidable cases of this sort are fairly widespread and well known, so that I may refrain from further exemplification.

Although the problems of conceptual shift are by no means exhausted, the basic mechanism relating idiosyncrasies to principles of LS should be clear enough. I will therefore turn to semantic separation.

The main factors involved in semantic separation have all been introduced, hence further discussion can be restricted to same comments.

1. To begin with, entries subject to semantic separation are ordinary entries belonging to CLE. What makes them complex, rather than basic, entries is the existence of elements in LE matching in part their representation in such a way that they would result from them by regular compositional processes of LS. Therefore Vater (father) and Mutter (mother), although sharing all of their SF and θ-Grid, except the component MALE and FEMALE, respectively, are not complex, because this correspondence cannot be related to more basic entries in LE. Nahrung however, in contrast to its English äquivalent food, is complex, as part of its representation is matched by that of -ung, and another part by that of the verb nähr-en. I will not try to come up with a more systematic definition of the required correspondence, as I believe that it would be spurious for reasons to be discussed immediately. Suffice it to say that e.g. Richter (judge) is in CLE because of richt-en and -er, while Tochter (daughter) should be in BLE. Notice that what is essential is only the fact that entries that are clearly not in BLE can be identified as such. Hence borderline cases like Zeitung do not create difficulties.

2. With this proviso, the main point to be made with respect to semantic separation is this: A complex lexical entry will switch into a virtual entry in the sense discussed in connection with (29) and (30) above if, and only if, its SF completely arises by systematic processes of LS from the entries required in (30)(a) and (b). (The systematic processes in question might now be allowed to inculde the application of SF-templets.) From this perspective, semantic separation is the characteristic property of a complex entry in CLE that cannot be switched into an element of VLE because of

its SF. The components in SF that prevent the switch are its idiosyncratic properties.

3. On this account, we can specify the degree of separation in terms of the specificity of SF-components that prevent the switch to a virtual element. Although an absolute measure might be difficult to define and probably lacks empirical content, a comparative evaluation will usually be available without difficulties in principle. Notice that this is a natural extension of the morphological evaluation discussed above into the domain of SF. With this degree of separation at hand, we can easily account for the blurred borderline between CLE and VLE, or between conceptual shift and semantic separation, for that matter. Consider a case like Wohnung (residence, place of living). On the one hand, it derives by regular affixation from the verb wohnen (live, reside), if the SF-templet for means-interpretation is available, and if furthermore the entry for Wohnung does not contain additional conditions the object referred to must meet, leaving these for contributions to be made by encyclopedic knowledge. The status of such additional conditions is a major source for difficulties in specifying a precise borderline between CLE and VLE. On the other hand, Wohnung does not allow a proper event interpretation:

(74) *Die Wohnung in Hamburg verlief wunschgemäß.
The resicence in Hamburg passed as desired.

This means that the proper composition with -ung does not yield a virtual entry for wohnen. But then, there is no regular entry to which the means-templet could apply. In other words, even if Wohnung did not contain idiosyncratic conditions an the object referred to, because these are supplied by encyclopedic knowledge, it would not derive regularly via event nominalization. This then is another reason for keeping it in CLS, albeit at the verge of virtuality. (Notice that these considerations concern the status in LS exclusively: Wohnung clearly is a fixed and stable element of ML.)

Examination of further cases would bring out more intricacies, but the principles constraining idiosyncrasy in semantic separation should be clear enough.

4. It should also be clear that the diagnosis of semantic separation as lexical drift makes sense only with respect to the virtual item

to which an entry would switch if it were not blocked by additional idiosyncratic components in SF. This trivial observation must not be construed as necessarily implying a one-directional dependence, say by (gradual) accumulation od idiosyncratic information on the basis of a virtual entry. As a matter of fact, just the inverse might frequently be the case. Thus the noun Rektion (government) as a technical term becomes virtual, relying on the affix -t-ion (as in Aktion (action)), just in case the independently existing verb reg-ier-en acquires the corresponding representation as a technical term. Hence semantic separation is a systematic relation, not a developmental process, although it might be involved in actual lexical change.

Let me conclude this section by mentioning one proposed principle of lexical organization that does not determine phenomena of semantic separation and conceptual shift. The principle of contrast proposed by Eve CLARK (1988) excludes strictly synonymous entries from the lexicon. Suppose that this principle holds for LS. (It cannot hold for affixes, but this is a side issue which we might ignore.) What we would expect on this assumption is that verbs allowing two alternative event nominalizations exploit different SF-templets to avoid synonymy. Pairs like Wendung / Wende seem to follow this prediction, the letter, but not the former being largely restricted to event interpretation. Slightly less idiosyncratic, non-native pairs like Identifizierung / Identifikation, Individuierung / Individuation, Substituierung / Substitution however clearly contradict this prediction, as the following examples show:

(75)(a) Die Isolierung des Kabels wurde rasch abgeschlossen.
The isolation of the cable was quickly completed.
(b) Die damit erreichte Isolierung des Kabels war lückenlos.
The isolation of the cable thus achieved was complete.
(c) Die Isolierung des Kabels besteht aus Gummi.
The isolation of the cable consists of rubber.

This alternation between event,result, and means is a frequent pattern that applies e.g. to Abdeckung (covering), Verlängerung (lengthening), Ausbau (extension), Übergang (transition), and several others. The relevant point here is that in (75) Isolierung can be replaced throughout by Isolation without any difference. These examples indicate, moreover, that the principle of contrast

does not even seem to hold for ML in any strict way.

It might be noted in passing that these remarks do not apply to reglemented terminologies, where different affixation is sometimes exploited in systematically controlled ways. In general, however, synonymy shows up in different places, not only in nominalization: manchmal, gelegentlich, dann und wann, hin und wieder, ab und zu (sometimes, occasionally, now and then) all seem to have the same range of interpretation, just as Orange and Apfelsine (orange), Geige and Violine (violin), anfangen and beginnen (begin), and quite a few others. What we probably do have in ML is a preference to exploit synonymous items if conceptual differences are to be fixed. In cases like (75) this preference simply is not invoked. (For some discussion of the rather different role the principle of contrast is supposed to play in word acquisition, see GOEDE (1989).)

6. Variation involving θ-Grids

The discussion of event nominalization, its idiosyncrasies and semantic variation was based throughout on the theory of affixation sketched in section 3. According to this theory, affixation rests on systematic operations on θ-Grids, following the principles of functional composition and resulting in θ-Role inheritance. The operations are highly restricted and cannot affect θ-Roles that are skipped by an affix, and hence inherited by the derived entry, in any idiosyncratic way. Event nominalization in particular does not change the θ-Grid of the base at all, except for automatic consequences emerging from conditions on θ-Grids. In this section, I will discuss certain cases that seem to be at variance with these assumptions, violating the principles of θ-Role inheritance at least apparently in one way or the other.

The first problem concerns verbs requiring an obligatory reflexive pronoun that must not carry over under nominalization (event now to be taken in the general sense discussed above, including states and processes).

(76)(a) sich ärgern (be vexed)	Ärger	(vexation)
(b) sich schämen (feel ashamed)	Scham	(shame)
(c) sich sorgen (worry)	Sorge	(worry)
(d) sich interessieren (be interested)	Interesse	(interest)
(e) sich bemühen (take pains)	Bemühung	(pains)
(f) sich erinnern (remember)	Erinnerung	(remembrance)

In order to account for these cases, we have to take a look at regular reflexives the dummy reflexives in (76) contrast with.

According to standard assumptions, reflexive pronouns must be licensed by a θ-Role assigned to them, which in turn requires Case marking, and they must be bound by an antecedent NP. θ-marking and Binding depend on morphological and syntactic conditions, which I will take for granted. The semantic effect of these conditions amounts to a somewhat special kind of lambda conversion: A copy of the antecedent (or rather its SF) is substituted for the variable bound by the discharged θ-Role, i.e. by the lambda operator to be eliminated. I will leave the technical details aside. The main point to be noted ist this: The θ-Role assigned to a reflexive pronoun is an ordinary internal θ-Role to be used in regular θ-marking, as shown by the contrast in (77) and (78):

(77) Er hat sich nicht bewertet.
He didn't value himself.

(78) Er hat den Kandidaten nicht bewertet.
He didn't value the candidate.

Hence whatever is special about reflexives with respect to morphology, syntax, and semantics comes in through the reflexive pronoun. These properties carry over under event nominalization, as far as general conditions allow. These conditions are as follows: Instead of the Accusativ structurally assigned by the verb, the derived noun assigns Genitiv to the same θ-Role. Now, in German, there is no morphological Genitiv of the reflexive pronoun. By way of compensation, one gets (79):

(79) seine Bewertung seiner selbst / des Kandidaten
his valuation of himself / of the candidate

In German, this adnominal reflexive is somewhat marginal, while in English, due to different morphological conditions, it is more natural. The preferred option in German (and possibly in English as well) would be the compound Selbstbewertung (self-valuation). I will not discuss the specific properties of this possibility.

Now, the crucial point about absolute reflexive verbs like those in (76) is that the θ-Role they assign to the pronoun has a peculiar status: It is am improper θ-Role in that its lambda operator runs

idle, it does not bind a variable in SF. Thus in simplified terms, we would have entries like (80):

(80) /sä:m/; [+V, -N]; $\hat{x}_i$ $\hat{y}$ $\hat{z}$ [z INST [SHAME y]]
[+Refl]

Improper, i.e. vacuous θ-Roles seem to be subject to the following conditions:

(81) (a) A referential θ-Role cannot be improper.
(b) An improper θ-Role is structurally assigned the feature [+ Impers], if it is designated, and the feature [+Refl] if it is internal.

Improper designated θ-Roles come with so-called weather-verbs and -adjectives, as in es regnete (it rained), es war kalt (it was cold), their feature [+ Impers] is short for the grammatical characterization of the dummy subject es. The point at issue here is the improper internal θ-Role, requiring a reflexive pronoun for structural reasons. (Hence the feature [+Refl] in (80) need not be listed in the lexical entry.) The semantic effect of this reflexive remains just as empty as that of the dummy subject es. The occurence of an improper designated θ-Role reflects the extended θ-Criterion of CHOMSKY (1986), according to which verbs require subjects, the occurence of an improper internal θ-Role is a lexical idiosyncrasy of the pertinent entries. It is not completely arbitrary, though: Many of the verbs in question are actually intransitive counterparts to transitive verbs. The absolute reflexive verbs are related to them by some sort of de-causativisation, retaining the (by now improper) internal θ-Role from the corresponding causative. Ärgern, interessieren, bemühen, erinnern in (76) are all of this type.

Given this independently motivated analysis of improper θ-Roles in general and obligatory reflexives in particular, the properties of the pertinent event nominals follow automatically if we make the rather natural assumption that improper optional θ-Roles cannot be realized. We might in fact say that they disappear from the θ-Grid altogether. As nominalization renders internal θ-Roles optional, the improper ones cannot be marked [+ Reflexive], but rather disappear. This explains why we cannot have *die Scham seiner selbst or *die Selbstscham, alongside with die Achtung seiner selbst or Selbstachtung (self-respect), assigning a proper θ-Role to a

reflexive argument. Notice that other arguments carry over as usual, available for optional realization, as in sein Interesse für Musik (his interest in music), corresponding to er interessiert sich für Musik (he is interested in music).

Idiosyncratic constraints might occur, however. Thus the (optional) θ-Role lexically marked Genitiv, by means of which the reason of being ashamed can be realized, is not inherited by the nominal: Besides er schämt sich der Frage (he is ashamed of the question) we do not have *seine Scham der Frage. What we do find is seine Scham wegen der Frage from er schämt sich wegen der Frage (he is ashamed because of the question). As restrictions like these seem to be unpredictable, Scham must show up in CLE, inspite of the fact that most of its properties are predictable.

The next problem to be discussed concerns nominalizations like (81):

(81)	(a)	verärgern	(annoy)	Verärgerung (annoyance)
	(b)	beschämen	(make ashamed)	Beschämung (shame)
	(c)	frustrieren	(frustrate)	Frustration (frustration)
	(d)	enttäuschen	(disappoint)	Enttäuschung (disappointment)
	(e)	irritieren	(irritate)	Irritation (irritation)
	(f)	begeistern	(inspire)	Begeisterung (enthusiasm)

These cases are based on transitive verbs referring to an event that brings about a certain mental state of the person specified by the direct object of the verb. Whether or not these verbs are to be analyzed as proper causatives, might be left open. The crucial point to be noted is that the event nominalization based on these verbs is given the result interpretation with practically no exceptton: What Verärgerung refers to is not the event of producing someone's annoyance, but rather the result of this event, viz. the annoyance of the person in question. Hence the result-templet discussed above automatically applies in these cases, switching the reference to the state the verb would denote after stripping away the causative component. This interpretation is accompanied by a corresponding choice of the internal θ-Role: (82)(a) and (b) correspond to (83a) but not to (83b). Hence (82c) is ungrammatical.

(82)(a) Peters Verärgerung (Peter's annoyance)
(b) die Verärgerung Peters (the annoyance of Peter)
(c)*die Verärgerung des Lärms (the annoyance of the niose)

(83)(a) (der Lärm) verärgerte Peter (the noise annoyed Peter)
(b) Peter verärgert (jemanden) (peter annoyed somebody)

These abservations raise two questions, one concerning the SF of the derived nominal, the other its θ-Grid. Consider first the SF in question. For the sake of argument, we might assume that the verbs in (81) have entries of the following simplified general form:

(84) /PF/; [+V, -N]; $\hat{x}\ \hat{y}\ \hat{z}$ [z INST[[y CAUSE e]: [e INST [P x]]]]

P characterizes a mental state of x instantiated by e, which in turn is caused by y. Obviously, P must be specified in different ways for the verbs in (81). On this assumption, the result referred to in the corresponding nominals could be identified by [e INST[P x]]. Are we to suppose, then, that this is in fact the SF of the derived nominal? Two reasons are in favour of this assumption: First, it gives a plausible account of the required SF, viz. an instantiation of a mental state of x, where x used to be the variable hosting the object of the verb. Second, it would support an appropriate θ Grid, namely a designated, referential θ-Role for the state e, and an internal θ-Role for the argument of the mental state predicate P, while no θ-Role for the cause of the mental state could be in the Grid.

Two reasons argue against this assumption, though. The first is of a rather general, theoretical nature. According to the basic assumption about affixation pursued here, an affix can, by way of functional composition, enrich the SF of its argument, as shown in the case of -bar or the result affix -at, but it cannot eliminate any material from SF. The proposal under consideration, however, would require the component [z INST [y CAUSE e]] to be eliminated. Hence, either the principles of affixation are in need of general revision, or the nominals in (81) cannot be related to their verbs by affixation, but must simply be listed in LE. It goes without saying that an SF-templet cannot be supposed to do things its supporting affix is unable to do, so that the considered SF cannot be assumed to arise via templet-application.

The second reason is an empirical one, which in a way supports the first one. The relevant fact is illustrated in (85):

(84)(a) Peters Verärgerung durch den Lärm
Peter's being annoyed by the noise
(b) Die Verärgerung (der Bewohner) durch den Lärm dauerte an.
The annoyance (of the inhabitants) by the niose continned.

Not only does the cause of the resulting effect show up in these constructions, it is also obvious that the event referred to by the head noun is the event instantiating the causation of a mental state, rather then the mental state resulting from it. Hence the generalization made above on the basis of (82) and (83) was not fully correct. The identification of the result in question with the caused mental state is the natural option, but it can be overridden under appropriate conditions, which foreground the regular, compositional event nominalization.

If these considerations are correct, the nominals in question will have the following representation (assuming here result interpretation):

(86) /PF/; [+N, -V,...];
$\hat{x}\ \hat{y}\ \hat{z}$ [[z RES e']:[e'INST[[y CAUSE e]:[e INST [P x]]]]]

We now have two parameters in SF not bound by a lambda operator, viz. the e' brought in by the result templet, and the e inherited from the underlying verb. Since in various -- but not all -- cases RES and CAUSE are converse relations, it follows that interpreting e as the preferred value for z is a natural option. (I refrain from spelling out the details motiyating this assumption.)

The account of the nominals in (81) derived so far provides a result interpretation, which contains the basis for both (82) and (85), where (82) emerges as the special (preferred) case, if the two related parameters are fixed by the same value. This account does not require any additional stipulation in LS.

There remains, however, a problem to be solved with regard to the θ-Grid in (86). As it stands, (86) has the correct referential θ-Role $\hat{z}$, and furthermore two inherited internal (hence optional) θ-Roles $\hat{y}$ and $\hat{x}$. Of these, however, only $\hat{x}$ can be realized, while $\hat{y}$ must always be omitted, as shown by the ungrammaticality of (82c).

Notice that this holds also for (85), where the PP must be considered as an adjunct rather than the realization of an argument. This follows from the fact that it cannot be inherited from the verb, where the corresponding phrase would be an adjunct as well:

(87) (Jemand) verärgerte Peter durch den Lärm.
(Someone) annoyed Peter by the niose.

Both in the verbal and the nominal construction this adjunct adds an instrument to the event referred to by the head.

Hence what we need is a way to get rid of the second θ-Role in (86). Formally, this could be achieved by adding (88b) as an alternative to the θ-Grid and the SF of the EN affixes, repeted here as (88a):

(88) (a) $\hat{x}$ [+V,-N] [x] (b) $\hat{x}$ [+V,-N] $\hat{z}$ [[x y] z]

While in the standard entry (88a) the variable x is of category 0, in (88b) it must be of category (0/1)/1. Now y, not being bound by a lambda operator in this configuration, will eliminate the inadmissible θ-Role from (86) in the way discussed earlier. This amendment introduces an otherwise unjustified ambiguity into the specification of event nominalization. (Notice that (88b) must not apply to the majority of cases, including the reflexive verbs discussed above.) A somewhat more motivated possibility comes up if we realize that the nominals under discussion are more plausibly related to "passivized" verbs, rather than the actual transitive. Hence instead of the verbs in (81), the nominals would have something like (89) as their base:

(89) (a) verärgert sein (be annoyed)
(b) beschämt sein (be ashamed)
(c) frustriert sein (be frustrated)
(d) enttäuscht sein (be disappointed)
(e) irritiert sein (be irretated)
(f) begeistert sein (be enthusiastic)

Without going into technicalities, we might assume that in some way passive morphology eliminates the designated θ-Role of a verb, introducing a corresponding feature into its GF. With this proviso, the desired elimination of the inadmissible θ-Role in (86) would

result, if event nominalization applied to the passive stem, rather than the underlying active verb. Although this approach seems to me to point in the right direction for both empirical and theoretical reasons, there is a fair amount of difficulties to be clarified, which I cannot dwell on here. Hence I will leave it at that.

An equally intricate problem is connected to another variant of result interpretation. Compare the cases in (90) with those in (91)

(90) (a) Seine Beschreibung des Bildes lag bei den Akten.
His description of the picture was in the files.
(b) Er sammelte die Rezensionen seines Romans.
He collected the critiques of his novel.

(91) (a) Ihre Kompositionen lagen auf dem Klavier.
Her compositions lay an the piano.
(b) Seine Erzählungen glaubte niemand mehr.
Nobody believed his narrations anymore.

All relevant nominals require result interpretation, referring to objects emerging from the event. The specificity of cases like (91) is that the resulting object is in a sense provided by the verb, somewhat like the resulting state was determined by the verb in the cases discussed before. The difference is, however, that the object in question could be denoted by the grammatical object of the verb, while no such syntactic realization was involved in the resulting state. Intuitively speaking, result nominals like those in (91) seem to refer to the grammatical object of the verb rather than the event it denotes. More technically, the referential θ-Role in nominals like these is based on the object θ-Role, rather than the referential θ-Role of the verb. This intuition seems to be born out by the fact that the object θ-Role is in fact not available for an optional complement in cases like (91): Contrary to (90), where just these complements show up, constructions like (92) are odd:

(92) (a) ?Ihre Kompositionen von Balladen lagen auf dem Klavier.
Herr compositions of ballads lay on the piano.
(b) Seine Besitzung (*des Landgutes) bei Rom wurde verkauft.
His possesion (of the country-seat) near Rome was sold.

According to these observations, the relevant entry e.g. for Komposition, derived from komponieren with the entry (93), should be (94):

(93) /kompon-/; [+V, -N,...]; $\hat{x}\ \hat{y}\ \hat{z}$ [z INST [y COMPOSE x]]

(94) /kompos-it-ion/; [+N, V,+Fem]; $\hat{y}\ \hat{x}$ [z INST [y COMPOSE x]]

(94) has the object(s) composed as its referent, as desired, and the composer as its only internal θ-Role. If (94) is supposed to derive from (93) by affixation -- as it morphologically should -- then, of course, an additional (subsystem of) affix(es) is necessary. Semantically, the affix is straightforward, as no change in SF is needed. The problem lies with the derived θ-Grid. The difficulty is not the elimination of the original referential θ-Role z; we already know how this could be done. The problem is rather the necessary inversion of the designated and the internal θ-Role of the verb. This effect can in no systematic way be achieved by functional composition. Hence the required affix would not only introduce unwanted ambiguity into the system of affixes, but it would spoil basic principles of affixation. Let us look therefore for another solution.

Notice first of all that the distinction between the ordinary result interpretation of event nominals and the object-nominalization under consideration is in most cases rather subtle, even elusive. To mention just a few examples: Lieferung (delivery/ things delivered), Ankündigung (announcement), Sendung (sending/ transmission), Produktion (production) are open to different construals -- even under the result/object-perspective -- depending on the conceptual setting of the interpretation. Hence resorting to explicit ambiguity seems to be at variance with the nature of the phenomenon, given the more general observations about variable interpretation. Furthermore, the admissibility of object-based complements depends on highly specific semantic conditions. Replacing e.g. Komposition by Vertonung (musical setting) would render (92a) acceptable, simply because the resulting object is not the referent of the grammatical object in the case of vertonen (set to music). Now, whether the event or process referred to by a given verb follwos the pattern of komponieren or vertonen often depends on specific conditions of encyclopedic knowledge: producing a film follows either composing or setting to music, depending on factual aspects of the event in question, hence the result interpretation of Produktion might behave either way. The result interpretation of Eroberung under this perspective switches depending on whether

an occupied object is construed as different from the unoccupied one. Obviously, the lexical SF is not the appropriate place to fix those decisions.

Suppose, then, that instead of the stipulated entry (94), we have the regular event nominal, subject to result interpretation, i.e. (95):

(95) /kompos-it-ion/; [+N, -V, +Fem];
$\hat{x}\ \hat{y}\ \hat{z}$ [[z RES e] : [e INST [y COMPOSE x]]]

It is now easy to see that the identification of the resulting object referred wo with the grammatical object of the underlying verb is tantamount to the identification of x and z. This identification is in fact reminiscent of the identification of the resulting state with the state caused by the event the verb refers to in the cases discussed above, technically the identification of z with e in (86). There is a crucial difference, though: Whereas in (86) the identification concerned the choice of a free parameter, in (95) it involves two variables bound by lambda operators. Furthermore, one of these operators, viz. $\hat{x}$ in the case of (95), must be barred under the interpretation in question, in order to block cases like (92). This observation suggests a plausible solution to the problem concerning the derived θ-Grid of the type of object nominalization we are considering.

Let us assume, as before, that the referential θ-Role of a noun is indispensible, i.e. $\hat{z}$ in (95) has to be realized in any case. We furthermore observed that the distinction between "effected" and "affected" object is subject to conditions of conceptual context: the referent of the object is identical to the result of the event for compose, it is distinct from the result in set to music, and it can be construed either way in cases like produce.

Let us suppose now that identical values for different variables might be reflected in SF. Under the present conditions, this would mean that x in (95) is to be replaced by z, depriving $\hat{x}$ of its pertinent variable. On this account, $\hat{x}$ becomes an improper θ-Role, which is furthermore optional and would -- acording to the above assumption about improper θ-Roles -- disappear from the θ-Grid. What we get is the θ-Grid $\hat{y}\ \hat{z}$ in (95), which corresponds to the θ Grid $\hat{y}\ \hat{x}$ in (94) in the desired way. We thus have derived the

intended result, without arbitrary stipulations introducing unmotivated ambiguity or weakening the theory of affixation in arbitrary ways. The only additional assumption to be made is that conditions determining the value for a variable in conceptual structure must be reflected in SF, affecting, moreover, the composition of the θ-Grid. Whether this stipulation is correct, and under which conditions it applies, remains to be seen. It clearly leads to the correct result in the present case, but its consequences in general are to be explored. There is, however, one piece of supporting evidence to be mentioned here.

Object interpretation of result nominals appears to create a particularly strong motivation for semantic separation. Dichtung (poetry), Besitzung (possession, estate), Meldung (announcement, report) are cases of different sort. In the light of the above considerations, the fixed identification of the original object θ-Role with that of the result referent gives rise to lexical drift, leading to actual instead of virtual complex entries.

It seems that semantic separation must also be invoked for incidental cases, where the designated θ-Role of the verb seems to become the referential θ-Role of the nominal, as it happens to be the case in (one of the readings of) Begleitung (company). Besides other idiosyncratic features, e.g. its mass noun like properties, it is more closely related to agent nominalization (Begleiter) than to event nominalization. I will not enter the discussion of agent nominals in general and simply assume that Begleitung, besides its regular event interpretation, has a fixed complex entry subject to semantic separation.

It goes without saying that these comments do not echaust the wealth of specific problems and idiosyncrasies connected to event nominalization. They should suffice, though, to indicate that a wide range of idiosyncrasies, including those apparently involving the structure of θ-Grids, can plausibly be related to general principles of affixation.

7. Conclusion

Let me summarize the main points I have tried to establish in this study. Exploring a special domain of German grammar without being able to achieve, or even to strive for, descriptive completeness,

I have primarily been interested in general principles underlying the organization of the lexical system LS and the way in which these principles allow for and at the same time constrain idiosyncratic properties. I will first sketch the overall architecture of the lexical system as it emerges from the proposals pursued here. I will then summarize the main tenets concerning principles of affixation. Finally I will draw some conclusions from the types of idiosyncasy and variation we have encountered.

To begin with, the lexical system LS has been considered as a subsystem of linguistic knowledge as represented by the grammar G of a given language. LS is not an autonomous module of G, but rather a modular system in itself, the modules of which interact with, or participate in, the computational processes of extralexical rules and principles of G. The grammar G moreover interacts with other computational systems of the mind. In particular the representation of semantic form SF determined by G provide the interface with the system of conceptually organized encyclopedic and situational knowledge.

LS is the subsystem of G that specifies the set PLE of possible lexical entries. The gross architecture of LS can be indicated as follows:

LS comprises a structured set LE of lexical entries and several subsystems of rules and principles.

LE contains a proper subset BLE of basic lexical entries.

BLE is devided into two subsets: Major lexical category entries and affixes. Affixes are organized in specifically structured subsystems (inflectional paradigms being a particular subtype of these subsystems).

Major category entries do not constitute subsystems in BLE, but presumably with respect to LE, which includes the set of complex lexical entries CLE.

Each lexical entry determined by LS is a specific data structure comprising four systematically related components: (PF, GF, θ-Grid, SF). The rules and principles of LS determine the structure of permissible elements of LE and the computational processes specifying predictable, i.e. redundant, information as well as combinatorial

possibilities within LS. Extralexical rules and principles of G determine the computational effect lexical entries have outside LS.

The systems of intra- and extra-lexical rules and principles need not in general be disjoint, in other words certain principles of the same module might apply both within and outside LS, other modules might apply only inside or only outside LS.

The rules and principles of LS are modular according to the types of information (types of primitives) and the levels of representation they apply to.

Principles of LS include those of (autosegmental and metrical) phonology, the structure of GF-information and its projection, the structure of θ-Grids, depending on syntactic category information, the assignment of features to θ-Roles, the categorial structure of SF, and the principles of functional application and composition.

The interaction of these principles determines the set PLE of possible lexical entries, i.e. the output of LS.

A proper subset of PLE underlies the implementation of lexical knowledge in the mental lexicon ML.

Turning next to the more specific assumptions about the nature of affixes and affixation, we have noticed that all specific properties are directly or indirectly related to one particular point, viz. the specification of the key-θ-Role.

The defining property of the key-θ-Role is its lexical association with a syntactic category feature, as distinct from all other θ-Roles, which are either lexically or structurally associated with grammatical features to be realized by a phrasal category. From this property, together with general principles of LS, the following characteristics of affixation follow:

1. Affixes cannot show up as independent lexical entries, as they look for a lexical category as their argument, forming a complex lexical, rather than a phrasal category.

2. Because of this dependency on major category entries, affixes can have a "degenerate" PF, i.e. a phonological structure that can only be realized by means of a host on which it is superimposed. Thus segmental alternation, insertion of segment information, and zero affixation cease to be anomalies, becoming rather characteristic possibilities of affix realization.

3. Affixes are, due to their characteristic θ-Grid, functors that take a lexical entry as argument.

4. As lexical entries in general come with their own unsaturated θ-Grid and are thus functors by themselves, affixes must combine with their argument by functional composition, creating a new, complex functor.

5. As a consequence of this, the derived complex element inherits all θ-Roles of the argument of the affix which the affix does not absorb. Hence inheritance of argument structure follows as a natural by-product of functional composition.

6. Affixes that are proper heads of the derived entry (i.e. suffixes in all languages with right hand head inside LS) project their GF-component to the dominating node, specifying the syntactic, grammatical and morphological properties of the complex entry. Although they project syntactic features, which define major lexical categories, suffixes are not major lexical categories by themselves. In other words: affixal heads derive an X from a Y, but they are no X, where X and Y are lexical categories.

7. As affixes combine by functional composition with major lexical entries, they may add components to the SF of these entries, but they cannot delete information from SF.

This highly interrelated bundle of properties accounts for most of the intriguing phenomena discussed in the literature on affixation. In particular, the results of the seminal work of WILLIAMS (1981) on argument structure and morphology, and of its continuation in TOMAN (1983) and other work on inheritance of argument structure and on operations on θ-Grids can be seen to find their systematic place within the framework developed here. More specifically, the consequences enumerated above impose systematically motivated, highly specific constraints on the computational processes involved in affixation.

Another important property of affixation is also crucially related to the key-θ Role, albeit not as a logical consequence, but rather as an empirical fact about affixes as a characteristic device of natural languages.

Affixes are specific types of lexical entries, defined by the occurrence of the key-θ-Role. Due to this specificity, they consti-

tute structured subsystems of BLE. Each subsystem is organized by two types of information: (a) the invariant pattern (templet) of the elements belonging to a given subsystem, (b) the distinctive information defining the structural position of each entry within the system. As this information defining the place of an affix in BLE derives from its status as an affix, it can plausibly be assumed to be associated with the defining characteristic of an affix, viz. its key-θ-Role. The information thus emerging from the organization of BLE constitutes the proper morphological features of LS.

The morphological information associated in this way with the key-θ-Role selects the idiosyncratic subclass of lexical entries a given affix can apply to. On this assumption, the fact that idiosyncratic morphological selection is constrained to computational processes within LS, follows from the assumption that affixes are organized in subsystems implicitely defining morphological features as a sort of traffic information controlling processes in LS. Notice that in this way, morphological odiosyncrasy is defined as a logical possibility, but not as a logical necessity of affixation: It may, but need not be exploited. The way in which it can appear in LS is controlled, however, by general principles of morphological feature specification and assignment.

This leads to the third point of these concluding remarks, namely the idiosyncrasies and variations involved in event nominalization, and in morphological processes in general. As I have not looked at phonological problems, these remarks will be confined to morphological and semantic phenomena. Two essentially different types of facts, based on radically different mechanisms, have been considered.

The boundary condition for both of them is the existence of complex lexical entries, i.e. elements of LE not belonging to BLE.

The first type of facts has been called idiosyncratic affixation. The type of information on which it is based is the morphological features just mentioned. The mechanism by which these features operate is the key-and-lock-principle by means of which affixes select admissible stems they apply to. Through this mechanism, affixes project, in a sense, the information contained in the structure of affixal subsystems onto the set LE (in fact on PLE, as even virtual entries can be arguments of affixes). The crucial point is that the

idiosyncrasy resides in the projected information, not in its origin in affixal subsystems. What may (but need not) be idiosyncratic is the property of a given element of LE according to which it allows to be the argument of a given affix. The classification of elements of LE (or PLE) according to these properties, which I have assumed to be represented as morphological features in GF, is the place of potential idiosyncrasy. The way in which proper idiosyncratic information of this sort enters LE (and it is only elements of LE, but not virtual entries, that may contain proper idiosyncrasies), is through elements of CLE which can be switched to virtuality, inducing idiosyncratic information in their constituent parts, more specifically: in the GF of their stem.

The principle on which the key-and-lock-mechanism is based is essentially an extension of the assignment and realization of Case features assumed in the Case-theory of CHOMSKY (1981): Just as a syntactic argument, in order to be "visible" for a θ-Role to be assigned to it, must realize appropriate (abstract) Case features, a lexical stem must provide the suitable key-hole for the key-θ-Role, in order to become the argument of an affix. The only difference is the sort of features involved. Regular argument selection outside LS is based on grammatical features, including in particular Case features. Selection of lexical arguments inside LS is based on syntactic category features, associated by general convention with morphological features specifying the possibly idiosyncratic key-hole appropriate for the key-θ-Role.

The second type of facts concernes idiosyncrasies of a completely different sort. It has been subdivided in two rather different kinds of phenomena, the borderline between them frequently being fuzzy for principled reasons.

The first, and rather general, phenomenon is that of variable interpretation available for lexical entries in general. Its motivation comes from conditions of conceptual interpretation, and the phenomenon of particular interest has been called conceptual shift. I have suggested that the variable interpretation of derived nominals — especially event-, result-, and means-interpretation -- is chanelled by a more generally available device called SF-templets. An SF-templet is to be construed as a spurious lexical entry consisting only of semantic information plus appropriate lambda

abstractors. As it does not carry phonological or grammatical information, it does not overtly manifest itself; its application thus introduces a semantic specification which is between ambiguity and vagueness. If it is correct, as I have supposed without further argument, that SF-templets must apply within LS, it follows that their combinatorial properties must determine intralexical computations, i.e. SF-templets must correspond to affixes. (Actually, SF-templets should allow for intralexical processes in general, including compund formation. I will continue to ignore this necessary extension.)

Two further points are characteristic for the device in question. First, SF-templets, although improper, invisible lexical entries, must be supported by actual entries of LE. This support is either direct, if an SF-templet corresponds to the templet-information of an actual affix (or rather of an affixal subsystem), or indirect, if the templet is the distinctive semantic information that would switch an actual complex element of LE into a virtual element.

Secondly, the application of an SF-templet is triggered by the requirements of coherent conceptual interpretation. The actual availability of an interpretation bound to an SF-templet thus depends on extra-lexical, in fact extra-linguistic conditions, which might be idiosyncratic from the point of view of LS (and G, for that matter).

The second phenomenon, called semantic separation, characterizes elements of CLE that cannot be rendered virtual, i.e. do not reduce to other elements of LE by means of principles of LS, because of specific components in their SF. Semantic separation can be diagnosed only with respect to a corresponding virtual entry to which a separated entry would reduce, if it were deprived of its additional (i.e. idiosyncratic) information.

Finally, I have argued that the various types of idiosyncrasy and variation do not interfere with general principles of funtional composition and organization of θ-Grids. Apparent counterexamples have been shown to derive in general from independently motivated boundary conditions.

Two general remarks might finally be indicated. First, LS is equipped on general grounds with mechanisms to accomodate variation, and idiosyncrasy. The crucial difference between these mechanisms

is this: While idiosyncratic affixation, i.e. morphological idiosyncrasy, is explicitely represented in LS by means of morphological features, idiosyncratic variation of semantic interpretation (apart from semantic separation, which is simply listed in CLE) is not made formally explicit in LS, although invisible means to achieve it are supported by LS. In somewhat simplified terms: morphological idiosyncrasy is part of LS, while semantic variation is only supported by SF, but not manifest in linguistic structure.

Secondly, the different properties of idiosyncrasy and variation, and the different types of mechanisms on which they are based, clearly show the modular organization of LS. As a matter of fact, the two aspects frequently mixed up in explorations in word formation, are practically unrelated. They do not merely deal with different principles of computation.

It seems to me that acknowledging this essentially modular nature of affixation, and of the organization of LS in general, together with the specification of the global architecture and the detailed principles of LS emerging under this perspective provides fairly interesting perspectives for the study of morphology and lexical knowledge in general.

Let me note in conclusion that the overall picture of the lexical system expounded here is definitely oversimplified in essential respects. To mention just two problems that do not easily fit into the delimitation of the domain of LS assumed here: Clitics and phrasal affixes are subject to crucially lexical conditions in some respects, while they are essentially extralexical constituents in others. Likewise, idioms are notoriously phrasal in nature, but subject to semantic separation in much the same way as are complex lexical entries. However, the adjustments or modifications indicated be these and similar problems will not simply undermine, I suppose, the proposals developed here. They might rather be taken as a challenge to specify the nature and the limits of LS more clearly.

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