

Left of Number

Animacy and Plurality in German Nouns

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1. Plural and Plurality

As an interface phenomenon, nominal inflection is first of all a matter of case. If morphology describes the inventory of inflection markers and syntax their use in greater units, it is case that determines the most intricate relation between the two levels of grammatical description. Number “is generally not inherent in a noun stem; and unlike case, it is generally not imposed on a noun by rules of syntax” (Lehmann & Moravcsik (2000, 736)). At least for a language like German, number is of secondary interest here. Number becomes more interesting under a different perspective. In Bybee (1985) verbal categories are hierarchically ordered in a way that reflects different aspects of verb grammar concerning the morphological, syntactic, and semantic level of description (see, e.g., Cinque (1999), Nübling (2000) for quite different aspects). In the present paper a similar attempt is made for nominal categories. The paper deals with some systematic aspects of plural formation and the coding of plurality in German nouns. By “plural formation” we refer to the standard inflectional pattern marking a number distinction with a singular form as the unmarked base. By “coding of plurality” we refer, very roughly speaking, to the coding of certain expressions of quantity like diminution (*das Kind* (‘child’) – *das Kindchen* (‘tot’)), the formation of collectives (*der Lehrer* (‘teacher’) – *die Lehrerschaft* (‘faculty’)), or plural formation in the narrower sense.

The notion of plurality is tentative. It might turn out that a more general

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notion of quantity with plurality subordinate to it is more useful, since diminution has in any case to be included. We do not go further into terminological questions at this point. Our main concern is to combine animacy and plurality to arrive at a better understanding of certain morphosyntactic properties of German nouns.

German belongs to the set of languages whose nominals are not “split” with respect to plural. If a split occurs in a language it divides the nominals into two classes at some point on the Animacy Hierarchy. The impact of the hierarchy on plural formation is extensively discussed in Corbett (2000, 55ff.). Corbett presents his version of the Animacy Hierarchy as in (1).

- (1) speaker > addressee > 3rd person > kin > human > animate > inanimate
 1st person 2nd person
 pronoun pronoun

If a language has nominal plurals, the singular-plural distinction “must affect a top segment of the Animacy Hierarchy” (Corbett (2000, 56)). Besides this, the nouns and pronouns marking the plural will form a single segment in the chain of categories. So it is predicted that there cannot be languages which have, e.g., plural forms of kin terms but not of the 1st person and 2nd person pronouns.

No plural split for nominals means that all nouns and pronouns have plural forms. Where this is not the case it occurs for reasons which have nothing to do with animacy. For instance, there can be all kinds of *singularia tantum* like the nouns in *das Wild* (‘game (animals)’), *das Obst* (‘fruit’), *der Schmuck* (‘jewelry’) or the pronouns *einer* and *jeder*. And there can be classes of words whose status as nouns is at least debatable like the so-called nominalized infinitives as in *das Wandern* (‘hiking’), *das Wollen* (‘wanting’). These normally do not have plural forms, but they can have a zero plural if they are highly lexicalized: *Jede Katze hat zwei Leben*. (‘Every cat has two lives.’) *Die Mensa gibt täglich 5000 Essen aus*. (‘The cafeteria serves 5000 meals a day.’)

A first effect of the Animacy Hierarchy on plural formation in German can be found in the relation of regular to irregular plural forms. It is predicted that irregular forms will be found in the highest positions of the hierarchy. So we have suppletive plurals for the first person (*ich – wir*), the second person (*du – ihr*), and the third person pronoun (*er/sie/es – sie*).

As to the regular plural, there has been intensive research on it during the last decade. The first question to be answered is of course which plural

markers have to be regarded as regular and perhaps unmarked. A minority position takes the gender-independent *s*-plural as the only regular and therefore unmarked form (masc. *die Spontis* ('members of alternative movement rejecting traditional procedures'), fem. *die Omas* ('grandmas', 'old women'), neut. *die Autos* ('cars'); see, e.g., R. Wiese (1996), Clahsen (1999), Pinker (1999; 2000) with far-reaching consequences for what should be considered to be regular at all).

The more traditional position, to which we will subscribe here, claims that the productive plural types are determined by gender categories. Within the core vocabulary, the *s*-plural is taken as marked, whereas each gender has exactly one unmarked plural marker (Köpcke (1993); Wegener (1995; 1999); Thieroff (2001); Harnisch (2001)). We adopt this position in principle, taking a special view only on the so-called weak masculines.

The weak masculines have been set apart at least since the beginning of New High German, but at that time this morphological pattern began to concentrate on animate nouns. More precisely, weak masculines refer to human beings (*Held* ('hero'), *Christ* ('Christian'), *Bote* ('messenger'), *Kunde* ('customer')) or to animals with relationship to humans of some kind or other (*Bär* ('bear'), *Affe* ('monkey', 'ape'), *Löwe* ('lion'), *Falke* ('falcon'); Köpcke (2000)). Though isolated in the core vocabulary, they have become productive with loan words, whose vast majority refers to human beings as well (*Emigrant* ('emigrant'), *Student* ('student'), *Diplomat* ('diplomat'), *Philologe* ('philologist')). Their only inflection marker is (*e*)*n*, so for the plural we have *der Held* – *die Helden*, *der Löwe* – *die Löwen*. It can be shown that the weak masculines have developed some formal and semantic properties of a gender of their own – the fourth gender, so to speak (Eisenberg (2000)). If we separate them as generics (*gen*) from the rest of the masculines, we get (2) as the set of productive plural markers in the core grammar of present-day German.

(2)	<i>gen</i>	<i>masc</i>	<i>fem</i>	<i>neut</i>
	(e)n	e	(e)n	e
	Held ('hero')	Hund ('dog')	Burg ('castle')	Bein ('leg')
	Bote ('messenger')	Tisch ('table')	Wiese ('meadow')	Brot ('bread')

We shall see later that in derivational morphology the order *masc* > *fem* > *neut* corresponds to degrees of animacy. At the moment we would like to state that the presentation in (2) can be read as the sequence of genders applicable to simplex nouns. Whereas kin terms do not seem to play any special role in

present-day German, the right half of the hierarchy in (1) can be expanded and then projected onto the inventory of simplex nouns, as in (3).

- (3) *gen* *masc* *fem* *neut*
 human > mammal > bird > fish > reptile > insect >>> mollusk > inanimate

The expanded part of the hierarchy comprises what has been called a perceptual folk classification of animals as part of an anthropocentric continuum (Köpcke & Zubin (1984; 1996); Köpcke (2000)). The percentage of nouns in the respective classes exceeds the average significantly, but of course the other genders are not strictly blocked for the nouns of a certain semantic class. The respective class membership can be understood as part of the prototypical behavior of a noun. Though this is a very rough and general characterization of what has been elaborated on semantic foundations of gender assignment, it nevertheless gives a correct first approximation. It shows that animacy is relevant for this kind of grammatical classification, and so it might be fruitful to look for other formal correlates.

To do this, we take the most significant formal property of plural formation as our starting point. All nouns in German have one and only one stem form for each of the number categories. No matter which case endings are used by a certain inflection type, there is exactly one stem form for all word forms in the singular and exactly one for all word forms in the plural.

For the overwhelming majority of nouns, the plural stem form is built on the morphologically simple form of the nominative singular by umlaut (*Vater* ('father') – *Väter*), by suffixation (*Hund* ('dog') – *Hunde*), or by umlaut plus suffixation (*Buch* ('book') – *Bücher*). Thus, most nouns follow the pattern of base form inflection (Wurzel (1984); for a different view, see Harnisch (2001)). This is to say that a plural suffix can be regarded as agglutinating. If there is a case suffix as in many forms of the dative, the plural suffix takes the position to its left (*Hund+e+n*, *Büch+er+n*). The hierarchy of nominal categorizations *gender* > *number* > *case* reflects not only the relative position of morphological units, but also predicts the relative probability for a category to be realized as agglutinating.

So the singular forms of a nominal paradigm on the one side and the plural forms on the other show much more uniformity than, e.g., the forms of the genitive or the forms of the dative. More generally, the higher category determines the lower one in category hierarchies. With respect to German this has been ascertained for nouns as well as for pronouns and verbs (B. Wiese (1994; 1996); Booij (1996); Wunderlich (1997)). The singular paradigm and

the plural paradigm have some of the properties which are normally ascribed to autonomous word paradigms, and the stem forms with their meanings have some of the properties of lexical items. Or to put it in another way, compared to case suffixes the plural suffix has fewer properties of a prototypical inflectional suffix, and it has some properties of a derivational suffix.

This purely linguistic result corresponds to a multitude of psycholinguistic findings. There is, for instance, strong evidence for the hypothesis that singular stem forms and plural stem forms are at least at some level separately stored and processed. This again has been attested for different inflectional classes (Baayen et al. (1997); Köpcke (1998); Clahsen (1999); Clahsen et al. (2002)).

From this point of departure we can now proceed to the suffixes “left of number”. These are without doubt derivational suffixes. In accordance with *gender > number > case* they are bound to gender categories. The gender category in turn determines the inflection type and by this the choice of the plural marker (Wurzel (1984); Bittner (1999); Thieroff (2001)). Since there is a minority position which holds that the direction of dependency could be the other way round, one has to be quite clear about what is meant by “dependency” or “determination”. With respect to hierarchies of grammatical categories, it means that the higher category constrains the occurrence and form of the lower category. This is the way we use the terms here. A different use goes back to Greenberg (1963), saying that “it is typically gender which is dependent on number” (Corbett (2000, 272)). It is based on Greenberg’s universal “A language never has more gender categories in nonsingular numbers than in the singular”, which is of course true of German, since gender is restricted to the singular in this language.

Derivational suffixes appear in a fixed order. As can be expected, the ones immediately to the left of number all have to do with plurality. The question then arises in which way the overall suffix order is constrained semantically.

The rest of the paper is organized as follows: In section 2 the order of derivational suffixes is described. Section 3 tries to clarify the semantic impact of this order, whereas in section 4 the realization of the mass-count distinction in German is briefly described to then integrate it into the overall system of semantic constraints.

2. Suffix Chains

The system of native productive derivational suffixes in German comprises scarcely more than 12 to 15 units. Including suffixes which appear in transparent words but are not truly productive, one ends up with about two dozen. A clear majority of them function as nominalizers, where each suffix is bound to one gender and exactly one inflection type. Second place is held by adjectivizers; at least five of them are productive. There is one suffix with two variants for the derivation of adverbs from nouns (*Versuch* ('attempt', 'experiment') – *versuchs+weise* ('as an experiment')) and adjectives (*klug* ('intelligent') – *klug+erweise* ('intelligently')), and there is at best one which delivers verbs. Since it derives verbs from verbs, it does not play a significant role in the system as a whole. We have about three or four dozen pairs like *lachen* ('laugh') – *lächeln* ('smile'), *husten* ('cough') – *hüsteln* ('clear one's throat'), *drängen* ('push') – *drängeln* ('jostle').

Nouns and adjectives also play an important role as bases for derivation, but here the verb is absolutely dominant. Several of the most productive patterns start with simple verb stems, especially with stems from transitive or other verbs whose subject is prototypically agentive. So the overall derivational system shows a tendency to build from verbs to nouns: Multiple suffixation typically leads to the *Endstation Hauptwort* ('noun as final destination') (for a somewhat more detailed overview, see Eisenberg (2004, 280)).

We will now start with discussion of the longest chain of suffixes possible in German, which is at the same time most suggestive with respect to the interaction of animacy and plurality. The leftmost position in the chain is occupied by *-er* as in the masculines *Denk+er* ('thinker'), *Schreib+er* ('writer'), *Mach+er* ('doer'). Its basic function is the derivation of nomina agentis, which is often described as incorporation of the external argument with the Θ -role agent. So the semantic feature [+agentive] can be assigned to the derived noun. There are other types of *-er* nouns, especially nomina instrumenti (*Schreiber* ('writing implement'), *Heber* ('jack'), *Öffner* ('opener')) and nomina acti (*Hopser* ('jump'), *Lacher* ('laugh'), *Heuler* ('howl')). Their meaning can be systematically related to the meaning of the agent nouns (Meibauer (1995); Szigeti (2002)). A nomen acti can also be read as a nomen instrumenti and a nomen instrumenti as a nomen agentis. This implication indicates that the derivation of agent nouns has to be regarded as the primary function of *-er*.

Like all other derivational suffixes with initial schwa, *-er* has to be attached immediately to a stem; i.e., no other suffix may intervene. If an intervening suffix is nevertheless forced by a morphological rule, the resulting pattern is not stable. For instance *-er* has been replaced by *-ler* after *-schaft*. We have now *Wissen+schaft+ler* ('scientist'), *Gewerk+schaft+ler* ('union member') in place of the older *Wissenschaftler*, *Gewerkschafter*. (We will come back to this later.)

The specific distribution of *-er* and the other suffixes with initial schwa has to do with their close relation to inflection. For inflectional suffixes schwa is the only possible vowel, and there is an intense interaction between these suffixes and the stem, mainly to fulfill the requirements of pedification. Therefore the phonological substance of a suffix like *-er* can be considered the result of a grammaticalization process which is typical for the position directly attached to the stem (for details see R. Wiese (1996, 105ff.; 2001); Eisenberg (2004, 270)).

The position to the right of *-er* is taken by the masculine *-ling* and the feminine *-in*. Nouns like *Schreib+er+ling* ('hack writer'), *Denk+er+ling* ('would-be thinker'), *Dicht+er+ling* ('would-be poet') refer to persons, but only to males. Furthermore, *-ling* has a pejorative connotation. A *Dichterling* is a sort of would-be poet, and the same is true of *Schreiberling*, *Denkerling*, *Sängerling* ('would-be singer'), and so on. For systematic reasons we do not assign the features [+human] and [+male] to these nouns, but simply [+sex-marked]. By this we get a common feature for *-ling* and *-in*, where *-ling* refers to males and *-in* to females.

There are other bases for *-ling*. The suffix is at least semiproductive for adjectives, as in *Fremdling* ('stranger'), *Schönling* ('pretty boy'), *Reichling* ('rich person'), *Dummling* ('stupid person'). According to the intuition of most speakers, these nouns also refer to males, but there is some uncertainty. One often finds the opinion that they are not definitely specified as to sex, but refer to persons in general. This tendency is even stronger for derivations with verbal bases like *Lehrling* ('apprentice'), *Prüfling* ('examinee'), *Impfling* ('(a) vaccinate'), *Säugling* ('baby'). They are complements to the agent nouns in that they incorporate the Θ -role patient or theme from the base. A *Prüfer* is somebody who examines, whereas a *Prüfling* is somebody who is examined.

In the literature *-ling* is usually described as deriving nouns not marked for sex. We do not think that this is quite correct, since it neither meets the intuition of most speakers nor can it explain why *-ling* never combines with *-in*.

Even for the verb based derivations we do not get words like **Lehr+ling+in* ('female apprentice'), **Prüf+ling+in* ('female examinee'), but instead we have *weiblicher Lehrling* ('female apprentice'), *weiblicher Prüfling* ('female examinee'). Our proposal is then the following. If *-ling* appears after *-er*, which is unmarked for sex, it is normally understood as sex-marking. In this instance the paradigmatic relatedness to *-in* is dominant. But if *-ling* appears directly attached to the stem of a transitive verb, the derived noun is rather read as unspecified for sex. Here the paradigmatic relatedness to *-er* seems to be dominant. Within the chain of suffixes, *-ling* must now be taken as marked for sex.

The same holds for all occurrences of *-in*. Its most frequent position is following *-er* (*Lehr+er+in* ('female teacher'), *Denk+er+in* ('female thinker'), *Schreib+er+in* ('female writer')), but it also appears after all kinds of nouns not marked for sex and referring to animates with what has been called the perceived natural gender ("das perzipierte natürliche Geschlecht", Köpcke & Zubin (1984; 1996)). So *-in* has a wider range for sex-marking than *-ling*, whereas in the chain of suffixes both take the same position. This leads to (4).

$$(4) \text{ verb stem} > \{-er\} > \begin{cases} -ling \\ -in \end{cases}$$

The subsequent position is again occupied by two suffixes, namely, the feminine *-schaft* and the neuter *-tum*. Both derive collectives, but in different ways. The bases for *-schaft* are various kinds of nouns referring to persons as in *Bauern+schaft* ('set of farmers'), *Beamten+schaft* ('set of civil servants'), *Kollegen+schaft* ('set of colleagues'). The suffix unites "mehrere Entitäten derselben Art zu einem Ganzen" ('several entities of the same type into a whole'; Bittner (2001, 9)) in a productive pattern. The productivity of *-tum* is much more restricted. This suffix has had quite different functions as can be seen from *Bürgertum* ('bourgeoisie'), *Pfaffentum* ('popery') (collectives of persons) and *Herzogtum* ('duchy'), *Fürstentum* ('principality') (area reigned over by a certain type of ruler). There are even some masculines left (*Reichtum* ('wealth'), *Irrtum* ('error')). If *-tum* is productive in present-day German, then in the pattern *Bürokratentum* ('officialism'), *Franzosenentum* ('Frenchness'), *Chinesentum* ('Chineseness'). These words do not refer to groups of persons but to collectives of a more abstract type, that is, something like "die Gesamtheit von Stereotypen, die mit einem Personenkollektiv verbunden sind" ('the entire set of stereotypes associated with a collective of

persons'; Eisenberg (2004, 272)). We assign the feature [+collective] to both suffixes, though we are aware that they are by no means identical and though we have characterized *-tum* by the feature [+abstract] in earlier work (Eisenberg & Sayatz (2002)). With respect to animacy, *-tum* clearly takes a lower position than *-schaft*.

All examples given so far for the productive patterns of *-schaft* and *-tum* show linking elements in the preceding morphological unit. Linking elements are also needed when these suffixes take their proper place in the chain of suffixes, i.e., when they follow *-ling* and *-in*. So we get *Lehrling+s+schaft* ('set of apprentices') and *Lehrling+s+tum* ('typical characteristics of apprentices') as well as *Lehrerinn+en+schaft* ('female faculty') and *Lehrerinn+en+tum* ('female teacherishness'). Linking elements normally appear between the main constituents of compounds; they connect lexical stem forms, not suffixes. For this reason, Aronoff & Fuhrhop (2002, 464) introduce the term "compounding suffix": "By this term, we mean that these suffixes act like the second member of a compound morphologically: They will be preceded by a linking element if the base has a special compounding stem." A word (lexical unit) has a special compounding stem form just in case it takes a linking element (and perhaps an umlaut) when it appears as a first member of a compound.

There are other compounding suffixes in German, e.g., the adjectivizer *-los* (*wolke+n+los* ('cloudless'), *beziehung+s+los* ('unconnected')) and *-haft* (*junge+n+haft* ('boyish'), *jüngling+s+haft* ('youthlike')). The behavior of such suffixes can be understood as a consequence of partial grammaticalization. Historically they go back to lexical stems. The grammaticalization process has not been completed or has been stopped for some reason or other. The suffixes are phonologically heavy in that they all form a syllable on their own. This syllable consists of a nonempty onset, a full vowel nucleus and a nonempty coda. If the coda is simple (one consonant), the nucleus is a tense vowel (*-tum*, *-los*). If the coda is complex, the nucleus is a lax vowel (*-schaft*, *-haft*).

Morphologically the constituent boundary between *-ling/-in* on the one hand and *-schaft/-tum* on the other hand is more heavily marked than the other constituent boundaries we have seen so far. There seems to be some kind of discontinuity or break at this point of the suffix chain. It becomes even more visible when we proceed to the last member of the chain, that is, the pair of diminutives *-chen* and *-lein*, feature [+diminutive].

If a diminutive combines with any other derivational suffix, this other suffix precedes it. That is to say that the diminutives immediately precede the domain of inflection. Besides this, diminution is highly regular and can in principle be applied to all classes of nouns, so it constitutes a borderline case between derivation and inflection (Dressler (1994)).

In general, diminutives combine freely with all nouns derived with one of the suffixes considered so far; doubts exist only with respect to *-schaft* and *-tum*. Native speakers are very reluctant when asked to judge the wellformedness of words like *Lehrerschaftchen* or *Lehrerintümchen*. The words make some, but too little sense to be used in a meaningful way. On the other hand, all speakers agree that *if* the suffixes in question are put together in one word, they have to appear in this and no other order. Moreover, there might be phonological reasons which prevent this kind of suffix combination. Both *-schaft* and *-tum* require a linking element when they appear at the end of the first member of a compound (*Bürgerschaft+s+präsident* ('president of the city council'), *Deutschtum+s+pflege* ('cultivation of Germanness')). The schwa suffix *-chen* might be phonologically too weak to function as a compounding suffix and therefore block the derivation (Eisenberg & Sayatz (2002, 14f.)). But even if this speculation cannot be confirmed, there are enough other reasons to place *-chen* in the last position of the suffix chain. We then get (5).

$$(5) \text{ verb stem} > \{-er\} > \left\{ \begin{array}{l} -ling \\ -in \end{array} \right\} > \left\{ \begin{array}{l} -schaft \\ -tum \end{array} \right\} > \left\{ \begin{array}{l} -chen \\ -lein \end{array} \right\} > \{plural\}$$

The morphological interpretation of (5) is twofold. First, the hierarchy gives the relative order of the involved suffixes. Second, it predicts that every suffix can be directly attached to any suffix higher in the hierarchy. For instance, with *-chen* one can derive all kinds of words such as *Dichterchen*, *Fremdlingchen*, *Lehrerinnenchen*, *Genossenschaftchen*, *Deutschtümchen*. Generally speaking, the lower suffixes have more combinatorial possibilities than the higher ones.

The suffix chain in (5) cannot be fed only by verbs, but also by adjectives and nouns. From nouns we get other nouns with the suffixes *-ner* and *-ler*. Derivatives such as *Rent+ner* ('pensioner', 'senior citizen'), *Sport+ler* ('athlete') refer to persons. As denominals they are of course not to be assigned the feature [+agentive]. Whereas *-ner* is hardly productive, *-ler* definitely is. It has developed from *-er* after verb stems in derivations such as

angel+n ('to angle') – *Angl+er* ('angler'), *nörgel+n* ('to gripe') – *Nörgl+er* ('griper'). In present-day German, *-er* does not apply to noun stems, but *-ler* does (Eisenberg (1992)).

We do not see any restriction for the combination of *-ner* with the other suffixes in (5), see e.g., *Rentner*, *Rentnerling*, *Rentnerin*, *Rentnerschaft*, *Rentnertum*, *Rentnerchen*. The same holds for *-ler*, with the exception of *-ling*. Words such as *Sportlerling*, *Künstlerling* sound somewhat odd, probably simply because the reduplication of the initial [l] is to be avoided. Apart from this minor obstacle there are no problems integrating *-ner* and *-ler* into (5).

As mentioned above, nouns are derived from adjectives by *-ling* (*Schönling*, *Neuling* ('novice', 'newcomer'), *Reichling*, *Fremdling*). Following the literature, this is probably the most productive derivation pattern for *-ling*. It fits well into the suffix chain, since we have, e.g., **Fremdlingin*, but *Fremdlingsschaft*, *Fremdlingstum*, *Fremdlingchen*.

The second chain of suffixes, starting from verb stems and ending with nominal plural markers, is shorter than the one in (5). Its first position is taken by abstractors, deriving what are called verbal abstracts or nomina actionis, feature [+abstract]. There are two productive feminines, *-e* and *-ung*, and the neuter *-en*, whereas the neuter *-nis* (*Ereignis* ('event'), *Erfordernis* ('requirement'), *Verhältnis* ('relationship')) is not productive according to the literature. We will disregard it in what follows.

One of the main problems with the remaining *-e*, *-ung*, and *-en* is to grasp their functional differences. All of them are taken as "pure nominalizers" in the literature, and it is stated that they compete with each other. Only weak productivity is attested for *-e*. Many of the derived nouns have a pejorative connotation combined with iteration: *Abhorche* ('listening in'), *Anmache* ('pass', 'proposition'), *Denke* ('thinking style'), *Schreibe* ('writing style'), *Verdiene* ('earning money'). Some words in this category are lexicalized with a concrete meaning (*Leuchte* ('lamp'), *Hülle* ('cover'), *Stelle* ('position')), and in many cases it is not clear synchronically whether the verb or the noun should be taken as the base (*Pumpe* ('pump'), *Schippe* ('shovel'), *Karre* ('wheelbarrow'), *Weide* ('pasture')). It nevertheless seems to be clear that for verbal bases the primary function of *-e* is the derivation of action nouns (e.g. Motsch (1999, 330); R. Wiese (2001)).

Several semantic types of *-ung*-nouns have been studied in some detail (Ehrich & Rapp (2000); Szigeti (2002)). Without doubt the action noun is the primary type of derivation here (*Veröffentlich+ung* ('publication'),

Zerstör+ung ('destruction'), *Befrei+ung* ('release'), *Erzieh+ung* ('upbringing')). Two types of resultatives we consider to be secondary. First, there are state nouns which can be paraphrased by compounds consisting of the participle followed by *sein* (*Zerstörung* ('destruction') – *Zerstörtsein* ('state of being destroyed'), *Verblüffung* ('dumbfoundedness') – *Verblüfftsein* ('state of being dumbfounded')). Second, there are resultatives with a concrete meaning, such as *Veröffentlichung* ('book') or *Ausstattung* ('equipment'). We then have person nouns of the agent type (*Vertretung* ('stand-in'), *Bedienung* ('waitress')) as well as of the patient type (*Abordnung* ('delegation'), *Ausstattung* ('outfitting')). The conceptual shift with these nouns starts from abstracts and moves towards concrete and personal meanings. In some respects it is complementary to the shift of the *-er* nouns.

In earlier stages of German, *-ung* was applicable fairly unrestrictedly to verb stems, whereas it is now more or less limited to transitive verbs. The place of the more generally applicable nominalizer has been taken over by the neuter *-en* (Demske (2000); Pavlov (2000)). Nouns like *Les+en* ('reading'), *Wander+n* ('hiking'), *Bemüh+en* ('efforts') seem to have a less specific time reference when compared to *Lesung* ('(a poetry, etc.) reading'), *Wanderung* ('hike'), *Bemühung* ('effort'), as they refer to processes in open time intervals. The literature applies formulations such as "unbegrenzte Ganze mit unbegrenzten Teilen" for *-en* (Bittner (2001, 10)). As already mentioned, for *-en* there are also conceptual shifts to resultatives with reference to states and concrete objects.

There is not much to say about the combination of abstractors with diminutives. If they are combined, the diminutive of course takes the last position as in *Lesungchen* ('little reading'), *Regierungchen* ('little government'), *Störungchen* ('little disturbance'). These are unquestionably possible words, whereas the attachment of *-chen* to the schwa suffixes seems to be ruled out at least for the action reading of *-e* and *-en*; cf. *die Schreibe* – *das *Schreibechen*, *das Laufen* ('running') – *das *Laufenchen*. The reasons are not quite clear and probably manifold.

Although our description of the abstractors has had to remain very rough and superficial, we hope to have convinced the reader that there is a second chain of suffixes from verbs to nouns. On the morphological level this chain is independent of the one in (5). It skips the masculine, but like the first one, it contains feminines and neuters, and in the same order. As to the meaning of the derived nouns, it includes only abstracts and diminutives (6).

$$(6) \text{ verb stem} > \left\{ \begin{array}{l} -e \\ -ung \\ -en \end{array} \right\} > \{-chen\} > \{plural\}$$

The third chain of suffixes resembles the second in that it also contains nothing but abstracts and diminutives. Instead of from verbs it starts from adjectives (7).

$$(7) \text{ adjective stem} > \left\{ \begin{array}{l} -heit \\ -keit \\ -igkeit \end{array} \right\} > \{-chen\} > \{plural\}$$

Unlike those in (6), the abstractors in (7) are not independent morphemes but allomorphs, with *-heit* as the unmarked variant. Their distribution is in part arbitrary, in part determined by prosodic constraints. It is debatable whether *-igkeit* as in *Neu+igkeit* ('(piece of) news'), *Leicht+igkeit* ('lightness', 'ease') really constitutes one morphological segment (there are no adjectives **neu+ig*, **leicht+ig*; see R. Wiese (1996, 100f.), Eisenberg (2004, 422) for further discussion).

The nouns with the abstractors in (7) such as *Frechheit* ('impudence'), *Sicherheit* ('security'), *Sauberkeit* ('cleanliness'), *Eitelkeit* ('vanity') uniquely refer to states. There are several types of more concrete meanings which again are clearly secondary in relation to the state nouns. The deadjectival abstracts take diminutives fairly freely, but in most cases they do not retain the state reading. So with *Frechheitchen*, *Eitelkeitchen* we get action nouns, by *Ewigkeitchen* ('little eternity'), *Trockenheitchen* ('little dry spell') we refer to time spans, and so on.

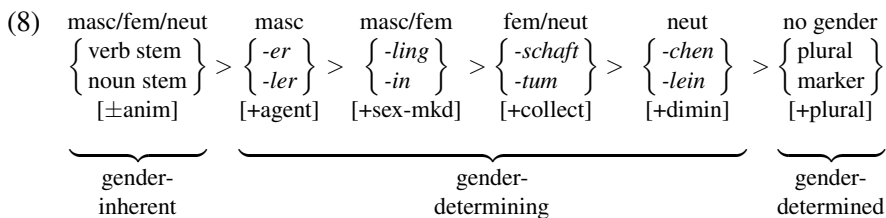
The suffix chain (7) is not restricted to simple adjective stems but is also fed by complex ones. It can be extended to the left by integrating noun stems and verb stems. As denominal adjectivizers we have *-los* (*freudlos* ('joyless'), *wolkenlos* ('cloudless')), *-haft* (*kindhaft* ('childlike'), *laienhaft* ('amateurish')), *-ig* (*freudig* ('joyful'), *waldig* ('wooded')), *-isch* (*kindisch* ('childish'), *launisch* ('moody')) and *-lich* (*kindlich* ('childish, of a child'), *freundlich* ('friendly')), where the latter three are to a considerable extent in complementary distribution. The only deverbal adjectivizer is the highly productive *-bar*, which leads to concepts of disposition similar to the English *-able/-ible*, mostly with transitive (*trinkbar* ('drinkable'), *lesbar* ('readable')) but in some cases with intransitive bases (*brennbar* ('combustible'), *streitbar* ('prepared/not indisposed to fight')).

We cannot here go into any details of the distribution or function of these suffixes. We have to mention them because they round out an – albeit very rough – general view on the system of native derivational suffixes. By “native” we mean those suffixes which never take the main accent of the word. Not all of them are completely neutral with respect to accent placement, but they are never accented themselves as the nonnative suffixes can be.

The basic structure of the system appears to be quite simple. Suffixation starts from plain stems of nouns, adjectives, and verbs. One suffix leads to nouns or adjectives; two or more suffixes lead to nouns. There are very few exceptions to this (e.g., adjectives such as *wissen+schaft+lich* (‘scientific’), *reich+lings+haft* (‘like a rich person’)) which can be shown to be marginal in the sense that they do not cast doubt on the basic structure of the system. Every noun derived by productive suffixation can be placed somewhere in the suffix chains (5), (6), or (7). Therefore all such nouns are directly or indirectly related to what we have called plurality.

3. Gender, Animacy, Plurality

For further discussion of the morphological and semantic impact of the suffix hierarchies established so far, we begin with a more complete representation of (5):



All categorizations refer to the nominal units in the hierarchy. The leftmost position can be held by verb stems and noun stems. For the noun stems, gender is an inherent categorization, and the nouns can have any gender (*der Sport* (‘sport’, ‘athletics’) – *der Sportler* (‘athlete’), *die Kunst* (‘art’) – *der Künstler* (‘artist’), *das Dorf* (‘village’) – *der Dörfler* (‘villager’)). Though most of the nouns with *-ler* have inanimate bases, this can not be taken as an effective selectional restriction since we have words like *Polizeiler* (‘police union member’), *Brechtler* (‘Brecht specialist’). The same is true of *-ner*,

with such derivatives as *Falkner* ('falconer'). So [\pm animate] indicates that the first position has nothing to do with the Animacy Hierarchy.

Derivational suffixes are clearly ordered with respect to gender, with the masculine and the neuter providing the main contrast, whereas the feminine rests inside the hierarchy and has no domain of its own. It overlaps with the masculine as well as with the neuter. We do not see how the suffixes could be classified to assign the feminine its specific domain in the center of the hierarchy.

Things seem to be equally clear with respect to the morphological basics. For the nouns in leftmost position, gender is, as stated above, an inherent categorization, whereas the derivational suffixes determine the gender of derived nouns. We would like to stress the fact that within the domain of productive suffixes there is no doubt which suffix determines which gender. So Aikhenvald's (2000, 25) statement "In German at least some derivational affixes are each associated with one gender" can be strengthened for the suffixes. Derivational suffixes are to be taken as indicators of gender in much the same way as the article when it was called "the gender word" (*Geschlechtswort*) in many older grammars. It is by no means the primary function of the article to indicate the gender of the accompanying noun, yet it nevertheless fulfills this task. The same can be said of the derivational suffixes.

At the right end of the hierarchy, plural markers are determined by gender. It was mentioned above that in the literature a minority position still holds that each plural marker selects the gender for the respective noun. This position may be defensible as long as one describes gender as inherent to a noun stem. Yet we think it should be given up in the light of derivational suffixes as gender indicators. This fits well with the fact that in present-day German, plural has nothing whatsoever to do with gender.

Compare now (8) to (3). The sequence of gender is the same in both hierarchies, though the bases of classification are at first glance completely different. In (3) noun stems are classified with respect to their meaning, whereas in (8) suffixes are classified with respect to their sequential order.

Within the morphological theory presupposed in the present paper, derivational affixes are in general assigned no lexical meaning. Instead, each affix is said to have its own morphosemantic function. This function contributes in specific ways to the lexical meaning of the derived word (see Lieb (1983), Eisenberg (2004), and Szigeti (2002) for a similar approach). The point of importance is this: If one classifies suffix-derived nouns with respect to their

meaning, one ends up with the hierarchy in (8), which is now directly comparable to (3). Suffix order and semantic classification of the derived nouns trivially correspond to each other. To put it the other way round: If the classification of complex noun stems must be the same as the classification of simple stems with respect to gender, then the suffixes have to appear in the respective order. This opens the possibility of comparing the semantic features in (8) with the semantic noun classes in (3).

In (3), as in (8), some kind of Animacy Hierarchy is at work. The leftmost position is in both cases occupied by generics in the sense of nouns referring to animates with a perceived natural gender which is here not marked. The nouns refer to animates unmarked for sex. The deverbal generics in (8) (suffix *-er*) have in addition the feature [+agentive]. Agentivity is bound to generics. Due to incorporation of the external argument of the base, *-er* is the only suffix which systematically leads to agentive nouns. Neither *-ling* nor *-in* has this property. Since the seminal work of Dowty (1991), agentivity is understood as an equivalent to animacy in the sense that the former is bound to relational terms (arguments), whereas the latter applies to categorial terms (noun classes as such). From this perspective, *-ler* and *-er* can be said to hold the highest position with respect to animacy. Both are generic, and *-er* is also agentive. Together with *-ling* and *-in* they constitute the class of nouns which refer to individuals.

This is different for *-schaft* and *-tum*. Both bear the feature [+collective]. To *-schaft* a standard notion of collectivity applies, whereby a collective refers to a group of individuals which is coherent by dint of some common property. Within the productive pattern of *-schaft* the individuals are persons, so the suffix has found its natural place in the Animacy Hierarchy.

Things are somewhat more difficult with *-tum*. The productive pattern also operates on nouns referring to persons, but derived nouns such as *Denkertum*, *Lehrerinnentum* ('female teacherishness'), *Franzosenentum* ('Frenchness') do not fit the standard notion of collectivity. These nouns are more abstract and as such "less animate" than the ones with *-schaft*. In Eisenberg & Sayatz (2002) we therefore assigned the feature [+abstract] to them. We will now apply this feature only to certain deverbals, deadjectivals, and other equivalent nouns. Clearly some kind of multiplicity is involved in the meaning of the nouns with *-tum*, so it seems to be more adequate to classify the suffix as collective.

The diminutives are neutral with regard to animacy. These suffixes do not have any effect on this aspect of meaning. The same holds for plural; as stated above, plural has nothing to do with the Animacy Hierarchy in German. So the suffix chain (8) as a whole clearly follows the Animacy Hierarchy. Similarly to (3), the highest position corresponds to the highest degree of animacy, but differently from (3), the lowest positions in (8) are not reserved for inanimate nouns. Instead, animacy is neutralized.

For (8), animacy is but one of the relevant parameters; the other is plurality. The decrease in animacy is complemented by plurality. Even if the desired “increase in plurality” is difficult to explain at the moment, one can at least state that plural itself takes the rightmost position in the hierarchy. It clearly stands in opposition to the *-ler/-ner* group semantically and topologically. And just as the animacy-oriented suffixes affect a top segment, the plurality-oriented represent a coherent block and affect a segment at the bottom of the hierarchy. Exactly in the middle of the chain, animacy gives way to plurality. As we have seen, this point is also heavily marked in the morphological form.

As is predicted by the hierarchy and expected for a language without plural split, plural in German has one and only one function for all nouns. There may be some uniformity problems with the first and second person pronouns, but there is none for the nouns. If a special plural for certain nouns such as the sortal plural for mass nouns begins to develop, there will soon be “back formation” to create the respective singular. We have not only *die Öle*, *viele Stähle* meaning ‘(the) kinds of oil’ and ‘(many) kinds of steel’, but also *dies Öl*, *ein Stahl* with the possible meaning ‘this (one) kind of oil’ and ‘a/one kind of steel’ (see section 4).

A similar statement can be made for all suffixes in the hierarchy. *Lehrerschaften* (‘faculties’) and *Chinesentümer* (‘Chinesenesses’) are used to refer to more than one collective exactly in the way *Lehrerinnen* (‘female teachers’) and *Fremdlinge* (‘strangers’) are used to refer to more than one person. More generally speaking, (8) predicts that plural is in principle applicable to the other types of plurality. Corbett (2000, 101ff.) extensively discusses the question of whether associatives, distributives, and collectives are to be considered values in number systems such as plural, dual, and paucal. He concludes that they should not, since they all “may occur with number markers.” We take the same position here, extending it to all plurality values realized by derivational suffixes.

We now come back to the other suffix chains in their modified form, presented in (9-ab).

- (9) a.
- | | | | | | | |
|-----------|---|---|---|--|---|-----------|
| | | fem/neut | | neut | | no gender |
| verb stem | > | $\left\{ \begin{array}{l} -e \\ -ung \\ -en \end{array} \right\}$ | > | $\left\{ \begin{array}{l} -chen \\ -lein \end{array} \right\}$ | > | {plural} |
| | | [+abstr.] | | [+dimin] | | [+plural] |
- b.
- | | | | | | | |
|----------------|---|---|---|--|---|-----------|
| | | fem | | neut | | no gender |
| adjective stem | > | $\left\{ \begin{array}{l} -heit \\ -keit \\ -igkeit \end{array} \right\}$ | > | $\left\{ \begin{array}{l} -chen \\ -lein \end{array} \right\}$ | > | {plural} |
| | | [+abstr.] | | [+dimin] | | [+plural] |

Both hierarchies resemble the right half of (8). There are no masculines, and the feminines overlap with the neuters. No animacy seems to be involved. Since the position of the collectives is occupied by abstracts in (9-ab), the question arises as to whether these hierarchies are structured by plurality alone. So one has to make clear in what way abstractness is related to plurality in general or to collectivity in particular.

In recent literature on the basic function of gender in German reference is often made to the position taken by Karl Brugmann (1889; 1891) as opposed to the one held, e.g., by Jacob Grimm. Brugmann claims that the primary function of the feminine in Proto-Indo-European was not reference to objects with the feature [+feminine], but to collectives and abstracts. Brugmann's position is now widely accepted (see, for instance, Eisenberg (1989), Leiss (1994), Fritz (1998), Vogel (1999)). From a genetic point of view there seems to be no doubt that abstractness goes with collectivity, yet it is anything but trivial to describe this apparently close relation in a plausible way.

So in Leiss (1994, 292) the role of collectives in the emergence of the feminine is described and then simply transferred to abstracts: "Eine ähnliche grammatische Bedeutung liegt bei den Abstrakta vor: Auch hier wird eine Vielzahl von Entitäten oder von Vorkommen einer Eigenschaft zu einer Einheit zusammengefaßt..." ('A similar grammatical meaning is found with the abstract nouns: Here too multiple entities or occurrences of a property are combined into a unit.') Linguistic dictionaries (e.g., Glück (2000), Bußmann (2002)) use terms such as "generalizing" [*verallgemeinernd*] to describe abstractness, which also is no more than a hint in the direction we would like to

take. Seiler (1986) makes use of “abstraction – collection” as one of the basic, in the sense of universal, parameters of nominal classification. For Lehmann & Moravcsik (2000, 474), “abstract nouns may be a subclass of mass nouns” and are by this exposed to the countability parameter. Aikhenvald repeatedly refers to languages which obligatorily apply numeral classifiers to nouns with the exception of certain abstracts (e.g., Aikhenvald (2000, 334f.)), and similar statements can be found in many places in the literature on classifiers. Though we do not have a convincing explication of abstractness at our disposal, there seem to be good reasons to suppose that the suffix chains in (9) are structured by plurality.

4. Countability and Plurality

The interdependence of countability and plural is often demonstrated by the plural of count nouns, which behaves syntactically in a similar way to the singular of mass nouns and has a similar interpretation. Corbett (2000, 79) demonstrates this with reference to Jackendoff (1991) by sentences like (10-abc).

- (10) a. There was water all over the floor
 b. ??There was a book all over the floor
 c. There were books all over the floor

The behavior of the count noun *book* is based on the semantic features [+bounded], [–internal structure] for the occurrence in (10-b) and [–bounded], [+internal structure] for the occurrence in (10-c). By the feature [±internal structure] one marks the difference between objects which consist of other objects (supposedly similar to each other) and objects which do not, including fluid, solid, or gaseous substances. This is of course in part a matter of perception; i.e., the borderline between mass nouns and count nouns is to a certain extent variable.

Grammatical descriptions of the mass/count distinction often make use of notions like recategorization or reclassification to handle occurrences of mass nouns in count environments and vice versa. The basic mechanism can be illustrated by (11) and (12), where we start from the German equivalents of (10).

- (11) a. Wasser stand überall auf dem Boden
 water stood everywhere on the floor
 b. Ein Buch stand überall auf dem Boden
 a book stood everywhere on the floor
 c. Bücher standen überall auf dem Boden
 books stood everywhere on the floor
- (12) a. Buch stand überall auf dem Boden
 book stood everywhere on the floor
 b. Ein Wasser stand überall auf dem Boden
 a water stood everywhere on the floor
 c. Wässer standen überall auf dem Boden
 waters stood everywhere on the floor

As in the English equivalents, *Wasser* in (11-a) is read as a mass noun, *ein Buch* in (11-b) is difficult to interpret, and the bare plural *Bücher* in (11-c) refers to a [-bounded] object. In (12-a) a recategorization effect forces the reading of *Buch* as a mass noun, whatever that could mean. But in principle it is indeed possible to imagine mass readings of this noun.

Of special interest is (12-b), where a mass noun takes the place of a count noun which was difficult to interpret in (11-b). To be interpretable, the mass noun with an indefinite article has to be recategorized in one of the well-known ways. It is read either as ‘a kind of ...’ or as ‘a certain amount of ...’. With the first reading one comes very close to (11-a), except that there is not just water but a certain kind of water all over the floor. With the second reading one runs into the same problems of interpretation as with the count noun in (11-b). On the other hand, *ein Buch* in (11-b) can now be read as ‘a kind of ...’ with *Buch* as a mass noun.

Similar effects are to be observed for the bare plural in (12-c). Here it does not seem clear at all which reading should be the preferred one, but again both readings are based on recategorizations of the mass noun. And with some effort one now even gets the same readings for (11-c). Obviously, we have now come full circle in exploring interpretations.

Allen (1980, taken from Corbett (2000, 81f.)) tries to establish some kind of “countability continuum”, stating that “some nouns more often occur in countable NP’s, others in uncountable NP’s, and still others seem to occur quite freely in both.” Corbett himself claims that “the countability preferences of nouns are partially constrained by the Animacy Hierarchy”. We do

not quite understand what this could mean apart from the evidence that most substances of most states of aggregation are inanimate for human perception. What Allen claims may be true, though probably without structural consequences. For languages such as English and German we take the mass/count distinction as a purely semantic classification of concrete and possibly also abstract nouns. Each of the classes is then bound to certain structures of the NP.

As far as the grammatical form of linguistic units is concerned, the true plural is a matter of inflection; diminution, collectivity, and abstractness are a matter of derivation; and countability seems to be a matter of syntax. They all have to do with plurality, but we are left with the question of how plurality values can be established and ordered in a plausible way, comparable, e.g., to the Animacy Hierarchy.

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