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## DERIVATIONAL MORPHOLOGY AND THE SYSTEM OF WORD CLASSES IN GERMAN\*

STEFANIE ESCHENLOHR

### 0. Introduction

Derivational affixes can change the word class of the base form they attach to. Word formation rules specify the syntactic category of the input base and that of the output. In addition, the application of a word formation rule is often restricted by phonological and semantic conditions.

Morphological restrictions on word formation rules are usually stated in terms of positive and negative input conditions that capture the combinatorial properties of individual affixes (cf. Aronoff 1976; Scalise 1984). Most morphologists would agree that morphological complexity does have some impact on the productivity of word formation rules. Nevertheless, the morphological conditioning of word formation rules in German has not yet been investigated in a systematic way. In this paper, I intend to explore how the productivity of word formation rules is affected by the morphological structure and the word class of the input bases. The study covers a wide range of data drawn from dictionaries (Wahrig 1980; Mater 1989) and from standard descriptive studies on German word formation (Fleischer–Barz 1992; *Deutsche Wortbildung* 1973, 1975, 1978).

In section 1, I will sketch the system of category shifting derivational morphology in German. In particular, affixless derivation, i.e. conversion, is compared to derivation by overt derivational affixes. It will turn out that the direction of category shifts by conversion is limited whereas derivation by overt affixation can go in any direction. In section 2, I will examine which category shifting derivational rules can feed each other. As it turns out, most restrictions are imposed on the derivation of derived nouns. In section 3, some possible explanations for these restrictions will be discussed. I will argue that explanations in terms of blocking are not satisfactory. Furthermore, no general constraint on the iteration of derivational processes seems to be at work.

\* I am grateful to Peter Eisenberg, Lutz Gunkel and Sue Olsen for helpful comments.

Rather, the constraints turn out to be category-specific. Complex nouns are most resistant to undergo further derivation. Finally, in section 4, I will propose an alternative explanation. It is argued that derivational category shifts follow a funnel direction which is given by a syntactically motivated ordering of word classes (cf. Ross 1972; Eisenberg 1994).

1. Category shifting morphology in German: a survey

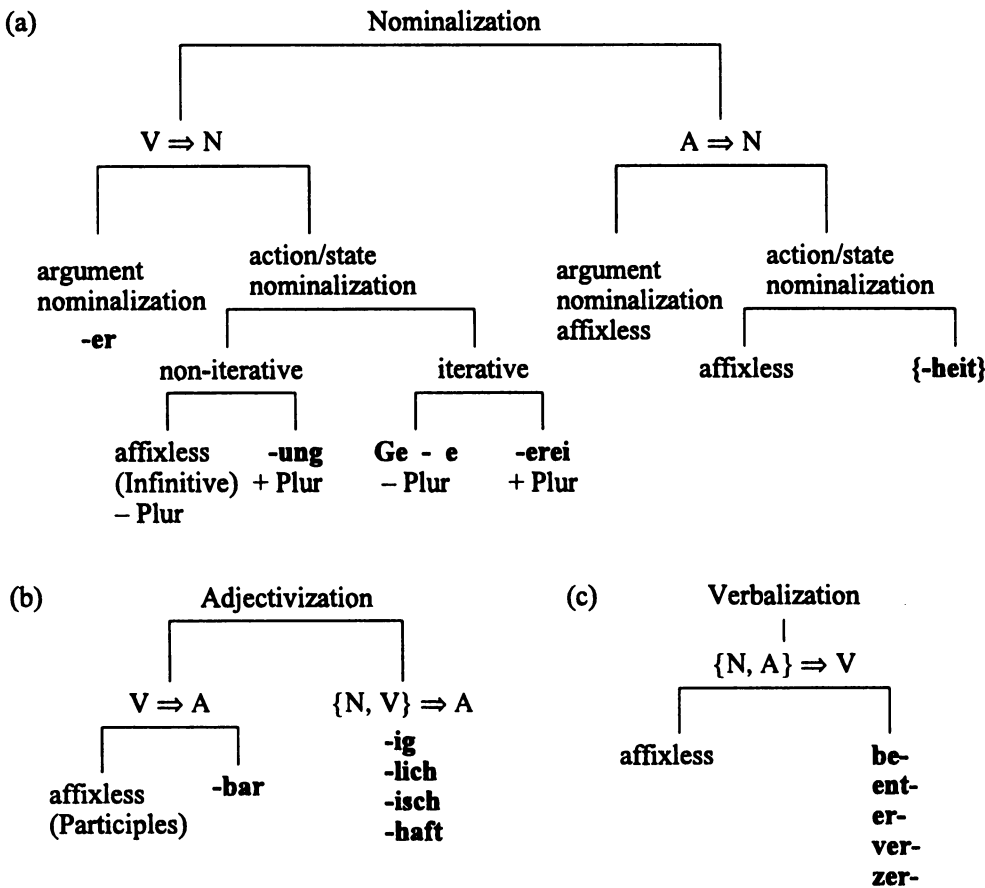


Fig. 1  
Major types of category shifts

Figure 1 gives a rough survey of category shifting morphology in German with respect to derivations between nouns, verbs, and adjectives. The categories are to be understood in a prototypical sense. I do not consider adverbs in the following as their status as a major lexical category is a notoriously problematic issue.

### 1.1. Conversion

The most striking uniformity in the system is the occurrence of a category “affixless” in each subbranch. By “affixless category shifts”, i.e. conversion,<sup>1</sup> I mean those category shifts that do not involve derivational affixes. Conversion can operate on base forms of nouns and adjectives,<sup>2</sup> and on non-finite verb forms (verb stems, infinitives and participles).

Of course, conversion does not mean the same for nouns, adjectives, and verbs. Any verb in German regardless of its syntactic and semantic properties possesses an infinitival and two participle forms which allow for nominalization and adjectivization, respectively. In contrast, nouns and adjectives cannot always be verbalized. If we compare infinitive nominalizations to noun verbalizations, the following differences show up: Infinitive nominalization is semantically transparent and only rarely lexicalized. Noun-verb-conversion, on the other hand, is highly restricted by phonological and semantico-pragmatic factors. The meaning of verbalized nouns is not completely predictable and denominal verbs tend to get lexicalized. Put in a nutshell, derivations from nouns to verbs are more idiosyncratic than derivations from verbs to nouns. The same holds true for category shifts from adjectives to verbs as compared to the nominalization of adjectives.

The theoretical status of ‘nominalized infinitives’, ‘adjectival participles’ and ‘nominalized adjectives’ is still an issue of debate (cf. Olsen 1988; Wunderlich 1987; Zimmermann 1988). It is by no means clear whether they result from a derivational process changing verbal forms into nominal and adjectival ones. One proposal that has been made in the literature is to account for the different types of conversion by assigning them to different levels of grammar. The more idiosyncratic category shifts, i.e. noun  $\Rightarrow$  verb, adjective  $\Rightarrow$  verb, and

<sup>1</sup> In the following, I will use the term ‘conversion’ for all kinds of affixless category shifts, i.e. nominalized infinitives and adjectives, adjectivized participles, as well as instances of “morphological conversion” (zero-derivation) are subsumed under conversion. For the differences between these types of conversion cf. Eschenlohr (in prep.).

<sup>2</sup> Sometimes, plural forms of nouns and comparative forms of adjectives can serve as input for affixless category shifts, e.g. *Blätter* (Pl)  $\rightarrow$  *blättern* (V), *Eier* (Pl)  $\rightarrow$  *eiern* (V), *besser* (Adj Comp)  $\rightarrow$  *bessern* (V), *schmäler* (Adj Comp)  $\rightarrow$  *schmälern* (V).

verb stem  $\Rightarrow$  noun, are treated as cases of morphological conversion, whereas the nominalization of infinitives and adjectives are usually located in syntax (Olsen 1990; Wurzel 1988). It is beyond the scope of this paper to discuss this question in any detail, however. Let us assume for the present purpose that 'nominalized infinitives and adjectives' and 'adjectival participles' as well as instances of "morphological conversion" can be subsumed under 'conversion'.

(1) gives a survey of conversion rules in German. Processes which are marked by "+" are restricted in productivity. Note that conversion from nouns to adjectives is not productive.<sup>3</sup>

- |     |                         |  |
|-----|-------------------------|--|
| (1) | V $\Rightarrow$ N       | <i>das Suchen</i> (nominalized infinitive)         |
|     | A $\Rightarrow$ N       | <i>das Gute</i> (nominalized adjective)            |
|     | V $\Rightarrow$ A       | <i>geliebt, liebend</i> (adjectivized participles) |
|     | +N $\Rightarrow$ V      | <i>buttern</i> ("morphological" conversion)        |
|     | +V-stem $\Rightarrow$ N | <i>der Bau</i> ("morphological" conversion)        |
|     | +A $\Rightarrow$ V      | <i>kürzen</i> ("morphological" conversion)         |
|     | *N $\Rightarrow$ A      |  |

## 1.2. Category shifts by affixation

### 1.2.1. Nominalization

The survey in Fig. 1 shows deverbal and deadjectival nominalizations to be structured in parallel. Deverbal argument nominalizations and action/state nominalizations are paralleled by deadjectival ones.<sup>4</sup> In the case of verbs, action/state nominalizations may be further subdivided into aspectually differing classes, such as iterative and non-iterative.

Each of these nominalization rules is highly productive. Restrictions may be explained by 'blocking' or in terms of aspectual and argument structural properties of the input verb forms. For example, some adjectives in German do not allow for derivation by the suffix *-heit*. The lack of derivations like *\*Armheit*, *\*Reichheit* is usually explained by the existence of the nouns *Armut*, *Reichtum*, i.e. by blocking. In general, however, conversions and overt

<sup>3</sup> Colour terms like *orange*, *flieger*, *aubergine* and expressions referring to inhabitants of cities (e.g. *Berliner*, *Münchner*, *Londoner*) may be considered as exceptions to this constraint. However, prenominal modifiers like *Münchner* in *Münchner Bier* do not behave like adjectives morphosyntactically (they are not inflected, cannot appear in predicative position and do not form comparatives). Similar restrictions can be found for derived colour terms unless lexicalized like *orange* in *orange T-shirt*. Thus, it is anything but clear whether these coinages should be categorized as adjectives derived by a N  $\Rightarrow$  A conversion rule.

<sup>4</sup> The terminology is borrowed from Comrie-Thompson (1985).

derivations do not block each other. Both nominalizations exist side by side, cf. *das Schöne*, *die Schönheit*; *das Sammeln*, *die Sammlung*. Sometimes, the meaning of the input verb forbids the attachment of an affix. In these cases, conversions fill the gap and provide a nominal form, cf. *kriechen*, *das Kriechen*, *\*die Kriechung*.<sup>5</sup>

### 1.2.2. Verbalization and adjektivization

The most productive adjectival suffixes in German are *-bar*, *-haft*, *-ig*, *-lich*, and *-isch*. *-bar* derives adjectives from transitive verbs, whereas the other suffixes clearly prefer to attach to nominal bases. However, for each adjectival suffix *-ig*, *-lich* and *-isch* coinages with verbal bases can also be found (cf. (2)). The suffix *-lich* also combines with adjectives. It is not quite clear whether adjectival suffixes productively combine with bases of more than one syntactic category. The data suggest that at least the suffix *-ig* has the capacity to attach to nominal as well as to verbal bases.<sup>6</sup>

- |     |              |               |                                   |
|-----|--------------|---------------|-----------------------------------|
| (2) | <i>-lich</i> | denominal:    | mütterlich, körperlich, männlich  |
|     |              | deverbal:     | verzinslich, rühmlich, bedenklich |
|     |              | deadjectival: | bläulich, dümmlich, weichlich     |
|     | <i>-ig</i>   | denominal:    | riesig, wässrig, salzig           |
|     |              | deverbal:     | kitzelig, kritzelig, tüftelig     |
|     | <i>-isch</i> | denominal:    | schurkisch, weibisch, diebisch    |
|     |              | deverbal:     | mürrisch, neckisch, zänkisch      |

<sup>5</sup> While semantic differences between affixless and affixal action/state nominalizations may be subtle, they differ morphologically in their ability to build plural forms. Nominalized infinitives and adjectives have defective nominal paradigms (cf. *das Sammeln* (Sg) – *\*die Sammeln* (Pl), *das Schöne* (Sg) – *\*die Schöne* (Pl)). Plural forms can only be built from suffixed nominalizations (cf. *die Sammlungen*, *die Schönheiten*).

<sup>6</sup> This claim is controversial because it contradicts the Unitary Base Hypothesis (UBH) (cf. Aronoff 1976) which is taken for granted by most morphologists. The adoption of the UBH has an unpleasant theoretical consequence, though: it leads to a proliferation of homonymous affixes. I take the view that subcategorization frames of affixes tend to be asymmetrical. Affixes fix the category of the output but are more tolerant with respect to the lexical category of the input base. This has already been proposed by Wilmanns: "So bindend wie die Wortart des abgeleiteten Wortes ist freilich die des Stammwortes nicht." (1899, 18).

Prefixes differ from suffixes in several respects. Each of the verbal prefixes *be-*, *ent-*, *er-*, *ver-*, *zer-* combines with verbal bases, but it is an issue of debate whether verbal prefixes can attach to nominal and adjectival bases as well.<sup>7</sup> (3) and (4) give some examples of denominal and deadjectival verbs derived by the prefix *be-*.

- (3) *bepflanzen* (relatable to *Pflanze* (N) and *pflanzen* (V)),  
*beerben* (relatable to *Erbe* (N) and *erben* (V)),  
*bekräftigen* (relatable to *kräftig* (A) and *kräftigen* (V))
- (4) (a) nominal bases: *beschuh*en, *bedach*en, *beseel*en (\**schuh*en,  
 \**dach*en, \**seel*en)
- (b) adjectival bases: *beschwer*en, *betäub*en, *belustig*en (\**schwer*en,  
 \**täub*en, \**lustig*en)

The complex verbs in (3) can be related to bases of more than one category. In these cases, both analyses are possible, i.e. the derivations can be conceived of as category-shifting or category-preserving. A decision can only be made on semantic grounds, if at all. The verbs in (4a) and (4b), in contrast, seem to be derived from nominal and adjectival bases respectively, because the corresponding simplex verbs do not exist. Those who argue that verbal prefixes only attach to verbs (cf. among others Stiebels 1994; Stiebels–Wunderlich 1994), have to assume a conversion rule which derives non-existent, ‘morphologically virtual’ verbs like *schuh*en, *dach*en etc.<sup>8</sup> Apart from the fact that this analysis has to cope with morphologically impossible verbs,<sup>9</sup> it still leaves unexplained why denominal and deadjectival prefix verbs are much more common than simple conversion verbs in German. Apparently, the verbalization of

<sup>7</sup> The question is, in other words, whether prefixes are ‘morphological heads’. The notion of head has been shown to be a problematic concept in morphological theory, however (cf. Zwicky 1985; Becker 1990; Bauer 1990). In the following, I will not discuss questions of head assignment. The fact that prefixes can function as potential category shifters is not considered to imply that prefixes are morphological heads.

<sup>8</sup> Prefix verbs have also been analyzed as parasynthetics, i.e. as complex words derived by means of the simultaneous attachment of a prefix and a suffix to a single base (for discussion cf. Scalise 1984, 147 f.).

<sup>9</sup> There are cases where verbal prefixes attach to word forms which can never be verbalized, cf. *veruntreuen*, *verunsichern*, *verunzieren*, *verunklaren*, *verunstalten*. These prefix verbs cannot be derived from \**untreuen*, \**unsichern*, \**unzieren*, \**unklaren*, \**unstalten* as words prefixed by *un-* cannot be verbalized in German. Derivational affixes can be interpreted as ‘categorical indicators’ that fix the word class of the derived word form (cf. Eschenlohr (to appear)).

nouns and adjectives by prefixation is morphologically preferred in German. Therefore, it seems justified to conclude that verbal prefixes can function as category shifters.

To sum up: Derivational affixes in German allow for all possible category shifts between nouns, verbs, and adjectives. Each category can be mapped onto any other category.

However, this neat picture is only valid for morphologically simple inputs. Only non-derived words allow for categorially unrestricted shifts. It will be shown in the next section that the possibilities to shift derived word forms are highly limited.

## 2. Morphological restrictions on category shifting derivation

Figure 2 gives a survey of category shifting derivational rules operating on derived words that have already undergone a category shifting derivational process. The words serving as input bases contain at least one category shifting derivational affix.

The following pattern emerges: Derived nouns are not further derivable whereas complex verbs and adjectives always allow for at least one type of category-shift, namely for nominalization. The fact that affixed words do not allow for zero-derivation is well known (Marchand 1969), whereas restrictions imposed on overt derivation have gone largely unnoticed. In the following, I will examine the derivability of complex nouns, verbs and adjectives by affixless and overt derivational processes.

### 2.1. Derived nouns as input

Deverbal and deadjectival nouns cannot be derived by conversion. The verbs in (5a, b) are completely unacceptable. Interestingly, derived nouns cannot be category-shifted by overt derivational affixes either. Productive adjectival suffixes, such as *-ig*, *-lich*, *-isch*, *-haft* do not attach to derived nouns, as shown in (5c, d).<sup>10</sup> The same restriction can be observed for verbal prefixes. The nouns in question can never be verbalized by any of them (cf. (5e)).

<sup>10</sup> A few exceptions are found for deadjectival nominalizations with the affix *-heit*. In some cases, they combine with the adjectival suffix *-lich*. The attested coinages are: *gesundheitlich*, *freiheitlich*, *einheitlich*, *zweiheitlich*, *mehrheitlich*, *ganzheitlich*, *obrigkeitlich*.



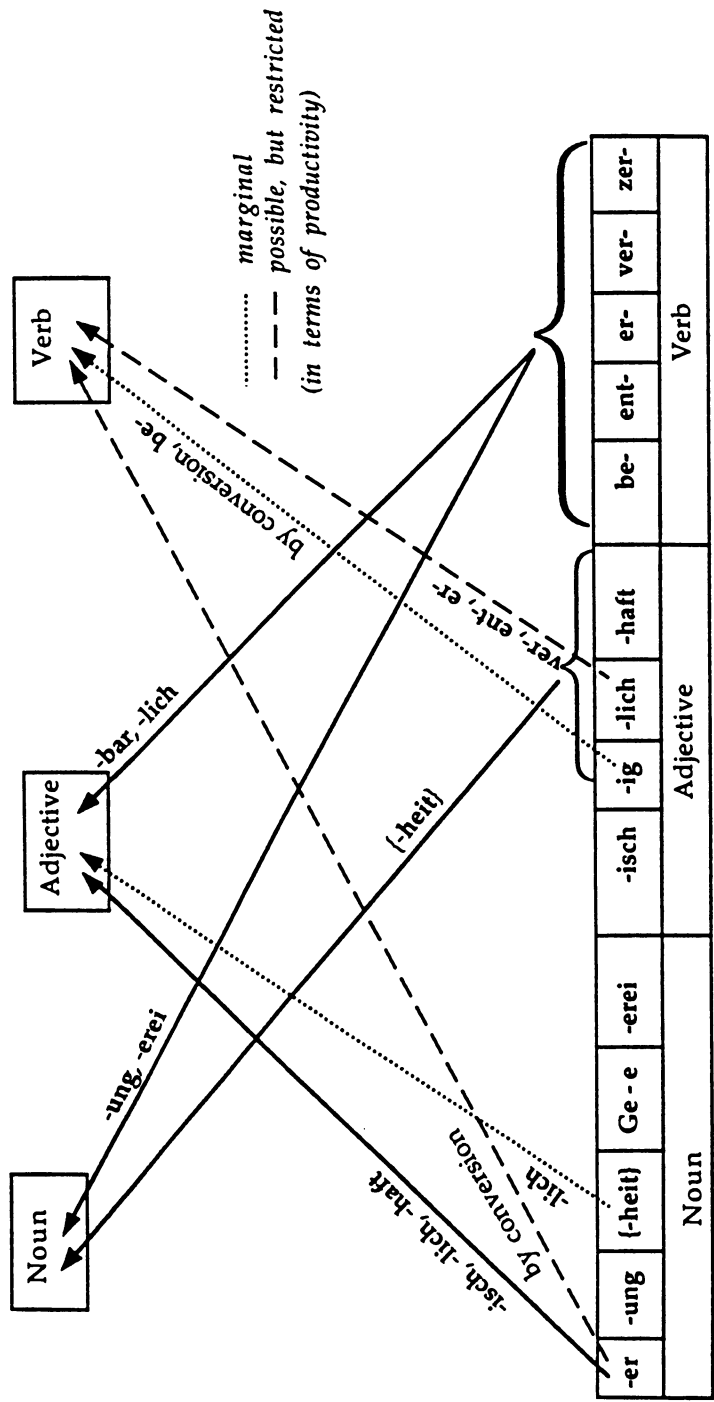


Fig. 2  
Category shifting derivation: input bases with category shifting affixes

- (5) (a) \**leitungen* (V), \**untersuchungen* (V), \**trennungen* (V)  
 (b) \**gleichheiten* (V), \**freiheiten* (V), \**brüderlichkeiten* (V)  
 (c) \**schönheitlich*, \**klugheitlich*, \**ehrllichkeitlich*  
 (d) \**leitunglich*, \**untersuchunglich*, \**trennunglich*  
 (e) \**begleichheiten*, \**befreiheiten*, \**bebrüderlichkeiten*  
 (exception: *bewahrheiten*)

Only so-called semi-affixes like *-mäßig*, *-frei*, *-voll* do combine with derived nouns (cf. (6a, b)). Semi-affixes are halfway grammaticalized compound parts. Not surprisingly, lexical stems freely combine with derived nouns forming compounds, as shown in (6c).

- (6) (a) *untersuchungsmäßig*, *hingebungsvoll*, *reibungsfrei*  
 (b) *gesundheitsmäßig*, *streitereimäßig*, *gerennemäßig*  
 (c) *Untersuchungsbericht*, *Hausdurchsuchung*, *Kindergeschrei*

There is an important exception to the non-derivability of complex nouns. Agent nouns that are formed by the suffix *-er* productively combine with most adjectival suffixes (cf. (7a)). In some cases, they can also be verbalized by conversion rules (cf. (7b)).

- (7) (a) *tänzerisch*, *streberhaft*, *richterlich*  
 (b) *dienern*, *strebern*, *malern*

The exceptional behaviour of *-er*-derivatives can be explained in terms of their specific phonological<sup>11</sup> and semantic properties. *-er*-nominalizations denote agents (persons and instruments). Thus, they fulfill the semantic input conditions of several word formation rules. For example, the conversion rule instantiated in (7b) derives verbs whose semantics may be roughly characterized as 'denoting activities which are characteristic for the referents of the nouns they are derived of'. Deverbal agent nouns fit this rule semantically and some are attested as input bases (cf. *Diener*, *Streber*, *Maler*).

<sup>11</sup> *-er* plays a special role in German word formation. It does not only function as a derivational and inflectional suffix, but also belongs to the class of so-called pseudo-suffixes (*-er*, *-e*, *-en*, *-el*). Pseudo-suffixes are word final schwa-syllables which are typical for native German nouns (cf. *Hammer*, *Eimer*, *Priester*) and verbs (cf. *labern*, *blubbern*, *hadern*). Because of this situation, most suffixes attach to (morphologically simple) bases ending in *-er*. The fact that the phonologically identical suffix *-er* combines with almost any other suffix (cf. Fleischer-Barz 1992, 40) and that some *-er* agent nouns even allow for conversion (cf. (7b)) may be explained by structural analogy to pseudo-suffixed nouns and verbs.

## 2.2. Derived adjectives as input

All complex adjectives can be nominalized by *-keit* or *-igkeit* which are allomorphs of the suffix *-heit* (cf. (8)).<sup>12</sup>

- (8) Spießigkeit, Zickigkeit, Schreckhaftigkeit, Ehrlichkeit, Lieblichkeit

In contrast, verbalization of complex adjectives is far more restricted. In particular, conversion rules never apply to complex adjectives (cf. (9a)). Some examples of conversions (cf. (9b)) are found for adjectives derived by *-ig*. The relatively great number of attested forms can be explained diachronically; *-ig* was a productive verbal suffix in older stages of German (cf. Paul 1920, 122). In contemporary German, however, A  $\Rightarrow$  V conversion does not productively apply to morphologically complex adjectives. Most of them are not derivable by verbal prefixes either, as demonstrated by the ungrammatical coinages in example (9c).

- (9) (a) \*friedlichen, \*mürrischen, \*rosigen, \*ekelhaften  
(exceptions: ehelichen, offenbaren)  
(b) kräftigen, demütigen, steinigen  
(c) \*vergierigen, \*verspießigen, \*verschauderhaften, \*verekelhaften

Verbalization by overt prefixes seems to be possible for adjectives formed by the suffix *-lich*. A considerable number of verbalized *-lich*-adjectives is attested (cf. (10a)). It is not quite clear, however, whether verbal prefixes productively combine with *-lich* adjectives. New coinages seem to be quite odd or even ungrammatical (cf. (10b)):

- (10) (a) verdeutlichen, veranschaulichen, vereinheitlichen, entstaatlichen, verbürgerlichen, verwirklichen, ermöglichen etc.  
(b) ?verdicklichen, ?verkränklichen, ?verweinerlichen

<sup>12</sup> The forms *-keit* and *-igkeit* are morphologically conditioned allomorphs of *-heit*. They preferably attach to bases containing a derivational suffix, except for *-isch*, cf. \**Seelischkeit*, \**Mürrischkeit*, \**Regnerischkeit*, \**Launischkeit*. I have no explanation for this restriction. Apparently, each suffix has some idiosyncratic combinatorial properties which cannot be explained on phonological or semantic grounds.

To sum up: Morphologically complex adjectives can be nominalized, both by affixless and affixal derivation. Verbalization of complex adjectives is severely restricted. Conversion rules never apply. Category shifts by prefixes are attested, but it is not clear whether new coinages according to these patterns can be formed.

### 2.3. Derived verbs as input

There are almost no restrictions on the derivation of derived verbs. On the contrary, complex verbs are preferred inputs for several word formation rules. Often, complex verbs are more ready to undergo derivation than the corresponding simplex verbs.

This has to do with the specific semantic and syntactic properties of derived verbs in German. Most prefix verbs are transitive and telic. Thus, they satisfy the subcategorization frames of some very productive affixes, e.g. *-bar* and *-ung*. The *-ung*-nominalization rule, for instance, preferably operates on transitive telic verbs (cf. Fleischer-Barz 1992, 173 f.).<sup>13</sup> Therefore, a complex verb like *verbrennen* can be nominalized by *-ung*, whereas the corresponding simplex verb *brennen* cannot (cf. (11a)). Accordingly, restrictions on the derivation of complex verbs can mostly be explained in terms of the semantic and syntactic properties of the verbs in question. The prefix *er-*, for example, forms inchoative intransitive verbs which are not derivable by the suffix *-bar* (cf. (11b)).

- (11) (a) *brennen*, \**die Brennung* vs. *verbrennen*, *die Verbrennung*  
 (b) \**erblühbar*, \**errötbar*, \**erstrahlbar*

Furthermore, derivation may be ruled out by prosodic well-formedness conditions, as shown in (12). A sequence of two unstressable schwa-syllables at the beginning of a word is not possible in German (exception: *vergesellschaften*).

- (12) \**das Gebegieße*, \**das Geverlaufe*, \**das Geerrate*

<sup>13</sup> This may be explained by the semantics of *ung*-nominalizations which always allow for process readings as well as result readings. Atelic verbs denote processes without inherent end, thus result readings cannot be derived. This might be the reason, why *ung*-derivation is usually ruled out with atelic verbs (cf. *kriechen* – \**Kriechung*, *suchen* – \**Suchung*, *hören* – \**Hörung*).

Note that conversions are always possible. Every complex verb has an infinitival form that can be nominalized, and at least one participle form that allows for attributive usage.

### 3. Possible explanations

#### 3.1. Blocking

Usually, restrictions on the productivity of word formation rules are explained by blocking mechanisms. According to Aronoff (1976, 43) blocking is defined as ‘the non-occurrence of one form due to the simple existence of another’.<sup>14</sup>

At first glance, blocking seems to explain the ungrammaticality of forms like those in (5). One may assume the derivation of a verb like *\*verzweigungen* is blocked by the existence of the simplex verb *verzweigen*. By the same token, the non-existence of the adjective *\*verzweigungig* might be attributed to the existence of the participle *verzweigt*.

However, the non-existence of coinages like those in (13) cannot be accounted for by blocking. These are formed from lexicalized *-ung*-nouns like *Böschung*, *Satzung*, *Quittung*. Although they are to be analyzed as morphologically complex, they can no longer be related to existing verbs. Thus there are no infinitives or participles to block coinages like those in (13).

- (13) (a) *\*böschungen* (V), *\*satzungen* (V), *\*quittungen* (V)  
 (b) *\*böschungig* (A), *\*satzungig* (A), *\*quittungig* (A)

#### 3.2. Morphological constraints on word formation rules

Usually, application conditions on word formation rules capture the combinatorial properties of individual affixes (cf. Aronoff 1976; Scalise 1984). In many cases, however, seemingly morphological complexity constraints can be traced back to phonological or semantic restrictions.

Plank (1981, 138) surmises that there are two general tendencies at work which might be responsible for morphological complexity restrictions: One that forbids the reapplication of derivational processes (unless semantically

<sup>14</sup> The notion of blocking is an issue of debate in morphological theory. Scalise (1984, 164) argues that blocking is not a formal constraint on word formation rules but has to be understood as ‘a tendency of the lexicon towards “economy”’. More refined and elaborated notions of blocking have been proposed by Plank (1981) and Wurzel (1988).

licenced, cf. *Ururgroßvater* vs. *\*grünlichlich*) and another one which delimits the iteration of category-preserving derivational processes (cf. *\*käsiglich*, *\*verbegehen*, *?Lehrerinchen*).<sup>15</sup>

The data discussed in this paper rather suggest that category-shifting derivational processes cannot be reverted. We might hypothesize that in general deverbal nouns cannot be re-verbalized, deadjectival adverbs cannot be re-adjectivized and so on.<sup>16</sup> However, (14a) lists deverbal nouns that do allow for verbalization. Though not formed productively, they are still relatable to the corresponding verbs (cf. (14b)). Again, conversion is not allowed (exceptions: *befunden*, *beschlagnahmen*, *wallfahrten*).

- (14) (a) *vereinnahmen*, *bevorzugen*, *bezuschussen*, *beschriften*, *veranlagen*  
 (b) *einnehmen* → *Einnahme*, *vorziehen* → *Vorzug*, *zuschießen*  
 → *Zuschuß*, *schreiben*, → *Schrift*, *anlegen* → *Anlage*

To conclude: The property to refuse further derivation is not a property of deverbal nouns in general. Rather, it seems to be a specific property of the nominal suffix *-ung*.

There are two more reasons which speak against the “no-reversion-hypothesis”. Firstly, it does not explain the prohibition of  $V \Rightarrow N \Rightarrow A$  derivations (cf. section 3.1). Secondly, as will become clear from Fig. 3, category-preserving affixes tend to block further derivation as well. Figure 3 shows that all nominal affixes constrain the application of category shifting processes.

Some adjectives are attested but there are many gaps which cannot be accounted for (cf. (15)).

<sup>15</sup> The question whether the iteration of category-preserving derivational processes is to be avoided, requires further investigation. The crucial question is how many category-preserving derivational steps are allowed. Apparently, it is possible to attach two or even three category-preserving suffixes to a stem, e.g. *burschen<sub>N</sub>-schaft<sub>N</sub>-ler<sub>N</sub>*, *burschen<sub>N</sub>-schaft<sub>N</sub>-ler<sub>N</sub>-in<sub>N</sub>*. To get a complete picture of the restrictions at work, each word-class has to be examined individually.

<sup>16</sup> This seems to be true for deadjectival adverbs derived by *-(er)weise*, such as *möglicherweise*, *glücklicherweise*, *fatalerweise* which do not allow for attributive usage, whereas some denominal adverbs, e.g. *probeweise*, *schrittweise*, *versuchsweise* can function as adjectives (*die probeweise Durchführung*, *die schrittweise Annäherung*).

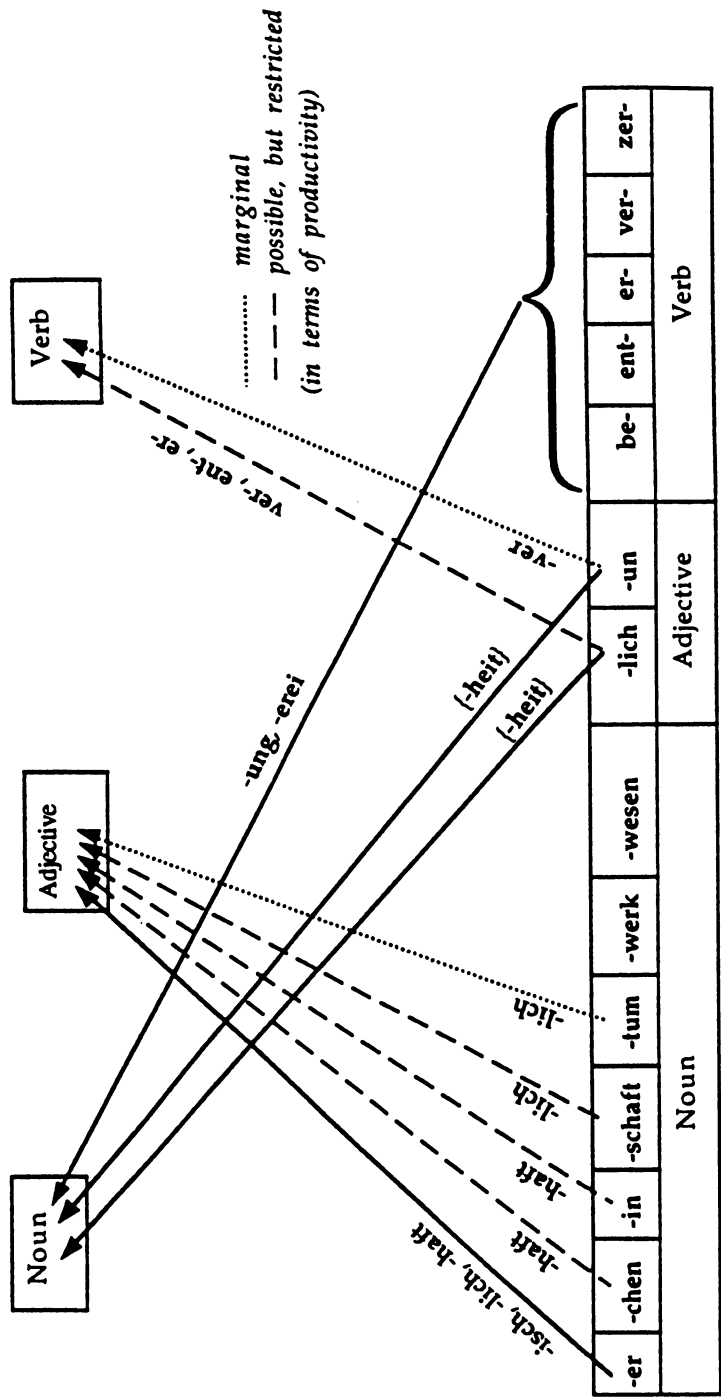


Fig. 3  
Category shifting derivation: input bases with category maintaining affixes

- (15) (a) verwandtschaftlich, partnerschaftlich, nachbarschaftlich  
 (b) ?präsidenschaftlich, ?vaterschaftlich, ?bürgertümlich,  
 ?beamtentümlich, ?christentümlich

Verbalization, on the other hand, is not possible. The attested exceptions concerning conversion and overt derivation are given in (16a) and (16b), respectively.<sup>17</sup>

- (16) (a) wirtschaften, fuhrwerken, bollwerken  
 (b) erkundschaften, vergesellschafteten, bewirtschaften

#### 4. Conclusion

We have seen that the productivity of a word formation rule is restricted by the morphological complexity as well as by the syntactic category of the input base. In particular, the following constraints can be found:

- Derived nouns are most inert to undergo further derivation.
- Derived adjectives can be productively derived into nouns while verbalization is heavily restricted.
- Complex verbs, however, are ready to serve as inputs for further word formation rules

How are these findings to be interpreted? Figure 4 is a slightly modified adaptation of a scale where syntactic categories in German are ordered according to a parameter of nominality (cf. Eisenberg 1994, 73). This scale is independently motivated by the morphosyntactic properties of the forms in question.

<sup>17</sup> There is a systematic exception to the non-derivability of the nouns in question. Nouns containing the category-preserving suffixes *-tum* or *-schaft* can be derived by the verbal suffix *-(e)ln* which is the only productive verbal suffix in German (e.g. *altertümeln*, *deuschtümeln*, *gewerkschafteln*, *wissenschafteln*). These coinages are slightly facetious but interpretable.



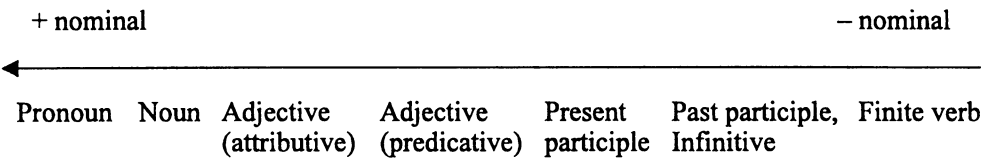


Fig. 4  
Syntactic categories in German ordered on a categorial scale

The thing to notice is that category shifts usually follow a “funnel direction” running from verbs to nouns. To put it in J.R. Ross’ (1972) terms: Endstation Hauptwort! This can be shown for the different types of category shifts I have discussed so far.

**1. Conversions:** Affixless category shifts run unrestrictedly from verbs to nouns. Participles can be shifted into adjectives and adjectives can be shifted into nouns. The opposite direction from nouns to verbs is heavily restricted. Affixless shifts from nouns and adjectives to verbs are idiosyncratic in meaning and often considered odd. Shifts from nouns to adjectives are not possible at all.

**2. Category shifts operating on non-derived inputs:** Here, derivations may run the ‘wrong funnel direction’. Nouns may be shifted into adjectives and adjectives into verbs by several productive derivational affixes. Even nouns can be verbalized quite productively by prefixation. Thus, it seems that category shifts can run the wrong direction on two conditions: Firstly, the category shift has to be triggered by an overt derivational affix and secondly the input base has to be morphologically simple.

**3. Category shifts operating on derived inputs:** If derived words form the inputs for word formation rules, the natural funnel direction is maintained: Complex verbs can be shifted into adjectives and complex adjectives can be shifted into nouns. In contrast, the opposite direction is hardly possible.

My findings support Hopper and Thompson’s (1984) observation that morphological relations between nouns and verbs tends to be asymmetrical. Whereas all languages seem to be equipped with tools for nominalization, verbalizing morphology is often scarce (see also Szymanek 1993). Whether the funnel direction as proved for German represents a universal tendency, remains an open question.

Furthermore, it has been shown that word formation rules are sensitive to internal morphological structure. Many restrictions, it is true, can be explained in terms of semantics and phonology. However, there seem to be cases where the mere property of being a morphologically complex word affects the productivity of a given word formation rule.

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