

Nominalization in German

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1 Introduction

This paper deals with nominalizations in German. The first part summarizes the facts about German nominalizations. There are many different types of nominalizations in German. We discuss three kinds of nominalizations in particular: infinitival nominals like *das Laufen* (*walking*), so-called “stem”-derived nominals like *Fahrt* (*trip, ride*), and, prominently, *-ung* nominals like *Verschwendung* (*wastefulness*). After an introduction to the types of nominals (section 2.1), we discuss which verbs can or cannot form the different types of nominalizations (2.2), followed by the semantics of German nominalizations (2.3) and their syntactic behavior (2.4).

The picture described in the first part of the paper is compatible with a theory where the semantics of the root that the verb and its nominalization have in common determines which forms can be constructed, and what their syntactic behavior (for example, argument structure) will be. This situation is an argument for Distributed Morphology, which claims that roots do not carry categorical features, and all syntactic behavior that differentiates between categories (e.g., nouns, verbs, adjectives) is determined by functional projections that derive full morphological complexes of the roots.

However, there are at least two issues relating to German nominalizations that pose a problem for this framework. They are discussed in the second part of this paper. The first topic is raising. Raising nominals, in contrast to raising verbs, do not exist. Section 3.1 elaborates how this fact can be explained even under the hypothesis that noun roots do not differ from verb roots. Section 3.2 discusses the fact that German intransitive verbs can form *-ung* nominalizations if they have a noun or adjective root, but not if they have a verbal root.

2 Facts

A typical German verb has a large number of different nominalizations. After systematically introducing the different types of nominalizations, we will concentrate here on the discussion of *event* or *result* nominalizations.

2.1 Types of German Nominalizations

German nominalizations are either derived nominals, or infinitival nominals. The latter are available for all verbs, and are formed completely regularly: these nominals do not differ in form from the infinitive of their underlying verb.

- (1) *laufen: Er mag Fußball, nur all das Laufen macht ihm keinen Spaß.*
He likes soccer, just that all the running isn't fun.

Infinitival nominals can be compounded (usually with their object) to produce further nominalizations.

- (2) *Wir schreiben Briefe. → Briefeschreiben*
We write letters. → letter-writing

Infinitival nominals are very close in meaning to their underlying verbs, they denote the events or states that the verb denotes. We will come back to this in section 2.3 below.

There are several types of derived nominals. The ones that won't concern us any further are nominals denoting the agent (3) or patient (4) of a verb, marked by the suffixes *-er* and *-ling*, respectively.

- (3) *lehren: Der Lehrer ist krank.*
The teacher is sick.
- (4) *prüfen: Der Professor befragt den Prüfling.*
The professor asks the examinee.

Furthermore, there are also derived event and result nominals in German. These nominals are derived using a variety of suffixes. The most common (and productive) one is *-ung*, but \emptyset -derived forms exist, as well as forms derived with the suffixes *-e*, *-t*, etc. In addition, some loan verbs can also build nominals with borrowed suffixes like *-ion*, *-ur* (sometimes exclusively, and sometimes as an alternative to *-ung*).

- | | | | | |
|-----|-----|-------------|--------------|-----------------------|
| (5) | (a) | verteidigen | Verteidigung | defend/defense |
| | (b) | fallen | Fall | fall |
| | (c) | helfen | Hilfe | help |
| | (d) | fahren | Fahrt | drive/ride |
| | (e) | spekulieren | Spekulation | speculate/speculation |
| | (f) | reparieren | Reparatur | repair |

In the rest of this section, we will contrast the properties of the different types of nominalization. In this, only event and result nominalizations will be interesting to us, we will ignore in the following agent and patient nominalizations (for example, those in *-er* and *-ling*).

2.2 Constraints on the Formation of Nominalizations

Infinitival Nominals. Infinitival nominals can be formed for any German verb, including modal and auxiliary verbs.

- (6) *das Schlagen, das Laufen, das Sein, das Werden, das Wollen, ...*
 hitting, running, being, becoming, wanting, ...

“Stem”-Nominals. Some verbs have nominalizations that are constructed by adding a suffix such as *-e*, *-t* to the verb stem, or that are \emptyset -derived from the verb stem. This class of nominals is closed, the type of derivation is not productive in modern German. Availability of such a formation is thus an idiosyncratic property of the individual verb.

-ung Nominals. *-Ung* nominalization is an actively productive process in current German. However, by far not all verbs allow suffixation by *ung*. The facts seem to be complicated and incoherent, leading some authors to simplistic analyses, that just state that *-ung* nominals can be formed whenever there is no existing “stem” nominal related to the same verb with the same (“perfective”) meaning (see Esau, 1973). As we will discuss in the next section, however, the semantics of neither “stem”, nor *-ung* nominalizations is uniform, leading to problems in this description. There are also several verbs in German that tolerate both a “stem” and an *-ung* nominalization:

- (7) (a) *beziehen* *Bezug* *Beziehung*
 (b) *schieben* *Schub* *Schiebung*
 (c) *vertreiben* *Vertrieb* *Vertreibung*
 (d) *ziehen* *Zug* *Ziehung*

We can note, at least for the examples above, that both nouns have a very different meaning, relating to very different senses of the underlying verb. For example, *Vertrieb* can be translated by *sales*, whereas *Vertreibung* is more close to the original meaning of *vertreiben*, it means *expulsion, banishment*.

Although the picture of which verbs allow *-ung* nominalization is very complicated on the whole, there are some generalizations to be made. In the following we will summarize these facts in a new, organized way.

Modal verbs and auxiliary verbs generally do not allow the suffix *-ung*.

- (8) **Seinung, *Wollung, *Könnung, *Müssung, ...*
 being wanting can-ing must-ing

However, some counterexamples do exist:

- (9) *Werdung, e.g.: Menschwerdung, Bewußtwerdung, Fleischwerdung*
 becoming: becoming human, realization, incarnation

From a syntactic/morphological point of view, factors that affect the ability of a verb to combine with *-ung* are

1. transitivity
2. prefixed vs. non-prefixed
3. whether the verb itself contains a noun or adjective stem, or is underlyingly verbal

Shin (2001) observes that among the intransitive prefixed verbs, those that are derived from verb stems usually can't take the *-ung* suffix, whereas those derived from adjective or noun stems have *-ung* nominalizations.

(10)	(a)	blühen <i>blossom</i>	erblühen	*Erbblühung <i>starting to blossom</i>
	(b)	blind <i>blind</i>	erblinden	Erbblindung <i>becoming blind</i>
	(c)	Kalk <i>lime</i>	verkalken	Verkalkung <i>calcification</i>

A similar observation by Hermann Paul is cited in (Knobloch, 2002), stating that denominal and deadjectival verbs allow *-ung* nominalizations unusually often. This effect will most likely have a semantic explanation, although the semantic picture is almost as complicated as the syntactic-morphological one.

For transitive verbs, on the other hand, it seems that the origin of the underlying base verb has no effect. Unprefixed transitive verbs often do not allow *-ung*, and if they do, these nominalizations often do not have an event reading. Prefixed transitive verbs with the same base, at the same time, mostly allow *-ung* nominalizations, which are ambiguous between the typical event and resultative readings.

(11)	(a)	rüsten <i>arm</i>	Rüstung <i>armor</i>	Aufrüstung <i>armament</i>
	(b)	richten <i>direct</i>	Richtung <i>direction</i>	Errichtung, Einrichtung, ... <i>construction, adjustment/setup, ...</i>

2.3 Semantics

Nominalizations can pick out any participant in an event denoted by the underlying verb, as well as the event argument itself, and a result state or result object brought about by the event. Examples for each of these cases are the following:

(12)	(a)	<i>Agent</i>	Prüfer	examiner
	(b)	<i>Patient</i>	Prüfung	examinee
	(c)	<i>Instrument</i>	Feile	file/rasp
	(d)	<i>Place</i>	Bäckerei	bakery
	(e)	<i>Event</i>	Fertigstellung	completion
	(f)	<i>Result State</i>	Verärgerung	infuriation
	(g)	<i>Result Object</i>	Erfindung, Verletzung	invention, injury

In this paper, we are only interested in the event and result interpretations of nominalizations. The open question for semantics is “Which verbs can form nominalizations with event, result state, or result object interpretation?”

Infinitival Nominals. Infinitival nominals usually have an event interpretation. Specifically, since these nominalizations are available for all German verbs, and as many verbs do not have a result (for example, stative or process verbs), most infinitival nominalizations only have an event reading. Such examples are *Sein*, *Schlafen*, etc.

However, even for infinitival nominals, a result reading is sometimes available. For example, *Verstehen* or *Ansehen* have a result state reading, and *Schreiben* has a result object reading. These readings have not been discussed in the available literature. It is therefore an open question which infinitival nominalizations have additional result readings. We can note, however, that this class comprises only verbs that don’t also have a result nominalization built with the suffix *-ung* (**Verstehung*, **Ansehung*).

“Stem”-Nominals. These nominals are another type whose meaning still requires further research. Each possible suffix can lead to different meanings, if it is combined with different verbs. Thus, *Feil-e* is an instrument, *Reis-e* an event; *Verlus-t* is a result state, *Fahr-t* an event, etc.

As much as the choice of suffix is idiosyncratic, the resultant meaning of the nominalization seems idiosyncratic as well. It has to be left for further research to determine patterns in this confusing set of data.

-ung Nominals. *-Ung* nominals are the most researched of the nominalization types. Generally, nominalization with *-ung* yields an event noun, but result state or result object readings are also common. There are also plenty of other *-ung* nominalizations that have completely different readings, such as *Wohnung*, *Meinung*, *Bedienung*, etc. Here, we will only pay attention to the *-ung* nominalizations that have event, result state or result object readings.

In fact, of the possible *-ung* nominals that fall in this category, some allow only the event reading, some only the result state or only the result object reading, and some are ambiguous between some or all of these possibilities.

Ehrich and Rapp (2000) analyze the availability of different *-ung* nominalizations for different types of verbs. The resulting picture, according to them, is the following: All verbs should allow nominalizations with *-ung* with a state or event reading (depending on the semantics of the underlying verb).¹ In addition, result state nominalizations are allowed for some telic verbs², but mostly only those telic verbs whose (decompositional) meaning does not embed BE

¹In fact, as we have seen in the previous section, by far not all German verbs allow *-ung* nominalization. Ehrich and Rapp (2000) do not discuss the unavailability of *-ung* forms for some verbs, and their semantic system, in effect, does not account for this. This is clearly a shortcoming of the semantic picture they try to draw.

²Not surprisingly, atelic verbs have neither result state nor result object interpretations, since atelic verbs do not have a result state or object.

under BECOME. That is, verbs of production or annihilation, for example, such as *errichten*, *vernichten*, do not have an *-ung* nominalization. Result state nominalizations are impossible whenever the object of the verb is produced or destroyed by the described event.

Result object nominalizations are said to be available for telic verbs whose object is preexistent. That is, verbs of production (*herstellen*) and modification (*vollenden*) don't allow a result object interpretation of their nominalization.

However, Osswald (2005) criticizes this approach for faults in its coverage of the data. He gives examples of modification verbs (predicted to have a result state interpretation), instead have a result object interpretation: *verletzen*, *beschädigen*. We can add a modification verb (*entleeren*) that has neither a result state nor a result object interpretation, contrary to the predictions. Since its object (a container that is being emptied) is preexistent, and neither produced by the event nor destroyed, it should behave exactly the other way around. Osswald (2005) does not propose an alternative explanation. He evaluates different possible conditions on the availability of result state and result object readings, but finds them all insufficient to explain the range of data. Surely, only telic verbs with a target state can have result state nominalizations, but this is not enough. *Leeren* for instance has a definitive target state (being empty), but still, *Leerung* does not have a result state interpretation.

Other authors have found other loose correlations of verb classes and the availability of result state or result object readings for their nominalizations. For example, Knobloch (2002) states that whenever a verb allows nominalization with either *-ung* or a loan suffix, the loan suffix nominalization always has the result state reading, whereas the *-ung* nominalization retains the event reading:

- | | | | | | |
|------|-----|-------------|-------------|--------------|----------------|
| (13) | (a) | kombinieren | Kombination | Kombinierung | <i>combine</i> |
| | (b) | blockieren | Blockade | Blockierung | <i>block</i> |
| | (c) | formieren | Formation | Formierung | <i>form</i> |

It seems clear that the underlying verb's semantic type and denotation will eventually be determined as the deciding factors in the available interpretations for *-ung* nominalizations. However, Ehrich and Rapp's decompositional account does not capture the data adequately. Thus, this question remains open for further research.

2.4 Syntactic Behavior

The syntactic behavior of nominalizations is interesting because they are at the border of verbs (from which they are derived, and whose semantics they partly inherit) and nouns (whose external positions they can occupy). The question is for each nominalization, in which properties it resembles verbs, and in which other properties it follows nouns. In this section, we will mostly characterize the properties of German nominalizations regarding the range of arguments and modifiers they allow, and some morphosyntactic issues like pluralization, definiteness, etc.

Infinitival Nominals. Knobloch (2002) compares the morphosyntactic properties of different types of nominalization. He states that infinitival nominals can't be pluralized. Furthermore, he sees it as a sign of more "nominality" if a nominalization has a definite/indefinite opposition. Even infinitival nominals, though, can appear with either a definite or an indefinite article. The definite article is the unmarked form, but sentences like (15) are also possible.

- (14) *Das Laufen fiel ihm immer schwerer.*
Walking was getting harder for him.
- (15) *Es herrschte ein Laufen und Springen, ein Rennen und Hüpfen.*
There was running and jumping, racing and hopping.

Arguments in nominalizations can be expressed by either a genitive that follows the nominalization, or a preceding possessive pronoun. In principle, both subject and object of a transitive verb can assume these positions. However, there are strong tendencies for the interpretation of a genitive object or a possessive. For the infinitive, as Knobloch (2002) mentions, the possessive pronoun has a strong tendency for the subjective interpretation. For him, the object reading of possessives is almost impossible, but we don't agree with his judgement. His example *sein Verlassen* seems fine to us in the interpretation *das Verlassen des Raumes*. Furthermore, consider the following sentence:

- (16) [*Dieser Raum enthält vertrauliches Material.*] *Sein Betreten*
[This room contains confidential data.] Its (lit. stepping-in)
ist verboten.
is forbidden.
It is forbidden to enter it.

Genitive objects following the nominalization have a strong preference for object interpretation.

"Stem"-Nominals. These nouns allow pluralization and a definite/indefinite opposition freely, if their semantics admits it (see *Hass*, for a noun that can't be pluralized). Possessive pronouns can only have a subject interpretation, and for the postnominal genitive, as well, Ehrich and Rapp (2000) claim that the subject interpretation is the only one available. According to them, objects must be expressed by an oblique PP in the case of stem nominals. They give the following examples (taken from Lindauer, 1995, *Genitivattribute*):

- (17) *Cäsars Hass * der Gallier / ✓ auf die Gallier.*
Caesar's hate * of the Gauls / ✓ for the Gauls
- (18) *Cäsars Schlag * der Gallier / ✓ gegen die Gallier.*
Caesar's attack * of the Gauls / ✓ against the Gauls

However, there are some apparent counterexamples:

- (19) *der Verlust des Schlüssels*
the loss of the key

Here, the genitive following *Verlust*, based on *verlieren*, is quite obviously the object that is being lost, not the agent losing something. Even a possessive pronoun seems possible for this noun in some contexts:

- (20) *Sein Verlust hat mich sehr geschmerzt.*
It's loss pained me very much.

-ung Nominals. *-Ung* nominalizations can usually be pluralized. According to Knobloch (2002), they allow the indefinite article only in those cases when the following genitive is interpreted as the subject. As we will see later, this is usually the case for atelic verbs without a change of state. As an exception Knobloch notes abstract nouns like *Verlagerung* in the following example:

- (21) *Gerüchte über eine Verlagerung der Truppen nach Pakistan*
rumors about a relocation of the troupes to Pakistan

In contrast to this characterization, all result object nominalizations (*Verletzung*, *Zusammenfassung*, *Entdeckung*, ...) of course also allow the definite/indefinite opposition.

For *-ung* nominals, possessive pronoun and postnominal genitive have in general the same constraints on interpretation (see Knobloch, 2002). For transitive verbs, the object reading is usually preferred, although often both subject and object readings are possible. Ehrich and Rapp (2000, p. 279) state that subject readings are only possible for verbs without a change of state, i.e., activities, such as *Betreuung*, or mental states such as *Verehrung*. This is not entirely confirmed by the facts, since many event nominalizations allow subject nominalizations, as we will show in the following paragraph.

Nominalizations of telic verbs, according to Ehrich and Rapp (2000), allow only the objective genitive. This is quite understandable for result states, since the result state, being a state, holds of the object of the underlying verb, and the underlying agent is not present semantically any more. For event nominalizations, this result is more surprising, and in fact runs into some difficulties with regard to the data. Elsewhere in their paper, Ehrich and Rapp (2000) admit that agentive genitives are indeed possible for a large range of event nominalizations of telic verbs (here, verbs that also allow result state or result object nominalizations).³

³The following examples are taken from their (113) and (114) on page 288.

(22)		<i>nominalization</i>	<i>subject</i>	<i>object</i>
	(a)	die Beschmierung <i>the smearing</i>	der Kinder <i>of the children</i>	des Hauses <i>of the house</i>
(23)	(a)	die Aufführung <i>the performance</i>	des Ensembles <i>of the ensemble</i>	des Stücks <i>of the piece</i>
	(b)	die Übersetzung <i>the translation</i>	des Redakteurs <i>of the editor</i>	des Artikels <i>of the article</i>
	(c)	die Zusammenfassung <i>the summary</i>	des Redners <i>of the speaker</i>	der Rede <i>of the speech</i>

They try to explain this fact with the statement that the verbs and their nominalizations are ambiguous between a telic and atelic version. In order to prove this point conclusively, it would be necessary to find a clear method of distinction between the telic and atelic readings, and show that subjective genitives are incompatible with the atelic version. This task has not been undertaken yet, and remains for further research. Until then, the issue of subjective readings remains unresolved: the main observation then is only that result state nominalizations, for semantic reasons, do not allow subjective genitives.

For result object nominalizations, the issue is a little complicated as well. At a first glance, subjective as well as objective genitives seem possible:

(24)		<i>nominalization</i>	<i>subject</i>	<i>object</i>
	(a)	die Zusammenfassung <i>the summary</i>	des Schülers <i>of the student</i>	des Buches <i>of the book</i>
	(b)	die Absperrung <i>the barricade</i>	der Bauarbeiter <i>of the workers</i>	des Geländes <i>of the area</i>
	(c)	die Erfindung <i>the invention</i>	des Wissenschaftlers <i>of the scientist</i>	* des Penicillins <i>of Penicillin</i>

It is striking that objective genitives are completely ungrammatical for some types of result object nominalizations. Note that *die Erfindung des Penicillins* is grammatical if interpreted as an event nominalization. At the same time (Ehrich and Rapp, 2000, p. 298), result object nominalizations of verbs that make something available can't be accompanied by an objective genitive. This is the case because the result object itself is what has been expressed by the object argument of the underlying verb. That is, the reference of the result object nominalization is the same as the reference of the object of the underlying verb. Thus, this same object can't be expressed as an argument of itself.

It is also not quite clear, why the result object nominalizations should allow an agentive genitive. After all, the semantics of the result object doesn't make the agent available. To this end, Ehrich and Rapp (2000) argue that the apparent subjective genitives are really tokens of a genitive type known as *genitivus auctoris*, genitives expressing an originator. These cases (as in (24a-c)) are then parallel to *das Buch des berühmten Autors*, *der Tisch des Schreiners*, etc.

In summary, we agree with the claim that result state and result object *-ung* nominalizations allow only objective genitives (with the exception of nom-

inalizations of availability verbs, which don't allow any genitive modification). Many event nominalizations, not only activities and (mental) states, can be modified by objective and subjective genitives alike. In such cases, there are no clear rules to tell whether a given genitive is subjective or objective, other than semantic restrictions. There seems to be, however, a strong preference for objective interpretation of genitives that modify singular nominalizations, and a (less strong) preference for subjective interpretation for genitives that modify plural nominalizations:⁴

- | | | | |
|------|-----|--|---|
| (25) | (a) | die Warnungen Churchills
<i>Churchill's warning</i> | die Warnung der Bevölkerung
<i>the alert of the population</i> |
| | (b) | die Erfindungen Edisons
<i>Edison's inventions</i> | die Erfindung der Dampfmaschine
<i>the invention of the steam-engine</i> |

3 Two Problems for the Hypothesis of Category-Independent Roots

The previous chapter provided a new summary of the properties of nominalizations in German. It has been shown there that the behavior of nominalizations is ruled by certain semantic and aspectual properties. Thus, it has been argued (for example by Alexiadou (2001)) that functional projections account for all the differences among different types of nominalizations, as well as between verbs and nouns.

According to the framework of Distributed Morphology (Embick and Noyer, to appear), lexical roots enter the syntactic derivation without being assigned specific categories. All the external syntactic behavior (which is stipulated in the way of category-specific properties otherwise) follows from the presence of certain functional elements. The ability of these elements to combine with certain structures (and roots), but not others, is determined by semantic (in-) compatibilities.

This section looks at two issues that raise problems for this hypothesis. First, we discuss the fact that there are raising verbs, but that raising nouns (including nominalizations) do not exist. Second, we will investigate the implications of the peculiarity of German intransitive nominalizations: those with noun and adjective roots are common, whereas those with verbal roots are not allowed. How can this be brought together with the hypothesis of category-independent roots?

3.1 Raising

Raising predicates are verbs or adjectives like *seem* that only take a sentential complement (26). They differ from subject control verbs in that they do not provide a thematic role for the subject of the main clause. This is demonstrated

⁴The following examples are from (Knobloch, 2002, p. 339, (11)).

by sentences like (27), where non-thematic *there* is the subject (see (28) for proof that non-thematic *there* cannot be the subject of a control verb).

(26) John seems to like pizza.

(27) There seems to be a unicorn in the garden.

(28) There is eager to be a unicorn in the garden.

3.1.1 Raising Nominals Do Not Exist

Kroch and Joshi (1985) show that while raising verbs are common, and while some raising verbs allow nominalization, there are no raising nouns. Nominalizations of raising verbs do not themselves allow raising (examples from Kroch and Joshi, 1985, p. 46):

(29) * John's appearance to have left surprised us.

(30) * John's likelihood to have left surprised us.

This effect is also true for German. German raising verbs are *scheinen* (*seem*), *drohen* (lit. *threaten*), *pflügen* (*tend*), *versprechen* (lit. *promise*), etc. Nominalizations of these verbs do not allow a raising interpretation.

(31) *Er droht unterzugehen.*

He threatens to drown.

"It looks like he will drown."

(32) * *seine Drohung unterzugehen.*

* his threat to drown

Int.: "the appearance that he will drown."

(33) *Er pflegt um 8 nach Hause zu kommen.*

He tends at 8 (to) home to come.

"He tends to come home at 8."

(34) * *seine Pflege/Pflegung, um 8 nach Hause zu kommen*

* his tendency at 8 home to come

Int.: "his tendency to come home at 8"

(35) *Das Wetter verspricht schön zu werden.*

The weather promises nice to become.

"The weather promises to be nice."

(36) * *das Versprechen des Wetters, schön zu werden*

* the promise of the weather nice to become

"Int.: the weather's promise to be nice"

This interesting fact is standardly explained (e.g. in generative grammar) with some intrinsic difference between nouns on the one hand, and adjectives and verbs on the other. In effect, as Kroch and Joshi (1985) note, this amounts to stipulating that nouns cannot be raising predicates. They argue that in contrast, this fact follows directly from the TAG formalism. They claim that while a control verb nominalization like *eagerness* can tolerate an optional argument, producing *John's eagerness to please*, a raising verb nominalization like *appearance* doesn't cooccur with an argument. This is why *John's appearance to be late* is ruled out.

Looking closely at this argumentation, one notices the following: The TAG explanation does not rely on general stipulations about the behavior of nouns, for example, that “nouns do not govern traces” or the like. Instead, the explanation builds on *lexical* properties of individual nouns, which state that a certain noun can or cannot take an argument. This makes sense in the framework, but is called into question by the information we've gathered in the first part of this paper. Namely, this line of reasoning presupposes that the argument structure of *appear* and *appearance* is inherently different. In fact, what is said is that although *eagerness* retains the propositional argument that *eager* has, *appearance* does not take an argument, even though its underlying verb *appear* does.

Now, we've concluded before that roots should not be underlyingly classified into categories. Thus, it is still an open question what yields the difference between nominalizations of raising and control verbs, and why there are no raising nouns. The answer to this question is to be found in the functional structure associated with nouns (or nominalizations) vs. verbs. This answer is therefore outside the scope of traditional TAG, which can only reason about clausal structure, and has little to say about the internal composition of the elementary trees of which it is composed.

3.1.2 Internal Structure of Nominalizations

So what is it then, in the internal structure of nouns and nominalizations vs. verbs, that prohibits raising nominals? Nouns are not generally prohibited from taking sentential arguments. Control nominalizations exist freely: these nouns take a subject as well as a clausal complement (37). Furthermore, nominalizations of German raising verbs do in fact allow sentential complements – but only in their literal sense. A raising interpretation is not obtained (38).

(37) *Peters Versuch, um 8 nach Hause zu kommen*
 Peter's attempt at 8 home to come
 “Peter's attempt to come home at 8 o'clock”

(38) *sein Versprechen, rechtzeitig nach Hause zu kommen*
 his promise on time home to come
 “his promise to come home on time”, NOT “his likelihood to come home on time”

3.1.3 Raising as Modification

In our opinion, the solution to the puzzle has to be found in the meaning of raising predicates. It has been observed that raising predicates semantically behave like sentential adverbs, not like independent verbs. They modify, rather than predicate. Often, an almost synonymous rendering of a raising predicate with an adverb is available:

- (39) Peter *is likely* to miss the bus.
- (40) Peter will *probably* miss the bus.
- (41) Peter *appears* to be late all the time.
- (42) *Apparently*, Peter is late all the time.

In TAG terms, a modifier (e.g., adjectives, adverbs, etc.) anchors an auxiliary tree, i.e., a tree that adjoins into another structure. Generally, too, modifiers are optional elements, not subcategorized for, and they don't change the category of the item they modify. In short, they don't introduce their own functional projections that they inherit upwards.

Thus, a raising predicate, being semantically a modifier, cannot change the structure/category of its argument. Since raising predicates modify events (i.e., clauses), the resulting raised structures have to be sentential. Or, put differently, since "John to miss the bus" is a clause, any raising predicate can only convert it into another clause, not into a noun phrase.

3.1.4 Do Raising Nominals Exist?

Interestingly, this argumentation opens up a whole new option: If raising predicates are modifiers, then a raising noun phrase would be one where a (pre-existing) noun phrase has been modified by a raising predicate (this raising predicate could for example be a noun). And indeed, the following phrase is possible:

- (43) *sein Anschein der Unparteilichkeit*
his appearance of impartiality

Of course it is not clear if such noun phrases really need to be considered "raising noun phrases". Particularly, standard tests for raising predicates cannot be applied, because there are no expletive arguments in the nominal domain. Semantically, though, it seems to us that *Anschein* does not take an agentive or possessive argument, since (just as in the verbal domain), *appear* does not provide a thematic role that matches it. The meaning of the phrase is that "it appears, that he is impartial". This is strikingly similar to the meaning of raising verbs, and gives credit to our theoretical observations above. We will leave further investigation of this topic for further research.

3.2 Intransitive *-ung* Nominalizations

As mentioned on page 4, intransitive *-ung* nominalizations are particular to the type of verb they are derived from in a peculiar way. Most verbs with nominal or adjectival roots freely form such nominalizations, whereas intransitive verbs with verbal root often do not allow it (see Shin, 2001; Knobloch, 2002).

If one accepts the Distributed Morphology story mentioned above, that roots of words are not underlyingly assigned to a category, this observation poses a big problem. In this framework, we do not even have the option to stipulate that denominal and deadjectival verbs can be nominalized, while other derived intransitive verbs cannot. However, there are several strategies to take: one might want to examine the set of intransitive verbs more closely, in order to see whether the stated correlation is even correct (maybe there are lots of verb-stem intransitive verbs that can also be nominalized?). Moreover, there might be an independent explanation of the phenomenon, and if there is, it is likely to be found in the lexical semantics of the roots of these verbs.

A noun root like *kalk* (*lime*) or an adjective root like *blind* denotes a property or a state: the property of being lime, the state of being blind. A verb root like *blüh* denotes the activity of blossoming. Now a verb built on the basis of the noun or adjective root will denote a resultative action/event, an event that has the underlying root as its result state. Thus, *verkalken* means to incrementally become as hard as lime, and *erblinden* means to incrementally become blind. On the other hand, *erblühen* means *to start blossoming*. We can detect a slight difference in meaning, although it is not quite clear why this would effect the ability to form *-ung* nominalizations.

A verb very similar to *erblühen*, *erscheinen* (*appear*), does allow nominalization. However, *Erscheinung* denotes an apparition, not the event noun appearance.

(Shin, 2001) also suggests a semantic explanation similar to the distinction described above. Verbs like *erblühen* are said to not have a distinct *target state*. But this account is still unsatisfactory in our opinion. It is not fleshed out how this effect translates to the rest of the *-ung* nominalizations. Do all verbs that allow such nominalizations have a target state? Surely not, since nominalizations like *Vermeidung* (*avoidance*) exist.

What needs to be discussed, are exceptions, cases where denominal verbs cannot be nominalized, or where deverbal intransitive verbs can be. In the interest of space, and since the relevant articles do not speak about these exceptions (other than allude to their existence), we will not indulge in this discussion here.

To sum up: a proponent of the hypothesis that roots are category-independent must explain why deverbal verbs behave differently from denominal and deadjectival verbs when it comes to nominalization. There are some semantic differences to go by, but they are not very clear. Further investigation must determine the issue.

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