

# On the Distribution of the Genitive Attribute and its Prepositional Counterpart in Modern Standard German

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## 1 Introduction

It has been observed that, in the course of a development from a synthetic language to an analytical language, the genitive in German is disappearing (von Polenz 1999, p. 342–346). The disappearance of the genitive involves two factors: a systematic reduction in case marking on the noun and a replacement of the genitive noun phrase by other constructions.

Case marking in general has undergone reduction. Whereas in earlier stages of the language, the noun itself was well-marked for case, in the contemporary language case marking has shifted away from the noun toward the determiner. The prototypical noun phrase as a whole is well-marked, but the noun itself is not (Eisenberg, 1998, p. 170–172).

The genitive in particular is being replaced in certain contexts. The genitive as a case for encoding verbal arguments and adverbials has become marginal. The genitive attribute is in many contexts replaceable by a prepositional phrase containing the preposition *von* ('of') plus a noun phrase in dative. The terms *genitivisches Attribut* ('genitival attribute') (Teubert, 1979) and *analytischer Genitiv* ('analytic genitive') (Pfeffer and Lorentz, 1979) applied to the prepositional phrase make clear the degree to which these two structures are seen to be interchangeable. In this paper, the term *analytic genitive* will be used. An important concern in the literature has been describing the increased use of the analytic genitive, and on establishing it as a widespread phenomenon. Lists of contexts in which the analytic genitive is preferred can be found along with suggestions as to why it is preferable in those contexts (Curme, 1952; Eisenberg, 1999; Helbig and Buscha, 1991; Pfeffer and Lorentz, 1979).

The question why the genitive attribute has resisted replacement in certain other contexts and why two constructions with such a similar function coexist has received little attention. The current paper will show that the distribution of the genitive and the analytic genitive in the contemporary written language is far from arbitrary, and that, while the analytic genitive is well established, its synthetic counterpart is still alive and well. The distribution of the two types of structures is based largely on the following factors: the degree to which the genitive is clearly morphologically marked in a particular noun phrase,

	Full Forms	Pro-Forms	Total
Subj.	39,575	14,929	54,504
Pred. Nom.	3,511	76	3,587
Acc. Obj.	20,560	6,227	26,787
Dat.	2,830	1,364	4,194
Gen. Obj.	126	5	131

Table 1: Frequency of NPs Verbal Arguments

the definiteness of the noun phrase, the distance between the attribute and the noun, and the need to clearly encode inherited arguments of deverbal or deadjectival nouns.

The subject of this paper will be the role of morphological marking in interaction with definiteness. It will be shown that, while there is an area of overlap in which both constructions can be found, each has its own niche, and that the genitive is the dominant construction. The replacement of the genitive in certain contexts as well as its resistance to replacement in other contexts is closely related to the shift in case marking to the determiner. An unmarked genitive is replaced. A marked genitive resists replacement. The system has potential redundancy, but surprisingly little use is made of it.

The data presented here is from a pre-release version of the TIGER corpus, a treebank of German newspaper text from the year 1995. The corpus is currently under construction as a joint project of the Universities of Saarbrücken, Stuttgart, and Potsdam.<sup>1</sup> The version of the corpus used in this study is a subset of the full corpus and consists of 40,000 sentences.

## 2 The Genitive

The data in table 1 is intended to give a general impression of the frequency of noun phrases in the TIGER corpus. Presented is an overview of the frequency of occurrence of nominal constituents as subjects and predicate nominals (both in nominative), accusative objects, datives,<sup>2</sup> and genitive objects. As can be seen, the genitive object has not disappeared completely, but it has clearly become marginal.

Table 2 shows the frequency of prepositional attributes, genitive attributes

<sup>1</sup><http://www.coli.uni-sb.de/cl/projects/tiger/>

<sup>2</sup>Currently, NPs in dative are not yet subdivided into complements and adjuncts. The class of datives not licensed by the verb is small (Smith, 2000).

	Full Forms	Pro-Forms
Adj. Att.	37,742	
Prep. Att.	23,722	207
Gen. Att.	18,288	14
Rel. Cl.	5,236	

Table 2: The Most Frequent Attributes in Noun Phrases

and relative clauses, the three most frequent types of attributes found within the noun phrase. In contrast to the genitive object, which can be described as rare, the genitive attribute is a highly frequent construction, far more frequent than relative clauses and almost as frequent as the class of prepositional attributes.

Comparing the frequency of NPs functioning as genitive attributes with the frequency of those functioning as verbal arguments in table 1, the genitive attributes are more common than predicate nominatives and dative objects and almost as frequent as accusative objects. In contrast to the frequency of pro-forms functioning as verbal arguments, genitive attributes are rarely pro-forms.<sup>3</sup>

The primary function of genitive NPs in the modern language is then fundamentally different from the primary function of NPs in the other cases. The former are prototypically attributes of nouns whereas the latter are prototypically complements of verbs. Thieroff (2000) sees this as the reason why there is such a strong pressure for genitive NPs to be clearly marked for case. Were they not clearly marked, they would not be easily identifiable as attributes, but could rather be mistaken for verbal complements.

The comparison of the frequency of prepositional attributes and genitive attributes in table 2 is not yet very revealing, as both classes contain subclasses with varied behavior. The genitive attributes will be discussed in more detail in sections 2.1 and 2.2, the relevant prepositional attributes will be discussed in more detail in section 3. A very basic distinction can be made between pronominal genitives and postnominal genitives. With the exception of the 11 cases in which two postnominal genitives are present (see table 3), all genitives are adjacent to the constituent which they modify.

<sup>3</sup>Here and below, the term *pro-form* is used to refer to a constituent consisting of a single pro-form. Heavier constituents, in which a pro-form is modified by a phrase or a clause are not counted as pro-forms in this context.

	Full Forms	Pro-Forms
Prenominal	952	4
Postnominal	17,336	10
1 Pre- and 1 Postnominal	19	
2 Postnominal	11	

Table 3: Pre- and Postnominal Genitive Attributes

	Simplex	Complex	Coord.	Total
Proper Nouns	904	9	7	920
Title		6		6
Kinship Terms	3			3
Fossilized	5	14	1	20
NP		3		3

Table 4: Prenominal Genitive Attributes

## 2.1 Prenominal Genitive

If we take a closer look at those prenominal genitives which are full forms, we see that they are either proper nouns, fossilized forms, or in some way closely related to one or both of these categories. As can be seen in table 4, true proper nouns are in the vast majority.<sup>4</sup>

Interestingly the NPs in the second and third rows of the table are all in some way related to proper nouns. The NPs in the second column of the first row of the table contain a proper noun prefixed by a title, and as a whole, they refer to the individual named (1). The NPs in the second row are similar in structure. They do not contain a proper noun. Instead, the title is used to refer to a single individual who can be identified with very little context (2). The nouns in the third row are kinship terms which refer to close family members. These kinds of terms are often used to refer to the family member, much in the way a name is used (3).

<sup>4</sup>The term simplex is used here to refer to a noun phrase consisting of a single word form, or in the case of proper nouns, also a sequence which as a whole comprises a proper noun, e.g. *Helmut Kohls* or *Sri Lankas* and which, crucially, does not contain a determiner. The term complex is used to refer to a noun phrase consisting of more than one word form, at least one of which is not a proper noun.

- (1) [Bundeskanzler Helmut Kohls]<sub>NP</sub> Versprechen  
Federal Chancellor Helmut Kohl-GEN promise  
'Chancellor Helmut Kohl's promise'
- (2) [des Kanzlers]<sub>NP</sub> blühende Landschaften  
the-GEN chancellor-GEN blooming landscapes  
'the chancellor's blooming landscapes'
- (3) Großmutter's Art  
grandmother-GEN manner  
'grandmother's manner'
- (4) [Meiner Hände und Deiner Hände]<sub>NP</sub> Werk  
My-GEN hands and your-GEN hands work  
'My hands' and your hands' work'

The fourth row contains fossilized forms. Three types of constructions were counted as fossilized: direct quotes from an earlier stage of the language, such as titles of older artistic works, idiomatic expressions, and a few cases involving archaic use of language in a religious context, such as the phrase in (4) as the title of a religious ceremony. Left in the last row are three forms which in no way resemble a proper noun and did not meet the criteria for fossilized forms.

The genitive attributes in table 4 are possessives. In no case does the parent NP of the genitive attribute have a determiner, and in no cases does an NP contain more than one prenominal genitive. This supports the claim made in the literature that the so-called *sächsische Genitiv* ('saxonian genitive', see Blatz 1900) takes the position of the determiner (Eisenberg, 1999, p. 245–246). It also leads to a definite NP. Example (1) is semantically equivalent to (5) and not (6).

- (5) das Versprechen [von Bundeskanzler Helmut Kohl]<sub>PP</sub>  
the promise of Federal Chancellor Helmut Kohl  
'the promise of Federal Chancellor Helmut Kohl'
- (6) ein Versprechen [von Bundeskanzler Helmut Kohl]<sub>PP</sub>  
a promise of Federal Chancellor Helmut Kohl  
'a promise of Federal Chancellor Helmut Kohl'

In all cases, the simplex genitives end with an orthographic representation of the voiceless alveolar fricative, compatible with the 'saxonian genitive'. This is irrespective of gender. Feminine nouns do not mark the genitive except in prenominal position. A postnominal version of (3) would obligatorily have an article, the noun would not be marked (*Art der Großmutter*). Epenthesis of schwa can only be observed in the genitive form *Gottes* ('God').

As for the complex and coordinated genitives, 11 NPs could be found which did not contain an orthographic representation of the voiceless alveolar fricative as a genitive marker. In all cases these were fossilized constructions. The NPs which do not end with an orthographic genitive marker all contain an article or a pronominal form with a feminine or plural genitive marker.

The pronominal genitives found in the corpus all function as possessives and have a determiner-like function. With the exception of a few, mostly fossilized forms, they follow an inflectional pattern similar to that of the strong masculines for all genders. This pattern differs from that of the strong masculines in the lack of epenthetic schwa, even under appropriate prosodic conditions.

## 2.2 Postnominal Genitive

The postnominal genitives are not only far more frequent than the pronominal genitives, they are also heterogeneous. The type of constituent which occurs most frequently in pronominal position, indeed the only type of constituent which can be said to occur frequently in pronominal position, also occurs postnominally, with a slightly lower frequency. These are the simplex proper nouns found in the upper right hand corner of both tables 4 and 5. While proper nouns dominate in pronominal position, and are in the minority in postnominal position, they are still more frequent postnominally. This is due primarily to the far greater number of noun phrases containing proper nouns, located in the second column of the first row of each column of tables 4 and 5, and to the not insignificant increase in the frequency of coordinated proper nouns. The vast majority of noun phrases containing proper nouns which occur postnominally contain a determiner. We thus find postnominally a kind of proper noun which was not found in pronominal position, the proper noun requiring an article (7).

- (7) Südosten [der Türkei]<sub>NP</sub>  
 Southeast the-GEN Turkey  
 'Southeast of Turkey'

These noun phrases are structured in basically the same way as the largest group of noun phrases occurring postnominally, the noun phrases containing a common noun, listed in the second column of the second row of the table.

The third row of the table contains noun phrases which presently have an ambiguous analysis in the corpus. For the most part, these are structures in which a proper noun functions as an apposition to a common noun.

The fourth row contains a variety of structures which do not have a full-fledged common or proper noun as their core, such as adjectives on the verge

	Simplex	Complex	Coord.	Total
Proper Nouns	699	932	25	1,656
Common Nouns	26	14,358	322	14,706
Com. and Prop. Noun		824	20	844
No Noun		130		130

Table 5: Postnominal Genitive Attributes

of nominalization and structures in which relative clauses modify a pronoun in the genitive.

The inflectional behavior of the simplex proper nouns and of the coordinated structures in the first and third rows is interesting. The suggestion has been made that the unusual inflectional behavior of the prenominal proper nouns without a determiner, contained in the first row of table 4, is evidence that they are not really genitives, but possessives. For discussion see Bhatt (1990, p. 113–120) and Lindauer (1995, p. 200–206). Lindauer goes as far as to call into question the grammatical status of postnominal proper nouns without an article, claiming that they are only marginally possible.

Proper nouns which do not take an article inflect in postnominal position in precisely the same way as they do in prenominal position and are freely coordinated with both common nouns and those proper nouns which require an article. That is to say, that they freely coordinate with two types of structures which have inflectional behavior typical of the genitive in all genders. They are also, with 699 postnominal occurrences vs. 904 occurrences in prenominal position, less frequent than in prenominal position, but hardly marginal.

I would argue that they are clearly genitives, that marking the possessive relation is one of the functions of noun phrases in genitive, that the proper nouns which do not take an article belong to a common inflectional class, and that there are nouns which inflect differently, depending upon the presence or an absence of a determiner. For an explanation as to why proper nouns without an article inflect in this manner, see Thieroff (2000, p. 427–429).

The tables 6 through 8 show morphological marking of the genitive in a group of 15,290 postnominal noun phrases with an unambiguously identifiable nominal core. These are the NPs in the second columns of rows one and two of table 5. As can be seen in table 6, the vast majority have a determiner which is clearly marked for the genitive.<sup>5</sup> A similar morphological marker on

<sup>5</sup>In contrast to the masculine and neutral noun phrases, there is systematic case syncretism in feminine noun phrases, in which genitive forms of pronouns and articles

Marked Determiner:	14,257	93%
Marked Adjective:	891	6%
Noun Ending in <i>s</i> :	4,601	30%

Table 6: Genitive Marking in 15,290 Postnominal Noun Phrases

	Adjective	–
Determiner	11	14,246
–	880	153

Table 7: Interaction of Determiner and Adjective Markers

an adjective, as opposed to a congruent inflectional ending on an adjective, is much less common.<sup>6</sup>

Table 7 shows the interaction of these two types of morphological markers. By far the most frequent is a marker on the determiner alone. Only a comparatively small number of noun phrases have no marker on either a determiner or an adjective.

Of those few noun phrases with no explicit morphological marker on a determiner or an adjective, most have an inflectional ending on the noun, most of these have the masculine/neuter ending, only two deadjectival nouns have an adjectival ending. Only 14 noun phrases are unmarked. In two cases this was due to typographical errors, leaving 12 apparently clear cases of unmarked genitives.

- (8) im [...] Club [Frankfurter Wirtschaftsjournalisten]<sub>NP</sub>  
 in the [...] club Frankfurter business journalists  
 'in the Frankfurter business journalists' club'
- (9) in Richtung [Privatisierung der Bildungskosten]<sub>NP</sub>  
 in direction privatisation the education costs  
 'in the direction of a privatisation of education costs'

are identical to dative forms. What is meant here is a marker which is potentially ambiguous.

<sup>6</sup>The number of nouns ending in the letter *s* is only given in table 6 as a rough indication of the number of nouns with a clear morphological marker for the genitive. Not all possible orthographic representations have been taken into account and no attempt has been made to further sub-classify these nouns (see Thieroff 2000, p. 423–447 for an analysis of the morphological marking of genitive attributes).



Marked Noun (mas/neut infl.):	137
Marked Noun (adjectival inf.):	2
Typographical Errors:	2
Unmarked:	12

Table 8: NPs with no Marked Determiner or Adjective

- (10) in Richtung [einer Privatisierung der Bildungskosten]<sub>NP</sub>  
 in direction a-GEN privatisation the education costs  
 'in the direction of a privatisation of education costs'
- (11) Mutter [allen Bösen]<sub>NP</sub>  
 mother all-GEN evil  
 'mother of all evil'

A closer look at these 12 cases shows that they fall into three groups: First, cases covered by Thieroff's (2000, p. 444) non-distinction rule 3, which encodes the intuition that a morphological element with the form *-er* is subject to reinterpretation as a genitive ending (8). In *Frankfurter*, *-er* is a derivational suffix. A prototypical adjective in the same position would have an inflectional ending with the same form. See Fuhrhop (2001) for an analysis of the attributive use of inhabitant names. Second, cases which are on the border between genitive attributes and appositions (9). Certain appositions in German are the result of a process of grammaticalization in which genitive attributes without a determiner have been reinterpreted as appositions (see Eisenberg, 1999, p. 253–256). The semantically equivalent (10) has an indefinite article with genitive inflection and is clearly an attribute. And third, the singular example (11), in which a sequence of two weakly inflected forms can be found.

More than 99% of the postnominal genitive noun phrases are clearly morphologically marked. In contrast to the prenominal genitives, or to those postnominal genitives consisting solely of a proper noun or a concatenation of proper nouns which are essentially the same as the prenominal genitives, the marking of postnominal genitive noun phrases is typically on the determiner, with a marking on the adjective occurring in most of those noun phrases which do not have a determiner.

### 3 The Analytic Genitive

As we saw in table 2, prepositional attributes are a highly frequent attribute type in German. If we examine the individual prepositional phrases ranked by

in/im	'in'	5,404	vor	'before'	588
von/vom	'from'	4,138	gegen	'against'	554
für	'for'	2,530	bei	'near/at'	491
zu/zum/zur	'to'	1,580	um	'about'	460
mit	'with'	1,527	nach	'to/for'	447
an/am	'on/to'	1,315	zwischen	'between'	426
auf	'on'	1,084	unter	'under'	269
aus	'out of'	1,016	durch	'through'	242
über	'over'	685			

Table 9: The Most Common Prepositions in Attribute Constructions

No Determiner:	2,300	95%
Fused Form:	44	2%
Determiner:	84	3%
Total:	2,428	100%

Table 10: The Distribution of Determiners in the Analytic Genitive

frequency of occurrence of their prepositions, we see that the genitive attribute is far more frequent in the corpus than even the most highly frequent type of prepositional phrase. Table 9 shows the most common prepositions occurring in the prepositional attributes which were listed in table 2.

Not all of the PPs with the preposition *von* in table 9 are examples of the analytic genitive. In many cases, the preposition has a lexical meaning (e.g., a spatio-temporal meaning) which is incompatible with the analytic genitive. Of the 4,138 PPs containing the preposition *von*, 2,428 were judged by the annotators to be an analytic genitive.

### 3.1 Indefiniteness and the Analytic Genitive

Table 10 shows the frequency of occurrence of a determiner in the analytic genitive. Table 11 shows the occurrence of a determiner in all PPs with the preposition *von*. As can be seen, the PPs functioning as an analytical genitive not only exhibit a far less frequent occurrence of a determiner as do postnominal genitives, but they also contain a determiner less frequently than do other PPs with that preposition.

In 734 cases, the PPs in the first row of table 10 contain proper nouns,

No Determiner:	5,213	68%
Fused Form:	908	12%
Determiner:	1,510	20%
Total:	7,631	100%

Table 11: The Distribution of Determiners in all PPs with *von*

leaving 1,566 PPs which do not contain a proper noun and which also do not contain a determiner. An important function of the analytic genitive is clearly to provide a mechanism for those common nouns which do not take a determiner to mark a type of syntactic relation to another noun which is otherwise commonly marked by the genitive. Proper nouns have developed their own uniform inflectional means of marking the genitive without a determiner. Common nouns as a class have not. Common nouns prototypically occur with a determiner. As Thieroff 2000, p. 470–472 demonstrates, the lack of genitive inflection of feminine nouns exerts considerable pressure on all common nouns functioning as genitive attributes to have a determiner. Structures often become ungrammatical if a determiner or an adjective are not present. What about those common nouns which for one reason or another cannot occur with a determiner? Mass nouns comprise one large group. The analytic genitive provides a uniform means for the class of mass nouns to function as nominal attributes engaging in the same semantic relations otherwise marked by the genitive.

Plural nouns provide an interesting case here. A systematic gap results because case marking has shifted to the determiner and at the same time, the absence of a determiner is possible (see Eisenberg, 1998, p. 479). Like the feminine nouns, plural nouns can only be marked as genitives if they have a determiner or an adjective, as they are incapable of marking genitive inflection. This gap, together with the need to encode the distinction between definiteness and indefiniteness, provides a niche for the analytic genitive. In the singular, this distinction can be reached by the presence of either the definite or the indefinite article. In the the nominative, accusative and dative plural it is made by the presence or absence of the definite article. German does not have a plural indefinite article. This means of marking the distinction between definite and indefinite is not available for the genitive plural. The requirement for the genitive to be distinct from other cases (see Thieroff, 2000) forces the presence of a determiner.

If an indefinite and otherwise unmodified reading of a noun is required, then a plural noun cannot function as a genitive attribute. The analytic genitive

does not require a determiner. The analytic genitive makes it possible for indefinite plurals to engage in syntactic relations otherwise encoded via the genitive. A truly indefinite plural noun can only carry out the functions of a genitive attribute via the analytic genitive. Were the analytic genitive non-existent, the class of indefinite plurals, along with the mass nouns discussed above, would be excluded from engaging in an important type of syntactic relation that definite plurals and indefinite singulars can engage in. This class of noun phrases requires the analytic genitive.

Hawkins (1986) portrays the cause for much of the differences in the syntax of English and German to be primarily the result of the loss of case inflection in English on the one hand and the retention of case inflection in German on the other. If we examine the retention of case inflection in German more closely, we see that it is the noun phrase as a whole which has retained inflection. The noun itself is not a reliable case marker, but rather marks the plural and supports the case marking of the determiner (see Eisenberg, 1998, p. 170–172). The fact that some nouns do carry an explicit genitive marker does not change this characteristic of the system as a whole. Nouns generally do not mark case well, and the class of nouns which are incapable of carrying a genitive marker is very large, including the largest gender class, the feminine nouns. These nouns depend on a determiner or an adjective to mark the genitive.

It is not surprising to see that the most frequent occurrence of the analytic genitive is in those contexts in which no determiner occurs. Indeed, there are virtually no cases in which an unmarked genitive occurs. Thieroff offers an enlightening explanation for this when he demonstrates the problems a speaker would have were the large class of feminine nouns to be systematically excluded from occurring in certain constructions (Thieroff, 2000, p. 471).

It is interesting to note then, if we combine Thieroff's insight regarding the requirement of genitive attributes to have an article and Hawkins' insight that it is the loss versus the retention of inflection that is responsible for the typological divergence of English and German, that German has developed two structures which parallel those of English, namely a uniformly inflected prenominal genitive and a postnominal analytic genitive, precisely in those contexts where a determiner is not possible.

There is a redundancy in the system with regard to the ability to encode definite singulars and plurals and indefinite singulars (see tables 12 and 13). In the singular, definite and indefinite readings are possible in both the genitive and analytic genitive. In the plural a definite reading is possible in both the genitive and the analytic genitive. Only the indefinite plural requires the analytic genitive. Interestingly, we find little use of this potential redundancy in

tbp]

	Singular	Plural
Genitive	des Außenministers	der Außenminister
Analytic Genitive	von dem Außenminister	von den Außenministern

Table 12: Definiteness in Genitive and Analytic Genitive

	Singular	Plural
Genitive	eines Außenministers	*Außenminister
Analytic Genitive	von einem Außenminister	von Außenministern

Table 13: Indefiniteness in Genitive and Analytic Genitive

the corpus. Fully 95% of the prepositional phrases judged to be analytic genitives have no determiner (see table 10). In the text types present in the corpus, the genitive is clearly the default; the analytic genitive generally occurs where the genitive is blocked.

## 4 Conclusion

While the replacement of the genitive as a case for encoding verbal complements and adverbials is close to completion, there has been no comparable replacement of the genitive attribute. To the contrary, in the contemporary written language, the genitive attribute has a far wider distribution than the analytical genitive. The primary role of the genitive is as a case marker for nominal attributes. The replacement of the genitive attribute in certain contexts is closely related to the reduction in case marking. The genitive is replaced where it is systematically poorly marked, namely, when neither a determiner nor an adjective is present. Otherwise it resists replacement. A major factor in the distribution of the analytic genitive is the need to encode indefiniteness in plurals, which is only possible via the lack of an article. The systematic loss of case marking has played a major role in the replacement of synthetic constructions by analytic constructions.

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