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Emerging variation: determiner genitives and noun modifiers in English[1]

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This article discusses the emerging variation between determiner genitives and noun modifiers in Present-day English. Based on the results of corpus analyses and previous studies I show that this variation (1) was not present in earlier English, and (2) results from the fact that determiner genitives have come to be used with nouns low in animacy while noun modifiers have come to be used with nouns high in animacy (mainly) in the course of Modern English. This semantic shift (or rather 'convergence') of genitives and noun modifiers has helped to create contexts which are compatible with both determiner and classifier function, i.e. the functions typically expressed by determiner genitives and noun modifiers, respectively. The article complements earlier work on the gradience between *s*-genitive constructions and noun+noun constructions (Rosenbach, 2006a), providing further evidence for the claim that semantic overlap may give rise to constructional gradience.

1 Introduction

In Present-day English it is often possible to use either a noun modifier or an *s*-genitive to express essentially the same propositional meaning; compare the examples in (1):

(1) (a) **The lawyer's fees/lawyer fees** are very expensive.
(b) We had **a two hours' delay /a two-hour delay** on our way here.
(c) **The museum shop /museum's shop** was closed.
(d) **Bush's administration/The Bush administration** reacted too late in New Orleans.
(e) Make a note to book for **Sunday lunch/Sunday's lunch**.
(f) Here's a map of **the London underground/London's underground**.
(g) **The FBI's director/FBI director** gave a press conference yesterday.

Although the examples in (1) all look alike, they essentially represent two different types of variation, namely variation between attributive genitives and noun modifiers on the one hand (1a, b), and variation between determiner genitives and noun modifiers on the other (1c–g), as set out in (2) below.[2]

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[2] I roughly follow Huddleston & Pullum's (2002: 467–70) taxonomy here. They distinguish between 'attributive genitives' and 'subject-determiner' genitives, with the former comprising both descriptive genitives and measure genitives (see also section 2.1 below). As shown in Rosenbach (2006a), descriptive genitives further fall into various types. If not otherwise specified, the term 'descriptive genitive' in the present article refers to the prototypical case of 'classifying genitive'. Note also that I will be referring to 'determiner genitives' instead

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(2) I. attributive genitives vs noun modifiers:
  a. descriptive genitives vs noun modifiers: e.g. *lawyer's fees* vs *lawyer fees*,
  b. measure genitives vs noun modifiers: e.g. *a two hours' delay* vs *a two-hour delay*
 II. determiner genitives vs noun modifiers: e.g. *Bush's administration* vs *the Bush administration*

Somewhat surprisingly, both types of variation have barely received any attention in grammars of English. Biber et al. (1999: 295) and Quirk et al. (1985: 328, note a) do observe the variation between descriptive genitives and noun modifiers, especially in the plural form (e.g. *a bird's nest, a bird nest, birds' nests*), but they regard this essentially as some sort of orthographical (i.e. random) variation. Huddleston & Pullum (2002: 470) state that descriptive genitives and noun modifiers are in complementary distribution, with the former occurring predominantly with human nouns (e.g. *fisherman's cottages* but *country cottages* and not **country's cottages*), and they also briefly note the variation between measure genitives and noun modifiers, as in *a two hours' delay* vs *a two-hour delay* (though regarding the latter as 'compound adjectives').[3] In contrast, the variation between determiner genitives and noun modifiers as in (1c–g) has so far gone altogether unnoticed in the literature, to the best of my knowledge, and it is this type of alternation that this article specifically focuses on. I will show that this type of variation was not present in earlier periods of English, at least not to this extent, but only arose in the course of (mainly) Modern English as a consequence of the fact that both determiner genitives and noun modifiers have come to be used with new semantic classes of nouns, with the analysis focusing on the factor of animacy. I will argue that the semantic shift of determiner genitives and noun modifiers helped to create contexts which are compatible with both determiner and classifier function, i.e. the functions typically expressed by *s*-genitives and noun modifiers, respectively, giving way to variation between two otherwise semantically rather distinct constructions. In this respect then, this article will complement previous work arguing for gradience (or 'fuzziness') between the functions of determination and classification (Koptjevskaja-Tamm & Rosenbach, 2005) and between *s*-genitive constructions and noun+noun constructions (Taylor, 1996; Rosenbach, 2006a).

In the following I first characterize the types of *s*-genitives and noun modifiers relevant to the present study and their basic properties (section 2). I then argue that there is sufficient functional overlap between determiner genitives, as in *Bush's*

of using Huddleston & Pullum's term 'subject-determiner'. (It is slightly confusing that they turn Quirk et al.'s (1985) terminology upside down, using 'determinative' as a category label and 'determiner' for the function.) I will use 'determiner' for the category (unless it is explicitly specified or clear from the context that the *function* is meant – notably in the expressions 'determiner genitive' and 'determiner noun modifier').

[3] There is a body of literature suggesting that the choice between descriptive genitives and noun modifiers is not completely arbitrary but determined by animacy, see e.g. Bergsten (1911: 117–18); Jespersen (1942[1961]: §16.9), Marchand (1969: 66) or Taylor (1996: 303–4). See Rosenbach (forthcoming) for some first quantitative evidence that descriptive genitives are not in complementary distribution with noun modifiers, but rather that animacy determines the statistical likelihood of nominal dependents being used with an *s*-genitive or a noun modifier. For example, although both *lawyer's fees* and *lawyer fees* are possible, the former is much more likely to occur.

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administration, and noun modifiers, as in *the Bush administration*, to alternate with each other (section 3). The role of animacy in the distribution of *s*-genitives and noun modifiers in Present-day English and earlier English is analysed in section 4, which represents the main empirical part of the paper. In section 5 I discuss how far the results support the hypothesis that there is a fuzzy boundary between *s*-genitives and noun modifiers and constructional gradience between the respective construction types. To this end, various constructions showing 'mixed' properties of constructions with *s*-genitives and N+N constructions ('bridging constructions') are identified in both Present-day and earlier English. Note from the outset that in section 5 it will also become clear that the bipartite division between the two types of variation indicated in (2) is an idealization and that in practice things are far more subtle and fuzzy.

2 Noun modifiers and *s*-genitives in English

English noun modifiers and *s*-genitives, as in (1), are superficially very similar: in both cases there is a noun (or nominal expression) that in some way determines the meaning of another noun (the head noun). Accordingly, the resulting constructions show juxtaposition of two nouns; it is just that *s*-genitives contain an additional '*s* linking the two nouns, which is absent in noun modifiers. On closer inspection, however, there are further differences between the two, which will be discussed in turn below.

2.1 s-*genitives*

English grammars basically distinguish between determiner genitives, as in (3), and attributive genitives, as in (4), cf. Huddleston & Pullum (2002: 470). The latter, in turn, fall into further classes, i.e. descriptive genitives (4a) and measure genitives (4b).

(3) **determiner genitives**: *John's book, the young girl's eyes*
(4) **attributive genitives**:
  (a) **descriptive ('classifying') genitives**: *a men's suit, a summer's day, a metal baby's high-chair*
  (b) **measure genitives**: *an hour's delay, a week's employment, the usual seven days' notice, one dollar's worth of chocolates*

The typical function of determiner genitives is DETERMINATION. They denote specific referents (i.e. are referential) and have individuating function,[4] narrowing down the referent of the NP, specifying whose book it is (in *John's book*) or whose eyes (in *the young girl's eyes*). In this respect, determiner genitives function in a similar way to the definite article in picking out the referent of the NP. As such, they typically confer definiteness on the whole genitive construction, and they are positioned in the slot typically reserved for (central) determiners in English, namely the leftmost position in

[4] Throughout this article I will use the terms 'specific' and 'referential' interchangeably, indicating that the referent denotes a specific person in the context, though strictly speaking, specificity and referentiality are usually held to be distinct notions (see e.g. C. Lyons, 1999: §4.2 for discussion).

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the NP. Both the determiner genitive and the whole construction as well are NPs, as is most obvious from so-called 'group genitives', illustrated in (5).

(5) [[the man I met yesterday]$_{NP}$'s book]$_{NP}$

In contrast, attributive genitives are not NPs but nouns or nominals, and so is the construction they form; see the examples in (6) below. Note that for the sake of exposition, the descriptive genitive constructions of (6) are regarded as nouns, though there is also evidence that they can be nominals (cf. Rosenbach, 2006a: section 2.2).

(6) (a) [a [men's suit]$_{N}$]]$_{NP}$
(b) [a metal [baby's high-chair]$_{N}$]$_{NP}$

Being nouns (or nominals), constructions with descriptive genitives are neutral as to definiteness and can be further expanded by any kind of determiner. In (6a) the indefinite article *a* clearly goes with the singular head noun *suit* and not with the genitive-marked plural noun *men*, and in (6b) the adjective *metal* does not qualify the baby but the high-chair. The typical function of descriptive genitives is CLASSIFICATION, that is, they specify what type the head noun is: of suit (in *men's suit*), of day (in *summer's day*). In contrast to determiner genitives, descriptive genitives are not referential; for instance, *a men's suit* does not refer to the suit of specific men but to a suit as typically worn by men. As usual for classifiers, descriptive genitives are typically adjacent to the head noun (for exceptions to this generalization see Rosenbach, 2006a: 85–7, however). For a more detailed description of the semantic and structural properties of descriptive genitives I refer to Taylor (1996) or Rosenbach (2006a).

Measure genitives either specify temporal duration (*an hour's delay*) or value (*a dollar's worth of chocolates*), cf. Huddleston & Pullum (2002: 470). Huddleston & Pullum notice that structurally they waver somewhat between the properties of determiner genitives and attributive genitives: while some measure genitives such as *[an hour]'s delay* appear to occupy initial position in the NP, as determiner genitives do, others clearly show attributive position, as in *a second [one hour's delay]* or *the usual [seven days' notice]*. However, they are still classified uniformly as attributive genitives, because they do not confer definiteness on the whole NP as determiner genitives (usually) do (cp. *an hour's delay* ~ 'delay of an hour'). See also Desagulier (2006), who argues for the fuzzy status of such constructions within a Cognitive Grammar (and Construction Grammar) approach.

These are the types of *s*-genitives as typically distinguished in the grammars. As we will see later on, there are further types of *s*-genitives which somehow fall in between the categories presented here; these *s*-genitives will be discussed in more detail in section 5 below.

2.2 Noun modifiers

Morphosyntactically, noun modifiers can either constitute complements, which form an inseparable combination with the head noun (7a), or adjuncts which stand in a freer

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relation to the head noun (7b) and thus can be interrupted by other linguistic elements (cf. Huddleston & Pullum, 2002: 449):[5]

(7) (a) **television** screen
(b) a **London** theological college

When they are complements it is notoriously difficult to decide whether noun modifiers are part of a syntactic phrase or a morphological compound. Huddleston & Pullum (2002:§14.4) give a list of typical tests to distinguish the two, but at the same time acknowledge the difficulty of clearly categorizing them as either. To the extent that they are syntactic modifiers it is also difficult to distinguish them from adjectives, because noun modifiers occur in a position and have the function typical of adjectives, viz. premodification. While some scholars in general propose an adjective analysis of 'noun' modifiers (e.g. Spencer, 2003), others assume a diachronic pathway from nouns into adjectives (e.g. Jespersen, 1913[1961]: §13; Denison, 2001). Unless there is clear indication to the contrary, noun modifiers will be regarded as nouns and not adjectives in this article, though apparently there remains a fuzzy borderline between the two.[6] No matter whether they are morphological or syntactic modifiers, noun modifiers differ significantly from genitives such as *John's book* in various ways. First, noun modifiers are typically nouns, as in (7a), or at most nominals, as in the examples in (8).

(8) (a) Doug was a **mergers-and-acquisitions** specialist (J. Franzen, *The corrections*, 100)
(b) But first let's yank that chair out of a **three-floor** house… (J. Franzen, *The corrections*, 245)
(c) and then he'd had to work three **fourteen-hour** shifts at Bragg Knuter & Speigh… (J. Franzen, *The corrections*, 22)

Noun modifiers are not referential as such, i.e. they do not refer to specific entities (though we will see later on that there are exceptions to this generalization). Note also that the whole N+N sequence is not an NP but a noun or nominal, as is e.g. evident from the fact that they can be preceded by a numeral, as in (8c), or by the indefinite article (8a, b).

The typical function of noun modifiers is CLASSIFICATION. That is, they narrow down the denotational class of the head noun to a subset denoted by the head. The examples above can all be interpreted as certain types of X, i.e. a type of screen (*television screen*) or a type of house (*three-floor house*), etc.

There are, however, also noun modifiers that apparently have determiner function; see the examples in (9).

[5] The highlighting of *s*-genitives and noun modifiers in cited examples is always mine throughout this article.

[6] A reviewer points out the example of *a typical Sunday lunch* vs *another typically Sunday occurrence*, with the latter premodifying use of *Sunday* (attested from Google) clearly exhibiting adjectival properties. Note also that there is variation between noun modifiers and adjectives, e.g. *a Chomsky argument* vs *a Chomskyan argument*. Regrettably, these are issues not further explored in this article.

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(9) (a) But for the next two days Whitehall's wheels ground slowly as the Overseas Development Administration wavered over the £20 million costs of **the Major plan**. (FLOB A03:53-54)
(b) 'Did you notice the extra door in his bedroom by any chance? At **the Whitelaw house**?' (E. George, *Playing for the ashes*, 162)
(c) Neither of **the Weaver cars** was in the drive when Lynley pulled up to the front of the house. (E. George, *For the sake of Elena*, 413)
(d) I found no reference to Prentice Dashwood, to **the Arthur property**, or to the officers of the H&F Investment Group. (K. Reichs, *Fatal voyage*, 261)
(e) 'Remember that Nielsen Media Research took the "revolutionary" step of giving Episode Six its own weekly rating. The first rating ever given to an ad. And once Nielsen rated it, the campaign was all but guaranteed an enormous audience for its rebroadcast during the November sweeps. Also remember that **the Nielsen rating** followed a week of print and broadcast news coverage of the "revolutionary" plot twist of Chelsea's death, . . .' (J. Franzen, *The corrections*, 47)

In all these examples the noun modifier does not classify the head noun but helps to narrow down the referent of the NP, just as determiner genitives do. That is, it has identifying function, specifying whose plan it is (9a), whose house (9b), whose cars (9c), etc. Interestingly, such 'determiner' functions of noun modifiers have barely been acknowledged in grammars or in the literature in general.[7] In the following I will observe and discuss some properties where 'determiner' noun modifiers, as in (9), clearly diverge from typical (i.e. classifying) noun modifiers as described above, and which make them resemble determiner genitives functionally.

First, in contrast to classifying noun modifiers, as in *television screen* or *cat food*, the noun modifiers in (9) are all proper nouns and refer to specific referents.[8] They can be anaphorically referred to, something which is usually not possible with typical noun modifiers and which actually flies in the face of morphological theories which assume the 'principle of lexical integrity' (DiSciullo &Williams, 1987), according to which syntactic processes or rules should not be able to refer to parts of words only and which consider noun modifiers to be 'anaphoric islands' (Postal, 1969; Sproat, 1988); cp. (10), taken from Ward et al. (1991).

(10) (a) *Bush* supporters would stay home, figuring *he*'d already won. (Julia Hirschberg in conversation: 9 November, 1988, as cited in Ward et al., 1991: 469)
(b) I refer you to the *Schachter* paper: *he*'s very proud of it. . . (Mark Baker in response to a question at NELS: 12 November, 1988, as cited in Ward et al., 1991: 469)

While the noun modifiers in these examples apparently are referential, there is also some indication that they are less referentially accessible than a corresponding genitive. Some

[7] Warren (1978: 43–4) is a notable exception, as she recognizes the identifying function of noun modifiers as in *the Burch house*, though without any further discussion. See also some preliminary discussion of proper-noun modifiers (as in *the Bush administration*) and their relation to genitives (*Bush's administration*) in Koptjevskaja-Tamm & Rosenbach (2005).

[8] Note that while determiner noun modifiers are not necessarily confined to proper nouns, these nonetheless represent the most typical case of determiner noun modifiers, as they are highest in animacy and definiteness and thus most easily compatible with determiner function; see also section 5 below.

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first evidence for this claim comes from a little case study conducted by Koptjevskaja-Tamm & Rosenbach (2005) on the basis of web searches. They found that the dependent *Bush* in the expression *the Bush administration* was far less likely to be referred to either in the immediately preceding or in the subsequent context than in a corresponding determiner genitive (*Bush's administration*). This indicates that the noun modifier *Bush* in *the Bush administration* is less salient/topical (or more backgrounded) than in the corresponding determiner genitive *Bush's administration*. Note also that determiner noun modifiers are typically in the singular, even if they convey a plural concept. *The Weaver cars* in (9c), for instance, refers to the cars owned by the Weavers; see also the corresponding genitive *the Weavers' cars*.[9] The lack of explicit plural marking is another indication of their reduced referentiality.

Another difference from typical noun modifiers is that determiner modifiers, as in (9), must be topical to be felicitous, in the sense that they are either culturally given, as in (9a), or contextually given. So, for instance, Miriam Whitelaw and Edward Arthur are two of the main protagonists in the novels containing examples (9b) and (9d). Thus, for the reader, the reference of *the Whitelaw house* (9b) and *the Arthur property* (9d) is clear. Likewise, the previous mention of the rating and its agent in (9e), i.e. *once Nielsen rated it*, makes the subsequent reference to *the Nielsen rating* contextually clear.[10] Note also that the relation expressed in (9b, d) is one of legal ownership, i.e. one of the possessive meanings (e.g. Taylor, 1989; Koptjevskaja-Tamm, 2001, 2002) typically expressed by a corresponding determiner genitive (e.g. *Whitelaw's house*, *Arthur's property*; see also *Major's plan* or *Nielsen's rating* as two other relations typically expressed by a determiner genitive). Yet often determiner noun modifiers, as in (9), do not exclusively express nominal determination but also contain classifying elements (cf. also Koptjevskaja-Tamm & Rosenbach, 2005). Note, for example, that *the Major plan* in (9a) can either refer to a specific plan made by John Major or (if occurring without a definite determiner) to a typical plan made by John Major, while the corresponding determiner genitive *Major's plan* only allows the former meaning. In contrast, there is barely any classifying element in examples such as *the Whitelaw house* (9b) or *the Weaver cars* (9c), and the identifying (or individuating) function clearly prevails here.[11]

[9] Again, there are exceptions, e.g. if the noun modifier refers to an inherently plural concept, as in noun modifiers denoting group names (*the Beatles song*).

[10] It is not yet clear to me how to reconcile the fact that determiner noun modifiers need to be topical with the observation that they tend to be low in salience.

[11] Kay & Zimmer (1976) argue that proper-noun modifiers (with proper nouns being highly unusual in this function) typically designate classes and not individuals, as apparent from the fact that it is famous persons' names which work best in this environment. True, it is often famous persons' names which occur as proper-noun modifiers and it is precisely with such names that we find the wavering between determination and classification (cp. *the Bush administration*). However, as the preceding discussion has shown, proper-noun modifiers are not confined to the names of famous persons alone but can be used with any kind of proper noun that is sufficiently given or contextually supported. Moreover, even with famous persons the function is not exclusively a classifying one but also identifying (determiner function), at least when embedded within a definite NP.

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Structurally, determiner noun modifiers share the morphosyntactic properties of typical noun modifiers. They are usually adjacent to the head noun and so come after premodifiers (cp. 11),[12] thus sharing the same position as typical noun modifiers, despite their determiner function.

(11) the new Major plan vs *the Major new plan

The whole noun+noun sequence can also be preceded by an article or demonstrative and is thus also, at least in principle, neutral as to the definiteness of the whole NP, cp. (12a), unlike determiner genitives, which stand in complementary distribution with other determiners and which typically render the whole NP definite (12b).

(12) (a) the / a / this new Major plan
(b) *the/a/this Major's new plan

Yet, in practice, determiner noun modifiers are far more likely to be definite than indefinite. As for example shown by Koptjevskaja-Tamm & Rosenbach (2005: §4.2), the definite *the Bush administration* is far more frequent than the indefinite *a Bush administration*; cp. (13).

(13) (a) the Bush administration: 8,100,000 Google hits (9/02/2005)
(b) a Bush administration: 102,000 Google hits (9/02/2005)

In addition, the few indefinite uses found often express some counterfactual, irrealis meaning; cp. (14) (cf. also Koptjevskaja-Tamm & Rosenbach, 2005: §4.2):

(14) If campaign rhetoric can be believed, **a Bush administration** will be more progressive and less restrictive on how this market develops than the previous . . . (www4.gartner.com/5_about/press_room/pr20001218a.html)

Note, finally, that there is also some indication that determiner noun modifiers are structurally 'wavering' between adjectival, noun, and determiner status, as evident from the coordination tests in (15) (under the assumption that only like categories can coordinate).

(15) (a) **The Bush and Clinton administrations** thus economized on their limited ability to monitor the Executive Branch by focusing their attention and political support . . . (www.ksg.harvard.edu/prg/lazer/lazerabs.htm)
(b) The matter of fact is, **the Bush and American administration** in general, have a tradition of inconsistency of 'promoting democracy'. (www.empereur.com/politics/usfp/21%20us%20diplomacy.html)
(c) **The Bush and other administrations** (UK particularly) led us to believe Iraq was a credible threat and part of the war on terror. (moorewatch.com/index.php/weblog/comments/1051/P50/)
(d) Also, please conduct public hearings on payola pundits like Armstrong Williams and other efforts by **the Bush and any administration** to

[12] This generalization doesn't hold for classifying premodifiers, however. See e.g. *the new Major business plan*, where *business* narrows down the denotational class of *plan*, and *Major* then identifies, in a recursive structure, whose business plan it is (*the new [Major [business plan]]*).

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manipulate public opinion (www.congress.org/congressorg/bio/userletter/?id=202&letter_id=194230436)

The examples in (15) show that *Bush* can coordinate either with another (proper) noun (*Clinton*) as in (15a), with an adjective (*American*) as in (15b), or with determiners as in (15c) (*other*) and (15d) (*any*).[13] This categorial 'wavering' between modifier and determiner properties mirrors their semantic 'wavering' between classification and determination. See also Denison (2006), who notes categorial gradience between adjectives and determiners.

2.3 Synopsis

To sum up, as a first approximation I distinguish between two types of *s*-genitive and two of noun modifier. Since both nominal dependents can express both determiner and classifier function, they can alternate with each other, as illustrated in table 1 below. The prototypical uses of the respective dependent (determiner function for genitives, and classifier function for noun modifiers) are highlighted in grey in table 1.

Table 2 below gives an overview of the structural differences between the various types of genitives and noun modifiers in a simplified scheme of the English NP, focusing on their positional restrictions.

3 Variation between determiner genitives and noun modifiers

We now turn to the question of whether there is indeed variation between *s*-genitives and noun modifiers, and more specifically for the purpose of the present study, whether determiner genitives and determiner noun modifiers truly alternate. This crucially relates to the question of meaning equivalence between the two constructions. There is a long-standing discussion (and, in fact, controversy) in the literature as to whether two constructions can ever express 'the same thing' in syntax (see e.g. Rosenbach, 2002: §3.2 for discussion). Strictly speaking, they cannot, as there is always some factor that will tip the scale towards one or the other construction in specific contexts. Under this view, there is no such thing as true grammatical variation (see e.g. Gries & Stefanowitsch, 2004 for such a position). Alternatively, one might take a more relaxed view on meaning equivalence and only demand that two grammatical variants overlap sufficiently in meaning, the stance taken by Weiner & Labov's (1983) classic study on

[13] Though note the marginal status of denominal adjectives such as *American* in the adjective class. Likewise, *other* and *any* are marginal members of the determiner category. *Any* is sometimes regarded as a central determiner (Quirk et al., 1985: §5.14), sometimes as a quantifier (Biber et al., 1999: §4.4), and sometimes as a 'quantificational determiner' (Börjars & Burridge, 2000: 192–3). In contrast, *other* is sometimes classified in the grammars of English as an untypical determiner, i.e. a 'semi-determiner' in Biber et al. (1999: §4.4.6) or a 'post-determiner' in Quirk et al. (1985: §5.22). According to Spinillo (2004) neither *other* nor *any* belongs to the determiner category at all. Whatever their precise theoretical status, elements such as *other* or *any* are 'determiner-like' in the sense that they precede any adjectival premodifier (e.g. *the/any other blue car*). In this respect, then, it is noteworthy that determiner noun modifiers can coordinate with elements having such quasi-determiner properties.

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Table 1. s-*genitives and noun modifiers: typical semantic functions*

	semantic function	
nominal dependent	determination	classification
s-genitives	*Bush's administration*	*lawyer's fees*
noun modifiers	*the Major plan*	*television screen*

Table 2. *Overview of positional restrictions on various genitives and noun modifiers*

	determination	premodification	classification	head
determiner genitives	*the young girl's*	*blue*		*eyes*
descriptive genitives	*a*	*metal*	*baby's*	*high-chair*
measure genitives	*an hour's*			*delay*
	a	*second*	*one hour's*	*delay*
noun modifiers	*the*	*big*	*television*	*screen*
	the	*new*	*Major*	*plan*

active–passive alternation. Under this view, the two variants only need to share the same propositional, truth-conditional or descriptive meaning but do not have to be equivalent in *every* semantic–pragmatic and/or functional aspect, similar to J. Lyons' (1977: 242) term 'descriptive synonymy'. Basically the same idea has recently been captured within the framework of Construction Grammar by Cappelle (2006), who argues for the notion of 'allostructions'. In this approach constructional variants are regarded as underspecified realizations of constructions. Note that N+N constructions as well as *s*-genitives are notorious for their semantic underspecification (as pointed out to me by a reviewer), which would indeed qualify them as allostructions in Cappelle's terminology. In sociolinguistic terminology, the underlying abstract construction would then be the linguistic 'variable'. Given that total synonymy between syntactic (or constructional) variants is not required, further factors favouring one or the other variant are then precisely subject to empirical analysis. It is this latter perspective that the present study follows. In doing so, the point of departure for assuming variation between determiner genitives and determiner noun modifiers is that they both share identifying, i.e. determiner, function. More specifically, in both cases there is a noun which helps to identify the referent of the whole NP. The examples in (16) and (17) illustrate cases where determiner genitives and noun modifiers are used interchangeably with little (if any) difference in meaning.

(16) (a) He was at **the Mair dinner party**. (P. D. James, *Devices and desires*, 270)
(b) '. . . There was a rather cryptic exchange at **the Mairs' dinner party** between him and Hilary Roberts.' Rickards crouched forward, his huge hand cradling the whisky glass. Without looking up, he said: '**The Mair dinner party**. I reckon that cosy little gathering – if it was cosy – is at the nub of this case. . . .' (P. D. James, *Devices and desires*, 274–5)

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(c) '. . . She and that housekeeper at the Old Rectory, Mrs Dennison, are the only ones who were at **the Mairs' dinner party** who made no attempt to produce an alibi. . .' (P. D. James, *Devices and desires*, 279)

(17) (a) . . .you got to the church at one end and **the Steiner crib** at the other with about two miles in between. (P. Cornwell, *The body farm*, 90)

(b) I know he don't live too far from **the Steiners' crib**. (P. Cornwell, *The body farm*, 149)

The dinner party arranged by the Mairs is a central event in this novel and is referred to at various points. We might argue that in the genitive constructions there is stronger emphasis on *whose* dinner party it is, while the noun modifier *Mair* rather specifies *which* dinner party it is. Crucially, however, in both cases it helps to identify the specific party and therefore has determiner force.

The same situation holds for examples (17), where *Steiner* is the name of the family of the murdered child and where the author at one point uses the expression *the Steiner crib* and at another the expression *the Steiners' crib*, but essentially in both cases the referent of the head noun *crib* is identified (or determined) by the family name *Steiner*.

Determiner genitives and noun modifiers are not, however, *completely* identical in meaning and function, as the discussion in section 2.2 indicated (see e.g. the discussion on *Major's plan* vs *the Major plan*), but it is then precisely the task of variation studies to unravel the various (and often subtle) factors that determine this variation and take them into account in the empirical analysis.

The present study focuses on one such factor, namely the animacy of the nominal dependent.[14] In the following section I will provide the empirical evidence for how animacy affects the choice of determiner genitives and noun modifiers in turn.

4 The role of animacy in the distribution of *s*-genitives and noun modifiers

The distribution of *s*-genitives according to animacy is synchronically and (though to a lesser extent) diachronically well explored empirically, whereas nothing is yet known on the relevance of the factor of animacy for the distribution of noun modifiers in English, either synchronically or diachronically. In the following I will therefore mainly draw on previous studies in discussing the role of animacy in the distribution of *s*-genitives, complemented by some new data on their historical development. I will then provide some first empirical evidence for the role of animacy in the distribution of noun modifiers from a diachronic perspective.

4.1 s-*genitives*

Various empirical studies have shown that the preference for an *s*-genitive decreases along the animacy scale in (18); cf. e.g. Jucker (1993); Leech et al. (1994); Hundt (1997, 1998); Raab-Fischer (1995), or O'Connor et al. (2004).[15]

[14] I will be using the term NOMINAL DEPENDENT as a hypernym comprising both *s*-genitives and noun modifiers.

[15] These studies may show slight differences with respect to the frequency of the *s*-genitive according to these semantic classes, but essentially the results all show a decrease in frequency according to the animacy of the possessor.

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(18) animate inanimate
human N > animal N > collective N > temporal N >
the boy's bike > *the dog's collar* > *the company's director* > *Monday's mail*

locative N > common N
London's suburbs > *the building's door*

Closely intertwined with this preference along the animacy scale is a decreasing preference for *s*-genitives along the definiteness/referentiality scale in (19).

(19) proper nouns > definite common nouns > indefinite common nouns
John's bike > *the boy's bike* > *a boy's bike*

The two are so closely related that in some literature on the topic the two scales actually get coalesced, as e.g. in Quirk et al.'s (1985: §5.104) gender scale, which forms the basis for most empirical studies on the topic (e.g. Jucker, 1993; Hundt, 1997, 1998; Raab-Fischer, 1995). There certainly is some correlation between the two in that proper nouns are typically more likely to be personal names, i.e. human, but as shown by Rosenbach (2002) and O'Connor et al. (2004), definiteness (and topicality) and animacy are not mutually reducible to each other. Note also that one reason why temporal and locative nouns stand out in allowing an *s*-genitive more easily than other common nouns is that they are often proper nouns (as e.g. in *Monday's mail, London's underground*).

As far as their diachronic development is concerned, *s*-genitives have been shown to become more frequent from about late Middle/early Modern English onwards, with the factor of animacy playing a decisive role in this spread (Rosenbach & Vezzosi, 2000; Rosenbach et al., 2000; Rosenbach, 2002). The corpus studied by Rosenbach & Vezzosi (2000) comprises prose texts covering the period between 1400 and 1630. In the fifteenth and sixteenth centuries *s*-genitives, at least determiner genitives, are basically restricted to human nouns (e.g. *Simon's father, the kynges syster*) in this corpus. The few inanimate *s*-genitives that do occur in the Rosenbach–Vezzosi prose corpus are mainly attributive uses of *s*-genitives, e.g. descriptive *s*-genitives such as *a longe summers day* or idiomatic and lexicalized expressions such as *new yere's eve* or *his death's-bed.* Other scattered examples of inanimate *s*-genitives have the head noun *end* (e.g. *the yeeris end, his lyves end, the worldis ende*) which is a lexically restricted use; cf. also Altenberg (1982: 50). The (very) few determiner genitives with inanimate nouns are largely confined to personalizations such as *fortune's finger*, *passion's slave* or *Offence's gilded hand*, i.e. inanimates given human attributes. Expressions which come close to productive uses of determiner genitives with inanimate nouns are exceedingly rare, though, and if they occur it is with locative nouns (cp. *the world's diameter*), which, as shown above, are among those inanimate noun classes (besides temporal nouns) which may occur with *s*-genitives more easily than other inanimate nouns. There is one single occurrence of a determiner genitive with a common noun from the lowest end of the animacy scale in (18), which is not personalized, idiomatic, or otherwise lexically restricted (*on the houses top*), and which is attested in the last period of the Rosenbach–Vezzosi corpus (1560–1630), indicating a first and (very) tentative shift

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towards an extension of the *s*-genitive to inanimate nouns; see also Rosenbach (2002: 190–1) for discussion.

In Altenberg's (1982) elaborate corpus study of seventeenth-century English, which covers both prose and verse texts, inanimate *s*-genitives are still very rare. Altenberg observes that they are more common with abstract nouns and in verse than with common nouns and in prose (§§4.7–4.8). It is important to note, however, that most uses of *s*-genitives with abstract nouns in Altenberg's corpus are restricted to temporal nouns and personifications. Among the former, Altenberg also seems to have included attributive uses, judging from the examples he gives (e.g. . . . *should beguile us of our mornings sight*; cf. Altenberg, 1982: 133, ex. 379; here the possessive determiner *our* refers to the head noun *sight* and not to the genitive *mornings*). Genitives with personifications are relatively common in his corpus, but 'nearly always restricted to verse' (Altenberg, 1982: 133). With concrete nouns the *s*-genitive is very rare in Altenberg's corpus; in the prose texts they only make up 1 percent of genitive occurrences.[16] Most of his examples include locative nouns (e.g. *this worldes felicitie*, *the Seas entrance*, *Jordan's Sand*; cf. Altenberg, 1982: 136). Altenberg also gives some few examples of *s*-genitives with collective nouns in the seventeenth century (e.g. *the Churches hierarchie*, 1982: 131).

For the twentieth century it has often been observed that the *s*-genitive has been spreading to inanimate nouns, now quite productively covering the whole range of semantic classes along the animacy scale in (18) above; see e.g. Zachrisson (1920), Dahl (1971), Jahr Sorheim (1980), Raab-Fischer (1995), Hundt (1997, 1998), or Rosenbach (2002). Unfortunately, there are so far no empirical studies which have looked in detail at the distribution of *s*-genitives in the eighteenth and nineteenth centuries. We know *that* the *s*-genitive has been spreading to inanimate nouns in the course of Modern English, but we know very little about the nature and the time-course of this change.

Corpus study: the diachronic spread of s*-genitives to inanimate nouns*

As a first step towards filling this gap I extracted all *s*-genitives from the British sections of the ARCHER corpus (the untagged version, all registers), a prose corpus covering representative samples of various genres in the period from 1650 to 1990 (see also section 4.2 below), annotating the data according to animacy.[17] For the purpose of the present study I only looked at clear cases of determiner genitives, excluding any attributive, idiomatic, or doubtful uses.[18] In order to assess the productivity of

[16] In verse, the *s*-genitive is more frequent with inanimate concrete nouns; according to Altenberg (1982: 135) this is mainly due to poetic licence and metrical considerations.

[17] Note that only *s*-genitives with the apostrophe '*s* could be extracted automatically and that, thus, particularly for the first period (1650–1700), *s*-genitives lacking the apostrophe are missing. It is, however, to be expected that the distribution of *s*-genitives with and without the apostrophe in this early period is not systematically biased towards any specific semantic class. The apostrophe became the rule in the late seventeenth century for the genitive singular, and in the eighteenth century for the genitive plural (cf. Strang, 1970: 109–10).

[18] Particularly problematic to classify are expressions headed by an indefinite article of the type *a(n)* X_{SG}*'s* Y_{SG}, which are notoriously ambiguous between a determiner reading ([*a(n)* X]'*s* Y) and an attributive reading (*a(n)* [X'*s* Y]), as in *a bishop's robe*. Such contexts were in general excluded from this study. Likewise,

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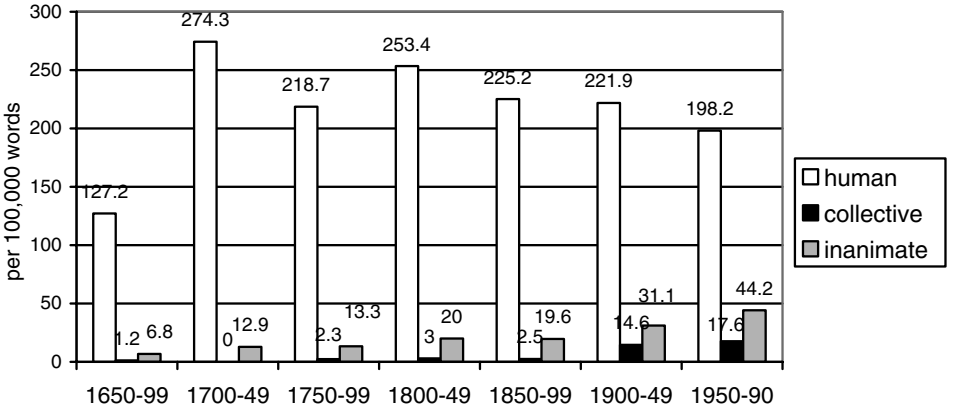


Figure 1. Distribution of *s*-genitives according to animacy in the British sections of the ARCHER corpus (normalized type frequencies per 100,000 words)

determiner genitives with the various noun classes I only counted types and not tokens (that is, if there were various occurrences of *Singh's face* I only counted it once). Figure 1 gives the internal distribution of *s*-genitives according to animacy for the various periods of the ARCHER corpus (in normalized frequencies, per 100,000 words), with 'locative nouns', 'temporal nouns' and 'other inanimate nouns' collapsed into one category, 'inanimate'. Animal nouns are not considered, because their frequency was very low throughout the various intervals.

It is clear from figure 1 that human nouns make up by far the majority of occurrences of *s*-genitives in the corpus. To get a better idea of the distribution of *s*-genitives with nonhuman nouns, figure 2 below separately highlights the classes of collective and inanimate nouns.

Figure 2 shows an increase in the number of *s*-genitives with inanimate nouns in the ARCHER corpus over time, from 6.8 types per 100,000 words in the first period (1650–99) to 44.2 types per 100,000 words in the last period (1950–90). For the reasons given in footnote 17 above, the overall very low frequency of *s*-genitives in the first period (1650–99) should be treated somewhat cautiously and not be overinterpreted. However, there certainly remains a steady increase in the use of *s*-genitives with inanimate nouns from the eighteenth to the twentieth century. Likewise, the data show an increase of *s*-genitives with collective nouns, particularly in the twentieth century. Looking more closely at how *s*-genitives distribute over the class of inanimate nouns, we see that it

s-genitives occurring with generic nouns and metaphorical uses were excluded, as these have been shown to lie semantically in between determiner and attributive uses; see Rosenbach (2006a) for further discussion. Also, expressions with saints' names denoting names of churches or places (e.g. *St Paul's Church; St James's Park*) are not considered here, as they tend to have a conventionalized flavour. With respect to temporal nouns, only those clearly having identifying force were included (e.g. *last night's events*), while temporal nouns denoting duration were not considered (e.g. *a week's holiday*), as the latter occur in measure (i.e. attributive) genitives. Note finally that lexical class was coded and not how the particular noun was (presumably) conceptualized. That is, personalizations of inanimate nouns are still included in the data. Such uses will receive extra attention in the discussion of the data, though.

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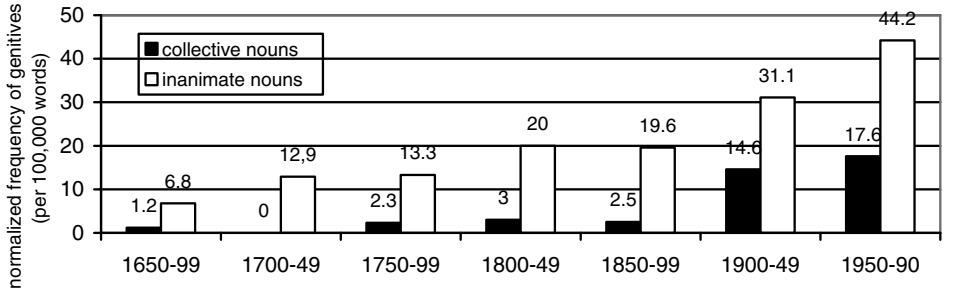


Figure 2. Distribution of *s*-genitives with inanimate and collective nouns in the British sections of the ARCHER corpus (normalized type frequencies per 100,000 words)

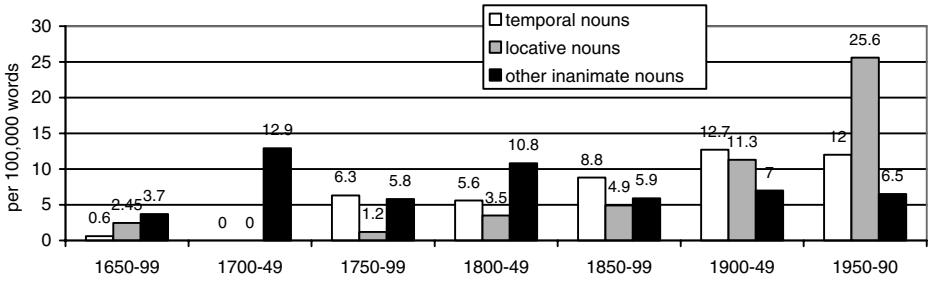


Figure 3. Distribution of *s*-genitives with various inanimate noun classes in the British section of the ARCHER corpus (normalized type frequencies per 100,000 words)

is first and foremost locative and (though to a lesser degree) temporal nouns which account for the higher number of *s*-genitives with inanimate nouns in the twentieth century, as illustrated in figure 3.

In the second part of the seventeenth century *s*-genitives with inanimate nouns are in general very infrequent; this corresponds to the findings by Rosenbach & Vezzosi (2000) for the early seventeenth century and Altenberg's (1982) data for the seventeenth century. Clear determiner uses with temporal nouns are exceedingly rare (also in the first half of the eighteenth century), and so are determiner genitives with locative nouns. The few occurrences of 'other inanimate nouns' in the period 1650–99 are mainly personifications (20) or are restricted to the noun *ship* (21), which is known to occur with *s*-genitives in early Modern English (e.g. den Breejen, 1937: 55), possibly due to the fact that ships usually have names and often get animate pronominal reference (typically with female names; cp. e.g. ***The Queen Mary*** *has just left Dover.* ***She*** *is a very beautiful ship*).

(20) (a) Love's real Joys (ARCHER, 1696pix-f1)
(b) Love's mighty yoke (ARCHER, 1686fane.d1)
(c) Nature's Law (ARCHER, 1686fane.d1)
(d) Reason's Ballast (ARCHER, 1686fane.d1)

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(21) (a) his Ship's arrival (ARCHER, 1697pix.d1)
(b) the ship's company (ARCHER, 1654whit.j1)

The first 'truly' (in the sense of not lexically conditioned or personalized) inanimate *s*-genitives in the ARCHER corpus (BrE) can be found in the first half of the eighteenth century (1700–49); see examples in (22).

(22) (a) If such then is **the bowel's contraction** in the severity of this disease, . . . (ARCHER, 1735port.m2)
(b) Upon that, I turn'd **the Chair's Bottom** upwards, but . . . (ARCHER, 1724fair.s2)

All in all, this preliminary corpus survey of the internal distribution of the *s*-genitive according to the animacy of the nominal dependent illustrates two things. First, it indicates clearly that the extension of the *s*-genitive to inanimate nouns, which was already incipiently present in the seventeenth-century data from Rosenbach & Vezzosi (2000) and Altenberg (1982), catches on after the seventeenth century and thus is not an exclusively twentieth-century development, though it doesn't seem to acquire any momentum until then. Second, it suggests that this extension takes place first and foremost with temporal and locative nouns. Note, however, that the present survey cannot ultimately document the extension of *s*-genitive throughout the past centuries, as it does not take into account the frequency of the *s*-genitive relative to its structural alternative, the *of*-genitive (e.g. *the contraction of the bowel*). We can therefore not be sure whether the (normalized) frequencies we find represented in figures 1 to 3 above truly reflect an increase in the use of the *s*-genitive as compared to the *of*-genitive, or whether it is an artefact of the texts in the corpora. For example, if, for whatever reason, the texts in the twentieth century just happen to have more frequent reference to locative nouns, it is quite natural that, in absolute terms, this should also show in the (absolute) frequency of the *s*-genitive with such nouns. Future studies on the spread of the *s*-genitive will therefore also have to take into account the distribution of *of*-genitives. For the purpose of the present study it suffices, strictly speaking, to illustrate that the *s*-genitive has expanded throughout the last centuries to collective and inanimate nouns (for whatever reason) and thus comes to be used in contexts also expressible by a noun modifier.

Empirical studies of the *relative frequencies* of the *s*-genitive and the *of*-genitive over time are available for the period between 1400 and 1630 (Rosenbach & Vezzosi, 2000) and for the latter part of the twentieth century (Raab-Fischer, 1995; Rosenbach, 2002). Rosenbach & Vezzosi (2000) show that the *s*-genitive becomes more frequent, particularly with animate nouns, in the period from the fifteenth century to the early seventeenth century. More precisely, the relative frequency of the *s*-genitive (as opposed to the *of*-genitive) is shown to increase significantly from 8 percent in the first half of the fifteenth century to 19.1 percent in the late sixteenth/early seventeenth centuries (2000: 289–91).

Raab-Fischer (1995), in a real-time study comparing the frequencies of *s*-genitives and *of*-genitives in the press sections of the LOB corpus from the 1960s with those in the matched FLOB corpus (press) from the 1990s, shows that the increasing use of the

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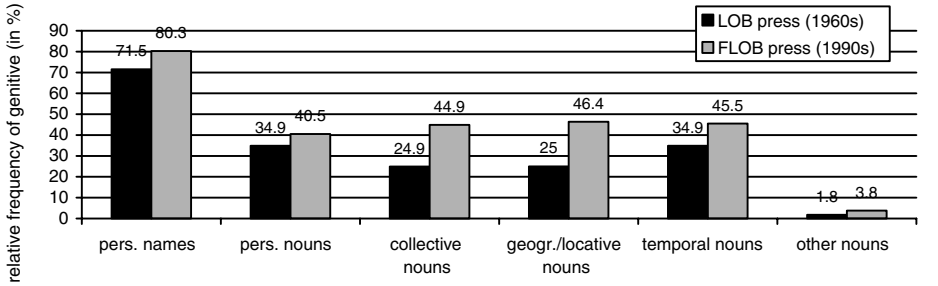


Figure 4. LOB (press) vs FLOB press corpus: relative frequency of *s*-genitive and *of*-genitive on the basis of Raab-Fischer's (1995) data

s-genitive, as observed by Siemund (1993), is matched by a corresponding decrease in the use of *of*-genitives. Figure 4 illustrates her findings.[19]

Raab-Fischer's results show an increase in the relative frequency of the *s*-genitive from the 1960s to the 1990s with all noun classes, though the increase is particularly pronounced with the nonhuman noun classes of collective nouns (24.9% > 44.9%), geographical/locative nouns (25% > 46.4%) and temporal nouns (34.9% > 45.5%). Note also that her data document the widespread use of the *s*-genitive with nonhuman noun classes (see e.g. also Jucker, 1993; Leech et al., 1994; or O'Connor et al., 2004 for converging synchronic evidence).

There is also evidence from an experimental apparent-time study (Rosenbach, 2002), showing, for both British and American English, that younger speakers use the *s*-genitive more often with inanimate nouns (as compared to the *of*-genitive) than older speakers, indicating change in progress in the use of the *s*-genitive with inanimates; cf. figure 5. Note that the rationale underlying such apparent-time studies is that the language of the older subjects reflects an older language state than that of the younger subjects.

The inanimate nouns tested in Rosenbach's study (e.g. *the chair's frame, the fabric's weave, the helicopter's doors, the table's drawer*) excluded temporal and locative nouns. Subjects had to choose in a forced-choice task between *s*-genitives and *of*-genitives in short text passages adapted from novels, and all the examples involved choice-contexts, i.e. contexts where both forms could be used. The results given in figure 5 below thus show not only that the *s*-genitive is on the increase with such inanimate nouns in both American and British English,[20] but also that the potential for using *s*-genitives with

[19] The relative frequency of the *s*-genitive was calculated on the basis of table 2 in Raab-Fischer (1995), which recapitulates Siemund's (1993) findings for the *s*-genitive, and on the basis of her table 3. Note also that Hundt (1997, 1998) provides evidence for an increasing use of the *s*-genitive with inanimates in British and American English, comparing the press sections of the LOB and BROWN corpus with the matched sections of the later corpora of the FLOB and FROWN corpus, though, unlike Raab-Fischer (1995), she does not take the relative frequency of the *s*-genitive (as opposed to the *of*-genitive) into account.

[20] The difference in the relative frequency between younger and older subjects was statistically significant in both the American and the British English subject group.

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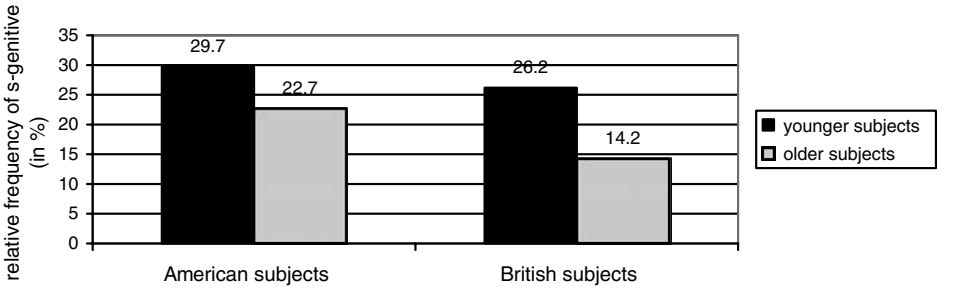


Figure 5. Relative frequency of *s*-genitive with inanimate nouns from an experimental study in Rosenbach (2002) with British and American speakers of English; cf. figure 23 in Rosenbach (2002: 165)

nouns lowest on the scale in (18) is much higher than the corpus frequencies from Raab-Fischer (1995) suggest.[21]

If we compare the relative frequency of the *s*-genitive in Modern English with the sporadic uses of the *s*-genitive with inanimate nouns reported in the Rosenbach-Vezzosi (2000) study for the time between 1400 and 1630, and in Altenberg's (1982) seventeenth-century data, it is obvious that an extension of the *s*-genitive to and within the class of nonhuman nouns has taken place in the time between the eighteenth century and the twentieth century. This further supports the view that *s*-genitives have extended between early Modern and Present-day English.

4.2 Noun modifiers

In contrast to *s*-genitives, there are no empirical studies which have studied the distribution of noun modifiers according to animacy. There is some first indication though that most noun modifiers are inanimate (Taylor, 1996: 303; Rosenbach, 2006a: 101 (note 21), forthcoming). This idea will be further empirically tested in this article. The hypothesis is that noun modifiers and *s*-genitives show an inverse preference along the animacy scale. That is, it is predicted that noun modifiers occur most frequently with inanimate nouns (e.g. *museum shop*) and least with human nouns (e.g. *student paper*); see (23) below.

(23)

animate			**inanimate**		
human N >	animal N >	collective N >	temporal N >	locative N >	common N
the boy's *bike* >	*the dog's collar* >	***the company's*** *director*	***Monday's*** *mail*	***London's*** *suburbs*	***the building's*** *door*

→ degree of preference for the *s*-genitive

Bush *administration* > ***cat*** *food* > ***FBI*** *director* > ***Sunday*** *lunch* > ***London*** *underground* > ***museum*** *shop*

← degree of preference for noun modifiers

[21] The quantitative difference is most likely due to differences in method: while corpus data reflect actual usage patterns, elicited data is more likely to reflect language potential.

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As noun modifiers are typically nonreferential and not NPs, definiteness, strictly speaking, does not apply. However, proper-noun modifiers as in *Bush administration* do occur. Following the hypothesis of inverse preference, the prediction then is that proper nouns should be less preferred noun modifiers than common nouns, though the issue of definiteness and referentiality will receive less attention than animacy in this article.

Looking at the history of English, noun modifiers – like *s*-genitives – have been shown to increase over time in English, particularly from the second half of the nineteenth century onwards, with the change accelerating and continuing in Present-day English (Biber & Clark, 2002; Mair et al., 2002; Mair, 2005; Rosenbach, 2006b). However, nothing is as yet known about the role of animacy in the spread of noun modifiers in English. This is an empirical question to be tested in the present study. I assume that in the same way that *s*-genitives hardly ever occurred in earlier English with inanimate nouns, as in *the building's door,* noun modifiers did not yet occur at the time (or very rarely so) with human nouns, as in *Bush administration*. That is, the prediction is that noun modifiers have moved *up* the animacy scale, in contrast to *s*-genitives, which have moved *down* the animacy scale.

Corpus study: the diachronic spread of noun modifiers according to animacy

To test for the role of animacy in the spread of noun modifiers I annotated the dataset of N+N sequences in the British English news sections of the ARCHER corpus (henceforth 'ARCHER news (BrE)') used by Biber & Clark (2002) in their study.[22] This dataset contained the raw data of N+N sequences drawn from the tagged version of ARCHER news, covering the period between 1650 and 1990, divided up into time intervals of 50 years. The genre of news was chosen for two reasons. First, it has been shown to be a genre which is particularly prone to contain N+N sequences (see e.g. Biber et al., 1999: 589; Biber & Clark, 2002). And, second, it naturally contains a lot of reference to persons, and therefore also human noun modifiers are more likely to be found here.

In a first step this dataset was postedited and 'cleaned up' so as to contain only true occurrences of noun modifiers. For the purpose of the present study I only looked at cases where the first noun modifies in some semantically transparent way the head noun and where it could be, at least potentially, a syntactic modifier. To this end I was adopting an orthographical criterion in this study, considering any combination of two nouns written apart as an at least potentially productive combination (i.e. not lexicalized).

[22] I'm most grateful to Douglas Biber for making this dataset available to me. In addition I also used data from other parts of the ARCHER corpus, specifically from ARCHER 1 (= A Representative Corpus of Historical English Registers 1. 1990-1993/2002. Compiled under the supervision of Douglas Biber and Edward Finegan at Northern Arizona University, University of Southern California, University of Freiburg, University of Helsinki, and Uppsala University). I also made sporadic use of the tagged version of the British sections of the whole ARCHER corpus. The ARCHER corpus covers the period between 1650 and 1990 and consists of text samples from different genres for British and American English (for more information on this corpus see e.g. Biber & Clark, 2002: 49–50). Thanks to Marianne Hundt for making ARCHER available to me at the University of Heidelberg and to Carolin Biewer for unfailing technical and practical support while working with the corpus.

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In lexicalized expressions such as *icecream* or *paperback* the orthography usually indicates the lexicalized status. I am aware that the orthographical criterion remains to some degree arbitrary and in any case highly controversial (see e.g. Bauer, 1998; Huddleston & Pullum, 2002:§14.4; or Giegerich, 2004), but the question of whether we are dealing with a compound or a phrase would be impossible to settle in each individual case in the corpus study, so some sort of operational definition is needed. However, even nouns written separately are not necessarily semantically transparent modifiers of their head. So, for example, I further excluded any fixed names such as *Hampton Court* or *Windsor Castle,* as well as coordinative relations as in *Alsace-Lorraine* and *woman doctor*, where the first noun is, strictly speaking, not a determining modifier and as such irrelevant for the present study. For a detailed description of the inclusion and exclusion criteria of the dataset used I refer to Rosenbach (2006b), where the general diachronic spread of noun modifiers, irrespective of semantic context, is investigated in detail.[23] The dataset was then annotated according to the semantic classes of the scale given in (18); examples are given in (24).[24]

(24) human noun modifiers: e.g. *rebel army, Bush administration*
animal modifiers: e.g. *goat skin*
collective noun modifiers: e.g. *party programme, Labour candidate*
locative noun modifiers : e.g. *city assembly, Barcelona newspapers*
temporal noun modifiers: e.g. *evening newspapers, day parade*
other inanimate noun modifiers: e.g. *war budget, bomb splinters*

To assess the productivity of noun modifiers with the respective noun classes, only types were counted and not tokens, as in the analysis of *s*-genitives in the ARCHER corpus given in section 4.1 above. That is, if there were various occurrences of *Bush administration* it was only counted once in each interval.[25]

Figure 6 below gives the distribution of noun modifiers in the various periods of ARCHER news (BrE) according to these semantic classes (as normalized frequencies, per 10,000 words). For the sake of illustration, the inanimate noun classes ('locative', 'temporal', 'other') are collapsed into one category here. Animal noun modifiers are not considered here as their overall distribution in the dataset is very low.

[23] Looking only at (potentially) syntactic and determining modifiers makes the resulting dataset more easily comparable to determiner genitives, though the issue of choice contexts between determiner genitives and noun modifiers remains a subtle and complex one and will be addressed again in sections 4 and 5 below. In general, I tried to include only noun modifiers that could potentially be expressed by a genitive, but as grammaticality judgements in this area of grammar can be rather divided (see also the discussion in footnote 26 below), I decided to take a rather liberal view and included examples when in doubt.

[24] As in the analysis of *s*-genitives in section 4.1 above, the lexical noun class was always annotated irrespective of any possible conceptual shifts or personalizations. So, for example, in *Russia's plan* the noun modifier *Russia* was coded as a locative noun, irrespective of the fact that the head noun *plan* implies a modifier with human attributes and hence a metonymic reading of *Russia* as standing for the Russian government rather than the geographical country as such.

[25] A reviewer remarked that it would be interesting to know type/token frequencies for the constructions at the different time periods as an indication of their productivity. At the present stage I'm not sure how far this measurement (typically applied to morphological productivity) would apply to the productivity of syntactic constructions and to the specific corpus data at hand.

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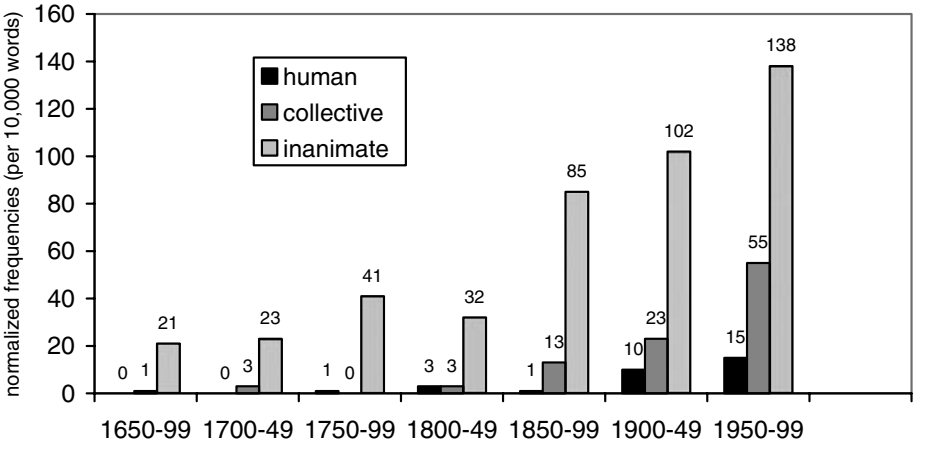


Figure 6. Distribution of noun modifiers according to animacy (normalized type frequencies) in ARCHER news (BrE)

Two things can be noted from figure 6. First, the great majority of noun modifiers are indeed inanimate, followed in frequency by collective nouns and human nouns. This holds for all time intervals. In the most recent period (1950–99), for example, 66.4 percent of all noun modifiers are inanimate (e.g. *war budget*), 26.5 percent are collective nouns (e.g. *Labour candidate*) and only 7.2 percent are human nouns (e.g. *Bush administration*). This shows that the preference for noun modifiers indeed increases along the animacy scale. As predicted, noun modifiers thus show an inverse preference to *s*-genitives with respect to animacy. Second, figure 6 shows that noun modifiers have only gradually come to include collective and human nouns. There are some very isolated, scattered examples in the early periods in the corpus, but the first productive examples do not show up before the nineteenth century, e.g. *opposition members* and *opposition journal* (collective nouns) and *slave trade* or *coolie immigration* (human nouns) in the period of 1800–49.[26] Note that the single occurrence of a human noun modifier in the period of 1750–99 is *mother country* (25), which turns out to be already lexicalized at that time and as such not really a productive use of a human noun modifier (the *OED* lists the use of *mother country* already in the late sixteenth century).

(25) . . . the port of that city when under the protection of the **mother country**, the principal of its exports are now little more than a schooner or two freighted for the West-Indies, . . . (ARCHER 1785gen1.n3)

[26] Admittedly, *slave trade* is an example which does not easily lend itself to variation with a corresponding genitive, as also remarked by one of the reviewers. However, while very unlikely, it is not impossible, as e.g. witnessed by the following example taken from the web: In *Cambodia you could be into drug dealing. In Kenya into the refugee extortion racket. In the Balkans you could participate in* ***the sex slaves' trade***. . . . (www.mullet.com/bboard/ bb_article_detail.asp?art_id=49&a_id=4). As this study focuses on the productivity of noun modifiers with nonhuman nouns, such marginal examples are included.

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In the earliest period (1650–99) there is also one occurrence of a so-called *s*-less genitive (26a). Such *s*-less genitives were not uncommon throughout early Modern English (cf. Wyld, 1936: 316; Altenberg, 1982: 50–1; Rosenbach, 2002: 206), see further examples in (26b-c) from the Rosenbach-Vezzosi (2000) corpus.

(26) (a) From on board his Majesty Ship the Royal Transport, June 3. (ARCHER, 1697pos2.n1)
(b) the bucher wyff (16thc, Henry Machyn, *Diary*, 8)
(c) the man name (16thc, Henry Machyn, *Diary*, 21)

These are genitives which lack the *'s*, thus overtly resembling noun modifiers. We might therefore ask why we should not classify them as cases of noun modifiers rather than *s*-less genitives. Note, however, that in examples (26) the first noun always singles out a specific referent (i.e. the butcher's wife in (26b) and the man's name in (26c). That is, these are cases of prototypical and straightforward determination which even today are still incompatible with noun modifiers (**the butcher wife*, **the man name*). However, the question arises as to why inanimate noun modifiers as in (27) should not be classified as *s*-less genitives, either.

(27) (a) his household servant (HC, Robert Plumpton, 232)
(b) the sea coste (HC, Thomas Harman, 68)

In Present-day English such noun modifiers can certainly be expressed by a corresponding *s*-genitive, cp. *his household's servant* or *the sea's coast*. Given that in early Modern English *s*-genitives typically did not yet occur with inanimate nouns, these cases seem however more appropriately classified as noun modifiers rather than *s*-less genitives (cf. also Altenberg, 1982:50). In this respect, the functional specialization of *s*-genitives and noun modifiers according to animacy helps to disambiguate *s*-less genitives from noun modifiers at this time. Yet a fuzzy borderline certainly remains in such cases between noun modifiers and genitives.[27] Part of the problem is not only that *s*-less genitives formally resemble noun modifiers but that genitive constructions are also very often semantically compatible with a N+N construal. Note that already in Old English the very same expression could often be used as a (determiner) genitive as well as a nominal compound. For example, Sauer (1985: 271) notes that we find both the nominal compound *eorlgestreon* ('earl-treasure') and the genitive *eorla gestreon* ('the earls' treasure') in *Beowulf* with no apparent difference in meaning.

The rise of *s*-less genitives in the course of Middle English, together with the general decay of inflectional endings, made it even more difficult to distinguish between genuine

[27] Throughout the early Modern English period there are other cases where the possessive *'s* is omitted. These are however more likely to be phonologically conditioned, in that either the genitive noun ends or the head noun starts with a sibilant (e.g. *his highness favour*, *for God sake*, respectively). Other cases are continuations of Old English uses without a genitive inflection, e.g. the *r*-stems *father* and *mother*. See Altenberg (1982:§2.4) for a good discussion of such 'zero genitives', as he calls them. The examples given in (27) must be considered genuine cases of *s*-less genitives, however, which cannot be easily explained away otherwise. Note also that *s*-less genitives persisted in northern English dialects well into the early twentieth century (Klemola, 1997); they dropped out of standard English at the end of the early Modern English period.

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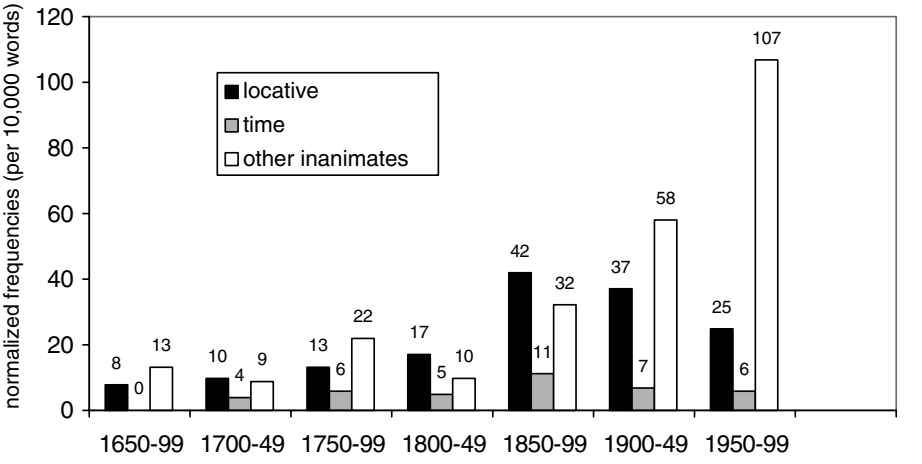


Figure 7. Distribution of inanimate noun modifiers (normalized frequencies) in ARCHER news (BrE)

genitives and noun modifiers at the time; see e.g. Bergsten (1911: 105ff.) and Sauer (1992: 86–98) for in-depth discussions of this problem.

The distribution of inanimate noun modifiers in ARCHER news (BrE) is given in figure 7 above. We can notice that locative nouns especially have always made up quite a good number of all inanimate nouns, particularly so in the earlier periods. That is, as with *s*-genitives, locative noun modifiers somehow stand out in the class of inanimate nouns; less so, however, temporal nouns, which only contribute to a relatively small extent to the class of inanimate noun modifiers throughout the various time intervals.

Finally I had a closer look at the distribution of proper-noun modifiers (e.g. *Bush administration*) and how they interact with animacy. Naturally we would expect proper-noun modifiers to be predominantly human, i.e. personal names. However, as is apparent from figure 8 below, this is very clearly not the case. In fact, most proper-noun modifiers are locative nouns (as e.g. in *Ghana government, Tokyo paper*), and human proper-noun modifiers (as e.g. *Bush administration* or *Nasser men*) only form a small minority. Note also that personal names, which are the most preferred context for the occurrence of an *s*-genitive (as in *John's book*), only occur rather late in the dataset, i.e. not before the twentieth century.[28]

[28] I also conducted a specific search for proper-noun modifiers in the whole ARCHER corpus (the tagged version, comprising both British and American English and covering a wide range of genres, containing approximately 1 million words). In this larger database there were some scattered examples of what seem to be productive cases of personal name modifiers, i.e. *the Dolly Varden song* (1872kilv.j6), *the Michael Angelo drawings* (1886bail.j6), *the Buttrick farm* (1893brew.j7), *the McDowell investigation* (1863.chi.n7) and *the Herschell committee* (1893pub1.n7). These examples are all from the latter half of the nineteenth century. For the early nineteenth century we also find the expression *the Musgrove family* (1818aust.f5), though this is an appositive relation rather than a modifying one. In this respect, the timing of the emergence of personal name modifiers indicated by the ARCHER news (British English) data above only has to be slightly modified in the light of a larger database.

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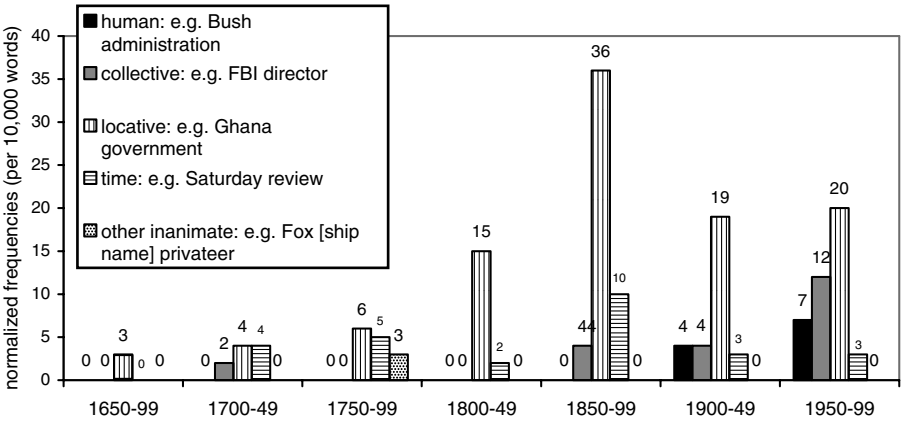


Figure 8. Distribution of proper-noun modifier according to animacy in ARCHER news (British English)

In addition to the British English news section of ARCHER I also extracted all N+N sequences in the British English science sections in this corpus (henceforth 'ARCHER science (BrE)').[29] News and academic language have been shown to be the genres conveying the highest frequency of noun modifiers, at least in Present-day English (Biber et al., 1999: 589), so the science sections promised to reveal a relatively high proportion of noun modifiers. Figure 9 below gives the distribution of N+N sequences in ARCHER science according to the animacy of the noun modifier. Note that this time animal nouns are included since sufficiently represented in the data. In turn, the category of collective nouns is left out here, as there were barely any occurrences. For the sake of exposition, locative, temporal, and other nouns are collapsed under 'inanimate nouns' in figure 9.

The results essentially confirm the findings from the news sections of the ARCHER corpus. The great majority of noun modifiers are again, throughout the various time intervals, inanimate. Animal modifiers (e.g. *goat skins, bird-remains*) occur from the earliest period (1650–99) onwards, if at a very low frequency. Human noun modifiers, on the other hand, are only attested in the twentieth century. This might be an artefact of the genre, as scientific texts, unlike news texts, do not tend to refer a lot to human beings. (ARCHER categorizes texts on medicine separately from science.) On the other hand,

[29] In contrast to the N+N sequences in ARCHER news (BrE), the N+N sequences in ARCHER science (BrE) were extracted manually from the texts and not from the tagged version. Note that there are various differences in the extraction and calculation of frequencies which prevent the frequencies between the two corpora from being directly comparable. For example, in the ARCHER science texts a whole N+N complex was counted as one token, while in the tagged dataset of ARCHER news from Biber & Clark (2002), as used in the present study, more complex N+N constructions were split up into units of two nouns. Also, the data drawn from the tagged ARCHER news corpus do not include any hyphenated words, while such N+N sequences were included in ARCHER science. What is important for the purpose of the present study, however, is the distribution of N+N constructions according to animacy. To this end it is sufficient that the selection criteria *within* the two respective datasets were consistently applied.

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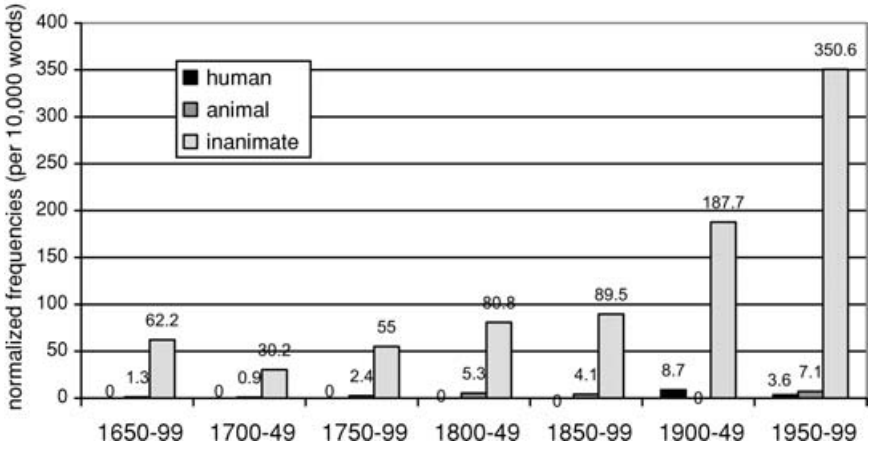


Figure 9. Distribution of noun modifiers in ARCHER science (BrE) according to animacy (normalized frequencies)

the very fact that before the twentieth century no human noun modifiers are attested, while there are some from the twentieth century onwards, shows, I think, that even in this genre there is a potential context for such modifiers. Interestingly, all human noun modifiers attested in ARCHER science are proper nouns; see the examples in (28a–g) below. In this respect, then, the timing coincides precisely with the occurrence of the first human proper-noun modifiers in the news sections. Note, however, that the proper-noun modifiers in (28) represent a special group, to which I will return in section 5.2 below.

(28) (a) the Bernoulli relationship *(*ARCHER 1925BRYN.S8)
(b) the Planck constant *(*ARCHER 1925DYMO.S8)
(c) an automatic Sprengel pump *(*ARCHER 1925CHA2.S8)
(d) a McLeod gauge *(*ARCHER 1925CHA2.S8)
(e) a Joukowsky aerofoil *(*ARCHER 1925BRYN.S8)
(f) the Van Slyke apparatus *(*ARCHER 1925SHRY.S8)
(g) the appropriate Reynolds number *(*ARCHER 1975CRAP.S9)
(h) the Prandtl theory *(*ARCHER 1925BRYN.S8)

All in all, the results of the two corpus studies indicate that noun modifiers have diachronically extended along the animacy scale, only gradually allowing collective and human nouns.[30]

4.3 Synopsis and further discussion

In the following I will summarize the findings from the two preceding sections and directly relate the spread of *s*-genitives reported in section 4.1 to the spread of noun

[30] A reviewer remarked that human noun modifiers may not really have become more frequent if one considers their frequency in proportion to the overall number of noun modifiers in the single time intervals. I agree, but for the purpose of the present study it only matters that human noun modifiers become more frequent in absolute terms, for whatever reason.

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modifiers reported in section 4.2. Where necessary, the data from the sections of the ARCHER corpus analysed will be complemented by further data, e.g. the *Oxford English dictionary* (*OED*), the whole ARCHER corpus (tagged version), data from earlier studies, or other sources such as the web.

The fifteenth to seventeenth centuries

As outlined in the previous section, determiner genitives are basically restricted to human nouns in this period, with only very limited uses of *s*-genitives with collective nouns and with inanimate nouns. In addition, the few occurrences of determiner genitives attested with inanimate nouns are largely confined to locative or personalized uses. In contrast, noun modifiers are still confined to inanimate nouns only. Both kinds of nominal dependent are still quite low in frequency, even in their preferred contexts. That is, at this time there was barely any semantic overlap between genitives and noun modifiers and thus no room yet for variation between them.

The eighteenth to nineteenth centuries

In the eighteenth and nineteenth centuries determiner genitives come to be increasingly used with collective nouns (e.g. *the Company's own servants, the army's manoeuvres*) and inanimate nouns (e.g. *September's rain, the earth's solid crust, the clock's error*). At the same time, noun modifiers now come to be used with collective nouns (e.g. *army reorganization*) and with human (common) nouns (e.g. *coolie immigration*). Such extended uses are however still very low in frequency. That is, we now find the *potential* for variation between the two constructions, but this potential is only rarely taken up yet in usage. The end of this period, more precisely the second half of the nineteenth century, sees however the first remarkable increase in the frequency of noun modifiers (cf. Biber & Clark, 2002; Rosenbach, 2006b).

The twentieth century

In the twentieth century determiner genitives are further extending to inanimate nouns. In particular, the ARCHER (BrE) corpus shows a rapid increase of determiner genitives with locative nouns (e.g. *Rhodesia's war, Warsaw's Victory Square, Iran's problems, Phnom Penh's Pochentong airport*) and also more uses of the *s*-genitive with collective nouns (e.g. *the Bose Board's comment, the CIA's innovations, the Council's code, the FBI's director*). In addition, there is evidence for an ongoing extension of the *s*-genitive with nonhuman (and in particular inanimate) nouns in Present-day English, as apparent from Raab-Fischer (1995) corpus study for all nonhuman noun classes (in particular collective, geographical/locative and temporal nouns) and from Rosenbach's (2002) experimental study for other inanimate nouns such as *the table's drawer* or *the chair's frame*. At the same time, noun modifiers become ever more frequent (cf. Biber & Clark, 2002; Rosenbach, 2006b) and in so doing also come to be used with human proper nouns (e.g. *Bush administration*), i.e. a noun class typically reserved for *s*-genitives in adnominal position.

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It is also in the twentieth century that I could first find evidence for a special type of temporal modifier, i.e. dates, as in (29).[31] Such dates can also easily occur in *s*-genitives, as illustrated by (30).

(29) (a) . . .when the Appeal Court of the Colony, by a majority of Judges, decided that neither **the 1926 Ordinance** nor any other Ordinance in force in the Protectorate had the effect of making it illegal. . .(ARCHER, 1928tim1.n8)
(b) If the adjacent Ashkabad zone and **the 1948 earthquake** are also taken into account (ARCHER, 1975tcha.s9)

(30) (a) Jules sent me a cheque for the remainder of **1999's profits** just after the show this year; I think we may be about to spend it. . . . (www.chiark.greenend.org.uk/pipermail/debian-uk/2001-September.txt)
(b) His latest album, Real Gone, has entered both the American and UK pop charts, and looks set to emulate **the 1999's Mule Variations**, the Grammy award winning . . . (arts.guardian.co.uk/features/story/0,1351022,00.html)

Like their attributive equivalents, such *s*-genitives are not attested in the whole ARCHER corpus before the twentieth century. That is, in this case a new context has become available in prenominal position, being realized either as a temporal modifier or as an *s*-genitive. Note that the *s*-genitives are typically determiner genitives as in (30a), where the date in the genitive occurs in the leftmost position in the NP. However, there are also cases where the date is expressed by a descriptive genitive, as in (30b),[32] as is obvious from the fact that the *s*-genitive construction is preceded by a definite article referring to the head (and not the *s*-genitive), which is a clear indicator of the status of the *s*-genitive construction as a nominal and not an NP. That is, here we find variation between determiner genitives (30a), descriptive genitives (30b), and noun modifiers (29). I will return to similar cases of variable uses of determiner vs attributive genitives in section 5 below.

To sum up so far, we have seen that over time noun modifiers and determiner genitives have increasingly come to be used with the same kind of semantic contexts/noun classes, from almost no overlap in early Modern English to a wide range of compatible semantic contexts in Present-day English, gradually giving way to the Present-day English variation between determiner genitives and noun modifiers as illustrated in the examples in (1) above.

Note, however, that the overall size of the corpus investigated for the noun modifiers is relatively small. Thus the very fact that we do not find any human modifiers in the early

[31] Even when checking the whole ARCHER corpus (the tagged version) for dates as nominal premodifiers, I couldn't find any occurrence earlier than the twentieth century.

[32] David Denison informs me that example (30b) is odd for him. Such examples are certainly far more infrequent than the other premodifying/determining uses of dates in (29) and (30a), but as they occur (if in small numbers) even in 'respectable' sources I assume that they are possible for at least some speakers. Presumably the analogy with other temporally anchoring expressions in attributive position, as in *my yesterday's posting* (see (47b) below), and onomastic genitives like *his Adam's apple*, as well as phonological similarity with *the 1990s*, help to create such unusual uses. Of the three possibilities envisaged by Denison (1998: 95) for '[a]n aberrant usage' – to become successful, not be adopted, or merely represent simple error – it remains to be seen which path such uses will take in the future.

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periods should be treated with some caution. It is quite possible that the corpus simply wasn't big enough to yield such occurrences. To check for this possibility I also looked up various human nouns in the *OED* which today commonly occur as premodifiers, e.g. *woman*, *boy*, *baby*, *farmer*, *lawyer*, *widow*, *slave*, *butcher*, and *fisherman*. There are some early attributive uses attested for some of these nouns; however, mainly in relations which are incompatible with genitives, namely coordinative relations (31a–b) and/or idiomatic uses (31c–d):

(31) (a) **1601** Holland *Pliny* II. 301 The haire of yong *boy-children . . . is held to be a singular remedy for . . . the gout.
(b) **1628** Ford *Lover's Mel.* I. ii, *Pel*. My nurse was a *woman-surgeon. . . *Rhe*. A she-surgeon, which is in effect a meere matter of colours.
(c) **1552** Wriothesley *Chron.* (Camden) II. 80 Betwene euery xx children [of Christ's Hospital] [there was] one *woman keeper. [*woman keeper* = female nurse]
(d) **1628** Shirley *Witty Fair One* II. ii, What make you here, my *woman errant? [*woman errant* = one who goes after women]

In the few cases where an alternative *s*-genitive is possible, this would be a descriptive genitive rather than a determiner genitive; cf. (32).

(32) (a) **1631** Heywood *1st Pt. Fair Maid of West* III. i. 31 In this woman shape Ile cudgell thee.
(b) **1602** Marston *Antonio's Rev.* III. iv, O thou cold *widdowe bed, sometime thrice blest, By the warme pressure of my sleeping lord.
(c) **1612** Chapman *Rev. Bussy d'Ambois* IV. iii, He had bought his bands out With their *slave bloods!

That is, there are certainly occurrences of human noun modifiers before the nineteenth century, but either they cannot be expressed by a corresponding genitive, or if so, this would be an attributive genitive rather than a determiner genitive. The caveat about negative evidence still holds, however. The special status of attributive genitives is further discussed in section 5 below.

Notice also that the procedure followed in this study was to show how the contextual extensions of noun modifiers and *s*-genitives along the animacy scale lead to an increasing semantic overlap between the two and hence to an increasing *potential* for noun modifiers and genitives to vary. This potential increases both with the contextual extension of the two nominal dependents and the general increase of the two constructions, mainly in the twentieth century. However, this study could not demonstrate that the *actual variation* indeed increased over time, at least not in quantitative terms. This would have required a quite different methodological procedure, directly comparing the occurrences of mutually interchangeable N+N constructions and *s*-genitive constructions in the same dataset. That is, in this case we would have had to identify all contexts in which we could use either a noun modifier or a determiner genitive within one dataset (this would constitute the actual potential for variation within a dataset, i.e. the 'choice contexts') and then quantify these constructions relative to each other (which would constitute the actual distribution

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of the two variants). Notice, for example, that definite N+N sequences may vary with a determiner genitive, but indefinite ones cannot (cp. *Bush's administration* vs *the Bush administration*, but not *a Bush administration*). Notice further that there is only a partial overlap in the semantic relations that can be expressed by both a determiner genitive and a noun modifier. So, while e.g. locative, temporal, partitive, and subjective relations can often be expressed by both determiner genitives and noun modifiers, as illustrated by the examples in (33),[33] there are other relations which seem to be exclusively reserved to one construction only (cf. 34).

(33) (a) locative: *London's underground* vs *the London underground*
(b) temporal: *last Sunday's lunch* vs *last Sunday lunch*
(c) partitive: *the church's tower* vs *the church tower*
(d) subjective: *the eye's movement* vs *the eye movement*

(34) (a) kin relations: *the man's mother* vs **the man mother*[34]
(b) legal ownership: *the man's book* vs **the man book*
(c) body parts: *the man's hand* vs *?the man hand*[35]
(d) source: *metal sheet* vs **(the) metal's sheet*
(e) instrument: *gas cooker* vs **(the) gas's cooker*
(f) content: *algebra books* vs **(the) algebra's books*

And see also sections 2.2 and 3 above for discussion of some further factors constraining the use of determiner noun modifiers. It is left to further research to identify the actual range of variation in fuller detail.

5 Gradience between *s*-genitive and noun+noun constructions

The picture presented so far suggests a relatively 'tidy' development, with determiner genitives and noun modifiers gradually coming to overlap with respect to the types of nouns they can occur with, resulting in an increasing potential of the two to vary with each other. Looking more closely, the picture is considerably 'messier', however. There is evidence that constructions with *s*-genitives and N+N constructions are not distinct construction types in the first place but that they constitute a family of

[33] There is no uniform specification of the semantic relations holding between nouns in N+N sequences. The terminology used in (33) follows Biber et al. (1999: 590–1).

[34] In earlier English such kin relations could be expressed in *s*-less genitives, especially in northern dialects or Scots, cp. *my father-breither* 'my father-brother'; *my brother-sonnes* 'my brother-sons', *sistar-sone* 'sister-son', all taken from James Melville's *Autobiography and Diary*.

[35] A reviewer points out that such examples are not ungrammatical, supplying the following example: *Men can even get breast cancer and there are some medical conditions that can cause male breasts to enlarge. Abnormal enlargement of the breasts in a male is known as gynecomastia. Gynecomastia can be caused by using anabolic steroids. So, if your favourite athlete suddenly develops man boobs and starts winning gold medals, you know the reason why.* (http://www.timesonline.co.uk/article/0,,8123-2011252,00.html.) I have therefore marked body parts as only questionable with noun modifiers. Such constructions are certainly interpretable and as such different from the examples in (34c–f). Note, that in general the asterisks used throughout the article often reflect the highly unlikely status of a construction rather than absolute ungrammaticality. In the age of Google, so many allegedly ungrammatical structures have been shown to be grammatical (see e.g. Baayen, 2004 or Bresnan & Nikitina, 2003; Rosenbach, 2006a) that, particularly with interpretable constructions, the use of the asterisk can no longer be taken to indicate absolute impossibility with any safety.

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different constructions with partly overlapping properties. I argue that it is precisely this fuzzy borderline between the two constructions which makes them interchangeable in certain contexts. Building on previous work on the topic (Rosenbach, 2006a), I first present a feature approach to capture the similarities and differences between *s*-genitive constructions and N+N constructions. Decomposing their semantics into several semantic features then makes it possible to identify 'intermediate' *s*-genitive constructions and N+N constructions (so-called BRIDGING CONSTRUCTIONS) which share semantic properties of both construction types and hence may come to alternate with the respective other construction type, as argued in section 5.1. In section 5.2 such bridging constructions are discussed for Present-day English, while in section 5.3 I draw attention to early cases of variation and ambiguity between *s*-genitive constructions and noun+noun constructions in Middle and early Modern English, which already at that time helped to blur the distinction. Finally, I argue that the diachronic semantic shift of noun modifiers and *s*-genitives along the animacy scale has helped to create 'fuzzy' construction types, resulting in ever-increasing gradience between *s*-genitive constructions and N+N constructions over time. I also discuss the implications of this study for approaches to variation and change in section 5.4.

5.1 Ways of capturing the gradience between s*-genitive constructions and N+N constructions: a feature-based approach*

This article complements earlier work on the gradience between constructions with *s*-genitives and N+N constructions (Rosenbach, 2003, 2006a; Koptjevskaja-Tamm & Rosenbach, 2005). I will briefly recapitulate the way 'gradience' is defined in that work. The central idea is that, contrary to the traditional view laid out in the grammars, the functions of determination and classification are not 'primitives' but in fact decomposable into an interplay of various semantic features, which then map to prototypical nominal dependents and construction types, as illustrated in table 3 below.[36] The key features involved are (a) the restrictiveness of the dependent, (b) the referentiality of the dependent, and (c) the animacy of the dependent. Prototypical determination is characterized by the semantic features of [+restrictive], [+referential], and [+animate], while prototypical classification decomposes into the features of [+restrictive], [−referential], and [−animate]. These functions (or, strictly speaking, these feature clusters) typically map to the respective nominal dependents, as illustrated in table 3 below:

- DETERMINATION ('token restriction') → determiner genitives
- CLASSIFICATION ('type restriction') → noun modifiers

[36] See also Taylor (1996) for the proposal of gradience between *s*-genitive constructions and N+N constructions in terms of syntactic prototypicality within a Cognitive Grammar approach. What distinguishes the present approach from Taylor's is (a) a gradience approach in terms of a feature analysis, (b) the inclusion of a historical perspective, and (c) the inclusion of corpus data. In principle, however, the two approaches are quite compatible with each other, as argued below.

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Table 3. s-*genitives vs noun modifiers – feature analysis (cf. also table 4 in Rosenbach, 2006a: 101)*

	s-genitives		
	determiner genitives (*John's book*)	descriptive genitives (*women's magazine*)	noun modifiers (*hotel lobby*)
restrictiveness (i.e. anchoring function) of dependent	+	+	+
animacy of dependent	+	+	–
referentiality of dependent	+	–	–
	token restriction (determination)	type restriction (classification)	

Under this view nominal dependents having determiner function and those having classifying function share the property of restricting the head noun, but they differ in the locus of this restriction. While nominal dependents with determiner function restrict the reference of the NP and help to identify the referent of the NP (answering the question 'whose X?'), nominal dependents with classifier function restrict the denotational scope of the head noun by identifying which subclass the head noun belongs to (answering the question 'what type of?'). That is, determiners identify instances or tokens (hence the term 'token restriction') as in *John's book*, where *John* identifies whose book it is, while classifiers identify types (hence the term 'type restriction'), as in *hotel lobby*, where *hotel* identifies what type of lobby it is (i.e. one that is typical of hotels). This view is fully compatible with Taylor's (1996) analysis of English possessives within a Cognitive Grammar approach, in which possessives are analysed as REFERENCE POINT CONSTRUCTIONS (building upon Langacker, 1991). Taylor uses the terms INSTANCE SPECIFICATION and TYPE SPECIFICATION, respectively, to characterize the functions of nominal dependents. What then further distinguishes the two functions are the two factors of animacy and referentiality of the nominal dependent. In order to be a good referential anchor (or 'reference point', in Taylor's terminology), it is necessary that the anchor itself is highly accessible and individuated. i.e. that it is animate and referential (cf. also Taylor, 1996, who uses the term 'topicworthiness'). That is, it is much easier to identify whose book it is if we know who 'John' is than otherwise. This is not the case with type identification (classification), however, as this operates on the type plane and hence does not require an individuated anchor (cf. also Chappell & McGregor, 1989: 30 for crosslinguistic evidence that classifiers are preferably inanimate).[37] As shown in sections 2.1 and 4.1 above, there is ample empirical evidence that determiner *s*-genitives

[37] Chappell & McGregor (1989: 30ff.) focus on the relation between classification and inalienability, and their observation primarily holds for part–whole classification. They say: 'Indeed, when it comes to inanimates, and lesser animates, the fact that these are treated as non-individuated (or less individuated than human beings) in many circumstances means that they are good candidates for classifiers of their parts' (30).

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occur preferably with animate and topical (or definite) possessors; and the corpus study in section 4.2 shows that classifying noun modifiers are most frequently found with inanimate nouns. Taylor's framework then supplies a possible (and plausible) cognitive motivation for why the features map to the constructions in the way they do.[38] Note that under the present view determiner function is first and foremost defined in semantic–pragmatic terms rather than syntactically (see Koptjevskaja-Tamm & Rosenbach, 2005: §1 for further discussion on the notions of 'determiner' and 'determination').

The feature analysis in table 3 captures both the similarities and differences between the two functions, thus allowing for a gradience perspective: 'nonprototypical' constructions are characterized by having a nominal dependent that deviates from its typical feature assembly, thus showing a (partial) merger of features with the respective other type of dependent. Two cases are possible here. First, there may be gradience on the structural (or constructional) level. This is the case with descriptive genitives (as in *women's magazine*). They constitute a formally and semantically 'mixed' construction type. They have the formal genitive marking, yet behave morphosyntactically like noun modifiers (see also the in-depth study by Rosenbach, 2006a for details). Semantically, they are nonreferential and have classifying function.[39] However, they are 'unusual' classifiers (according to the feature analysis in table 3 above) in that they are preferably human (see also footnote 3 above), thus resembling determiner genitives. That is, formally as well as semantically, descriptive genitives combine properties of both determiner genitives and noun modifiers and as such are in between determiner genitives and noun modifiers, as indicated by their medial position in table 3. They are therefore regarded as a BRIDGING CONSTRUCTION between determiner genitives and noun modifiers, as argued in Rosenbach (2006a). Second, another type of bridging construction arises through the use of determiner genitives and noun modifiers with 'untypical' semantic features. In this case, there is no gradience on the structural level (the dependents will retain their status as 'determiner genitive' or 'noun modifier' and their typical morphosyntactic properties), but gradience simply shows in the unusual mapping of semantic features to construction type. In either case, variation becomes possible because the alternating constructions show a partial merger of semantic features. Note at this point that the binary feature specification [± animate] and [± referential] is a simplification for the sake of exposition, as the features of animacy and referentiality themselves show gradient values (see Rosenbach, 2006a: 105–7). The more features (or feature values) the constructions come to share, the more likely they can alternate with each other, though note that the overlap is never complete but only partial. In this sense, then, the constructions are not *completely* synonymous, though sufficiently so

[38] See also, from different theoretical perspectives, Löbner (1985), Barker (1995), Haspelmath (1999), Rosenbach & Vezzosi (2000); Koptjevskaja-Tamm (2001) for the idea that *s*-genitives are referential anchors, though in these approaches only token restriction is considered to be 'anchoring'.

[39] Note, however, that it has been argued by Taylor (1996: 309) that the *s*-genitive may retain some referentiality in such expressions; see also Rosenbach (2006a: 106–7) for discussion. As argued below, the [±] specifications of the features in table 3 are simplifications.

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for the constructions to enter into a variation relation (see also the discussion in section 3 above.) This will be looked at in more detail in the following sections.

5.2 Bridging constructions in Present-day English

There are various bridging constructions between *s*-genitive constructions and N+N constructions, some of which we have identified already in our earlier work on the topic. While in this previous work we have primarily focused on the contribution of the factor of referentiality in the gradience between *s*-genitive and N+N constructions (see particularly Koptjevskaja-Tamm & Rosenbach, 2005 and Rosenbach, 2006a for discussion), the present article focuses on the factor of animacy. In particular, I argue that any deviations in the way that animacy maps to *s*-genitives or to noun modifiers, respectively, lead to 'nonprototypical' nominal dependents. Most importantly, these are inanimate determiner genitives and human noun modifiers. Note that the 'nonprototypical' status of such constructions follows from the prototypical semantic–pragmatic or cognitive function of the dependents. As argued above, there are good functional reasons why determiner genitives are typically human while noun modifiers are typically inanimate, and this functional (and cognitive) motivation shows in turn in the frequency of these dependents. As shown in section 4 above, determiner genitives are far less frequent with inanimate nouns than with human nouns, while noun modifiers are far less frequent with human nouns than with inanimate ones. In addition, there is one empirical study directly comparing the relative frequency of classifying *s*-genitives and noun modifiers according to animacy, viz. Rosenbach (forthcoming), showing on the basis of web data that animate dependents as in *lawyer's fees* clearly favour the *s*-genitive rather than a noun modifier (*lawyer fees*), while with inanimate nouns (e.g. *museum shop vs museum's shop*) the noun modifier (*museum shop*) is preferred to a corresponding *s*-genitive (*museum's shop*); see also below for further discussion of this study. All this supports the view that inanimate determiner genitives and human noun modifiers are nonprototypical and dispreferred types of nominal dependent. In the following I argue that such nonprototypical dependents semantically 'waver' between the expression of determination ('token restriction') and classification ('type restriction'), as they share semantic features typical of both. This, in turn, shows in the fact that they may enter into variation with the corresponding other nominal dependent, as illustrated in figure 10 below (the prototypical uses are shaded).

Thus, the newly emerging and nonprototypical N+N construction, as in (*the) Major plan*, comes to vary with the prototypical determiner genitive *Major's plan*, and the newly emerging and nonprototypical *s*-genitive, as in *the chair's leg*, comes to vary with the prototypical N+N construction *the chair leg.*

Human noun modifiers

As argued in section 2.2 above, human noun modifiers as in *Major plan* not only identify whose plan it is but also what type of plan (i.e. one typically made by Major), which shows that the two functions of determination (token restriction) and classification (type restriction) are not opposites but may be compatible (or converge) in certain contexts. It

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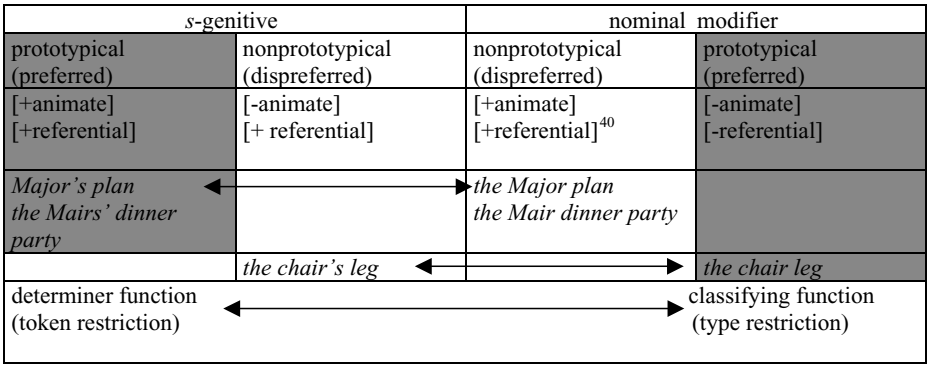


Figure 10. Prototypicality of nominal dependents and potential for variation

is precisely their high degree of animacy and referentiality (or their 'topicworthiness') which contributes to the identifying (determining) force of such human noun modifiers, as this turns them into good referential anchors (or 'reference points', in the sense of Taylor, 1996). In particular proper noun modifiers combine high animacy (humanness) with a high degree of definiteness/referentiality, which are both features typically conveyed by a determiner genitive; in fact this is *the* semantic context *par excellence* for the occurrence of a determiner genitive.

The examples (28a–g) from ARCHER science in section 4.2, repeated here as (35), constitute a somewhat different case of human noun modifier than the one discussed above.

(35) (a) the Bernoulli relationship (ARCHER 1925BRYN.S8)
(b) the Planck constant (ARCHER 1925DYMO.S8)
(c) an automatic Sprengel pump (ARCHER 1925CHA2.S8)
(d) a McLeod gauge (ARCHER 1925CHA2.S8)
(e) a Joukowsky aerofoil (ARCHER 1925BRYN.S8)
(f) the Van Slyke apparatus (ARCHER 1925SHRY.S8)
(g) the appropriate Reynolds number (ARCHER 1975CRAP.S9)

In these cases the N+N construction is a NAME for a mathematical constant (35a) or a certain relationship (35b), all named after a certain person. Most of these modifiers have counterparts in *s*-genitives. When searching for the expressions on Google we can also find *Bernoulli's relationship*, *Planck's constant*, *Sprengel's pump*, or *Van Slyke's apparatus*. This shows that such names are prone to vary between N+N constructions and *s*-genitive constructions. But variation with what kind of *s*-genitive? Examples (36a) and (36b) below from the web are clear cases of determiner genitives, morphosyntactically. Semantically, however, the two constructions differ in the degree to which the genitive referent is individuated. In (36a) the full name *Max Planck* is

[40] It is assumed that the nominal dependent in such constructions is less referential (or less referentially accessible) than the nominal dependent in a corresponding genitive construction. See Koptjevskaja-Tamm & Rosenbach (2005) for discussion and evidence.

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used and further premodified by the expression *the famous scientist*, while in (36b) the simple reference to the last name only (*Planck*) indicates that the person Planck is less emphasized here and that the naming function of the genitive prevails (actually, it is explicitly stressed in (36b) by the preceding 'known as'). It is then precisely such contexts, which focus on the naming function of the whole expression rather than stressing the possessor as the originator of whatever is expressed by the head noun, that may easily be expressed by a corresponding noun modifier, as in (35b) above, or an attributive genitive, as in (36c–d) below, as is evident from the fact that the definite article precedes the expression in (36c) and that the adjective *different* in (36d) clearly refers to the head noun *constant* and not to the possessor *Planck*. (Note that such personal-noun *s*-genitives with a naming function are also called ONOMASTIC GENITIVES and are discussed in some detail in Taylor, 1996: 295–7, and by Koptjevskaja-Tamm & Rosenbach, 2005.)

(36) (a) Max Planck on Quantum Physics: Wave Structure of Matter (WSM) explains **The Famous Scientist Max Planck's Constant** and Quantum energy states of Light and . . . (www.netactics.co.uk/max_planck_scientist.html)
(b) This constant came to be known as **Planck's constant**, or h, and it has the value . . . (www.colorado.edu/physics/2000/quantumzone/photoelectric2.html)
(c) For example, the simple harmonic oscillator has energy levels with a constant spacing proportional to a fundamental constant known as **the Planck's constant**. . . (www.chem.cornell.edu/gse1/multidqc.html -)
(d) We show that the tensor-product of two quantum Hamilton algebras, each characterized by a **different Planck's constant** is an algebra of the same type . . . (xxx.arxiv.cornell.edu/abs/quant-ph/0301044 - 4k -)

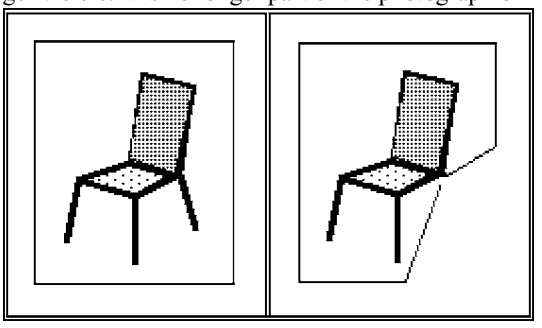
That is, such names can be expressed by either (a) a determiner genitive, (b) an attributive genitive, or (c) a noun modifier. This indicates that, despite their morphosyntactic differences, they are semantically equivalent (if not necessarily pragmatically so in every respect). Note also that the *s*-less form, the noun modifier, is presumably the end-result of a lexicalization process similar to the cases of *butcher knife* or *lawyer fees* discussed below, with *s*-less variants simply representing the most univerbated stage.

Inanimate determiner genitives

In contrast, inanimate determiner genitives (as in *the chair's leg*) are less salient and thus less referentially accessible than human nouns and as such are not particularly good candidates to identify the referent of the NP. In other words, they constitute 'bad' referential anchors. Still, if the inanimate dependent is specific, a determiner genitive can be felicitously used in Present-day English, as in *the chair's leg*. These determiner genitives easily vary with corresponding noun modifiers in contexts where the whole construction is definite and specific. If I'm breaking a specific chair leg then I'm (at least usually) also breaking the leg of a specific chair. In such cases the noun modifier inherits the specificity of the whole construction, which makes the two functions of token and type restriction compatible. Example (37) nicely illustrates this type of variation.

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(37) This can be dramatically demonstrated.
Cut an ordinary photograph snipping a leg off the chair pictured. Then **the chair leg** is no longer visible. It is no longer part of the photographic image.



Now snip off a comparably sized piece from a diffraction image hologram containing the same chair information. When this mutilated hologram is illuminated by the reference beam the whole real space image appears – albeit dimmer and fuzzier. **The chair's leg** is preserved. In fact it can't be removed from the hologram by cutting! That is because any part of the hologram relates to the whole of the real space image. (http://www.physics.ucla.edu/∼chester/CES/october/, emphasis mine)

In this brief passage first the leg of a specific chair (illustrated by a picture) is presented. Besides the picture itself the expression *the chair pictured* very clearly signals a specific reading of *chair*. In the next sentence reference is then made to *the chair leg,* i.e. *chair* now occurs as a noun modifier, i.e. in a position typically associated with a nonspecific (i.e. nonreferential) reading. Yet, the noun modifier *chair* still retains some specificity as also the head noun *leg* is specific and as it refers to a contextually salient entity which has just been introduced in the previous clause and which is the 'topic' of the whole passage. Later on in the description the expression is referred to as *the chair's leg*. That is, *chair* now occurs with a determiner genitive, i.e. a dependent typically associated with a high degree of referentiality. We may thus argue that *the chair's leg* emphasizes (or foregrounds) the fact that we are referring to the leg of a specific chair. The very fact that *chair* can occur either as a noun modifier (*chair leg*) or a determiner genitive (*the chair's leg*) while still expressing essentially the same (propositional) meaning shows how minute the borderline between determiner function (and its expression by a determiner genitive) and classifier function (and its expression by a noun modifier) is with inanimate nouns in such contexts. The presence of the '*s* individuates (and/or foregrounds) the dependent to a higher or lower degree in contexts where the dependent is implicitly referential anyway.[41] Further research is certainly needed to validate this

[41] The formal marking of determiner genitives and noun modifiers might be compared to DIFFERENTIAL OBJECT MARKING (DOM). In DOM those objects are formally marked in which the prototypical association of animacy and definiteness with grammatical function is disturbed, i.e. animate and/or definite objects (cf. Aissen, 2003 and references cited therein). High prominence (i.e. an animate and definite referent) is, on the other hand, precisely what is unmarked for subjects. Likewise, the converse preferences (or markedness values) for determiner genitives and noun modifiers according to animacy (and definiteness/referentiality) may constitute a case of MARKEDNESS REVERSAL in the sense of Battistella (1990) and as formalized in Aissen (2003) too. In

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claim with a more systematic dataset. Note, however, that various native speakers reported to me that they associate the genitive alternative to such noun modifiers with a more specific interpretation of the dependent. Note also that there is some first empirical evidence showing the lower degree of salience/topicality of human noun modifiers vis-à-vis a corresponding *s*-genitive (in pairs such as *the Bush administration* vs *Bush's administration*); cf. Koptjevskaja-Tamm & Rosenbach (2005) and section 2.2 above.

One might ask, of course, whether in the example of *the chair's leg* we are not dealing with a descriptive genitive (*the [chair's leg]*). There is actually nothing in the surface structure which would rule out an interpretation of *chair's leg* as a descriptive genitive like *women's magazine*. However, in a previous study in which I looked at the frequency of such inanimate determiner genitives in collocations such as *hotel's lobby*, *museum's shop*, *church's tower*, or *elevator's doors* in web data (Rosenbach, forthcoming), I could not find a single instance where the dependent would unambiguously have been a descriptive genitive. There were, however, many instances (apart from the simple *the elevator's doors*) which allowed the interpretation of both a determiner and a descriptive genitive, as in (38), where *other* could refer both to the dependent *elevator* and to the head noun *doors*.[42]

(38) . . . and **the other elevator's doors** open and grandpa reached out. . .(from WebCorp search on 'elevator's doors', .us sites, on 27/09/04)

5.3 *Bridging constructions in earlier English, and sources of early variation (and ambiguity) between* s*-genitives and noun modifiers*

I have argued in this article that the variation between determiner genitives and noun modifiers emerges only gradually in recent centuries in English. In this section I will show that there are already various bridging constructions mediating between constructions with determiner genitives and N+N constructions in earlier English. In particular, these bridging constructions account for two sorts of early exceptions to the otherwise neat division of labour between *s*-genitives and noun modifiers with respect to the animacy of the nominal dependent, namely

(a) noun modifiers with human nouns, and
(b) *s*-genitives with inanimate nouns.

These 'outliers' allow for some early cases of variation and ambiguity between *s*-genitives and noun modifiers. In the following I will briefly discuss various sources of such early variation/ambiguity. Note that in this section particular emphasis is laid

contrast to DOM, however, what happens in the present case is that there are not two fixed and categorical grammatical functions (subject vs object) but two semantic functions (determination vs classification) which form a graduated scale rather than a binary distinction, and where values shift with different semantic values.

[42] In this study 10 such collocational pairs were studied on the basis of data drawn from the web via the WebCorp software (http://www.webcorp.org.uk/), which retrieves portions only of the web using familiar search engines (in our case, Google). In addition, the focus in this study was on .uk and .com domains to contrast British and American usage.

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on different types of attributive genitives. As argued in section 5.1 above, descriptive genitives share properties of both determiner genitives and noun modifiers and as such provide an excellent 'bridge' between the two. In addition, I will also discuss two other types of attributive genitives here, viz. lexicalized genitives and attributive genitives with temporal possessors, showing how they mediate between determiner genitives and noun modifiers.

Lexicalization of genitive phrases: inanimate genitives and human noun modifiers
Throughout the history of English we find cases of genitive compounds resulting from the lexicalization of phrases (so-called 'secondary compounds', cf. e.g. Carr, 1939: §IV), as in (39). The lexicalized status of these expressions is apparent from their listing in the *OED* and from their idiomatic meaning, as e.g. in (39b). Once lexicalized, such genitive constructions usually become attributive in nature. So, for example, the possessive pronoun in (39b) and the adjective in (39c) refer to/modify the head noun and not the *s*-genitive.

(39) (a) new yeres eve (17thC, HC, Simon Foreman, 1)
(b) upon his death's -bed (17thC, Shakespeare, *Merry Wives of Windsor*, I.i.47)
(c) Ane pure mecanyk craftis man (*OED*, 1549, Compl. Scot. XVII. 150)

Such lexicalized genitives may be regarded as the output of the conventionalization process from determiner genitives to descriptive genitives outlined by Taylor (1996: 311), as sketched in (40) below (with noun modifiers as the endpoint of this development).

(40) [the driver]'s licence → [a driver]'s licence → a [driver's licence] → a [driver licence]
determiner genitive **descriptive genitive** **noun modifier**
(adapted from Taylor, 1996: 311)

Under this view, lexicalized expressions have an origin in determiner genitives.[43] Examples like (39) thus constitute early cases of genitives with inanimate nouns which are archaic, 'frozen' relics of once productive (determiner) genitive phrases. As observed by Altenberg (1982: 139), 'genitive compounds have a considerably higher proportion of animal and inanimate Mods than ordinary GEN. In fact, every other compound (50%) is either animal or inanimate.'

Note that descriptive genitives in general are prone to being lexicalized (though they do not need to be, cf. footnote 43 above), and if they are, they may also undergo a process of univerbation and be reduced to *s*-less forms, the final stage of (40). So, for example, in Present-day English we find *lawyer's fees* with the same meaning as *lawyer*

[43] Note, however, that the precise origin of Old English 'genitive compounds' is still unclear. According to Kastovsky (1992: 369) there is no evidence that these expressions have a phrasal origin. For example, in the word *domesday* we never find the first noun (in the genitive, here: *domes*) separately modified (as in *se/þæs egesfullican domesdæg*, 'the terrible judgement day') but only the head (*se egesfullica domesdæg*); cf. Kastovsky (1992: 369), referring to Sauer (1985: 275). In Present-day English, descriptive genitives certainly need not derive from determiner genitives via lexicalization but may be coined instantaneously and productively (cf. Rosenbach 2006a: 92–4).

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fees, *butcher's knife* vs *butcher knife*, *baby's nappy* vs *baby nappy*, and so on. Tracing the development of a few collocations in the *OED* indeed suggests that the expression with the *s*-genitive is historically earlier than the *s*-less form; see the examples for *butcher's knife* in (41). The earliest occurrences given by the *OED* are genitives in the eighteenth century (41a–b), while the earliest *s*-less form (*butcher knife*) is only attested more than a hundred years later (41b).

(41) (a) 1714 *Boston News-Let*. 1-8 Mar. 2/2 *Butchers knives.
(b) 1766 H. Brooke *Fool of Qual*. II. 591 Pulling out his butcher's knife from a . . .
(c) 1822 *Massachusetts Spy* 25 Dec. (Th.), Her foot slipt, and she fell upon a large butcher-knife. . .

The same chronology from a descriptive genitive to a noun modifier can be found for other collocations listed in the *OED*, such as *doll's house* or *fool's paradise.* This suggests that some human noun modifiers may have slipped into the language via a process of univerbation or lexicalization of corresponding descriptive genitives.[44]

There is also another type of human modifier in earlier English which results from the lexicalization of a determiner genitive. It typically denotes places or churches (e.g. *Saint Paules Church*, *Seynt Stevens gate*) or certain days (as in 42), thus representing a special type of onomastic genitive. Interestingly, we can find that such *s*-genitives with saints' names vary with *s*-less ones as early as in Middle English (at least): see the examples in (43) (HC = Helsinki Corpus).

(42) (a) saynt Marke day (H. Machyn, *Diary*, 34); saynt Mathuwe day (H. Machyn, *Diary*, 15)
(b) at St. George's day (HC; Edward VI, 353); Seynt Margaretes Day (HC, R. Torkington, 26)

In this respect, these 'personal' modifiers constitute another exception to the generalization that noun modifiers did not yet occur with human (proper) nouns in earlier English. They do, however, form a special type, which, again, results from the diachronic lexicalization/univerbation of a corresponding genitive rather than forming a productive new pattern. See, for example, the development of *St Valentine's day* as given in the *OED* in (43), which precisely mirrors the lexicalization pathway observed for descriptive genitives such as *butcher's knife* discussed above. The ultimate state in this process is the omission of the head, where the previous noun modifier *Valentine* alone comes to stand, metonymically, for the day.

(43) (a) *c.* 1381 Chaucer *Parl Foules* 309. For this was on seynt Volantynys day. . .
(b) 1668 H. More *Div. Dial* III. xiii. (1713) 206 As some. . . embrace the first they meet on Valentine's day.
(c) 1725 Bourne in Brand *Pop. Antiq*. (1777) 225 On the Eve before Valentine-day.
(d) 1714 Gay *Shepherd's Week* IV. 37 Last Valentine, the day when birds of kind Their paramours with mutual chirpings find.

[44] Note, however, that Koziol (1972: 60–1) also mentions cases where the genitive-*s* is *later* added to an expression; further research on such expressions will have to clarify precisely the processes of univerbation (i.e. loss of -*s*) on the one hand and generalization of -*s* on the other.

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Genitives with inanimate nouns in early Modern English: the role of temporal nouns

If not personalizations or idiomatic expressions, the few exceptional cases of determiner genitives in early Modern English mostly occur with temporal nouns and with locative nouns, as shown in section 4.1 above. Here I will have a closer look at temporal possessors. The examples in (44) illustrate various types of *s*-genitives with temporal possessors in late Middle and early Modern English, i.e. a determiner genitive in (44a), a descriptive genitive in (44b), and a measure genitive in (44c).

(44) (a) then I went to supper, and after that to make an end of **this week's notes** in this book,. . . (*The Diary of Samuel Pepys*. On-line text, http://www.gutenberg.org/dirs/4/2/0/4200/4200.txt)
(b) The coold wynterys nyght. (*OED*, ***c.*1430** LYDG. *Min. Poems* (Percy Soc.) 212, entry for *winter*)
(c) an hour's talk (Shakespeare, *The Merry Wives of Windsor*, II.i)

As a determiner genitive, the possessor temporally anchors the referent of the NP (44a), as a descriptive genitive the possessor narrows down the denotational class of the head noun (specifying a type of night, namely one typical of winter in 44b), and in measure genitives (44c) the possessor indicates duration (e.g. a talk lasting an hour). Notice, however, the ambiguity of the descriptive genitive in (44b), which may also be interpreted as a determiner genitive *([The coold wynterys] nyght*), as the adjective *cold* could equally well refer to 'winter' or to 'night', though the *OED* gives this example as an attributive use. Note that in practice it makes little difference whether we conceptualize this as a winter night which is cold, or as a night of a (specific) cold winter, which indeed makes the interpretation for hearers quite arbitrary. Moreover, Huddleston & Pullum (2002: 470) discuss the somewhat wavering morphosyntactic status of the dependent in examples such as *an hour's delay* between determiner and attributive use (see also section 2.1 above). Given their fuzzy categorial status, an in-depth diachronic study looking at the development of measure genitives would be most interesting, but this is beyond the scope of the present article. Instead I take a brief look at the 'wavering' between determiner and attributive use of temporal possessors which indicate specification of time rather than duration. This is particularly well documented in Samuel Pepys' *Diary* (seventeenth century). Pepys quite regularly uses the very same expression either as a determiner genitive or as an attributive genitive, as in the pairs in (45) and (46) below, without any apparent difference in meaning.

(45) (a) My head not very well, and my body out of order **by last night's drinking**, which is my great folly.
(b) To-day not well of **my last night's drinking** yet.
(46) (a) Up among my workmen, my head akeing all day from **last night's debauch**.
(b) My head hath aked all night, and all this morning, with **my last night's debauch**.

This type of variation can also be found in Present-day English, though it may look somewhat surprising at first glance. See the following examples from the web, which illustrate the variable realization of the expression *yesterday('s) posting* as either a

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determiner genitive (47a), an attributive *s*-genitive (47b), or even a noun modifier (47c), again with no apparent difference in meaning.[45]

(47) (a) In **yesterday's posting** I applauded James Farmer's success in getting the multi-user version of the open source WordPress (WordPressMU) weblog engine working … (www.bath.ac.uk/dacs/cdntl/pMachine/morriblog_archives.php?id=A2005014)
(b) Why didn't I get a digest today, and why wasn't **my yesterday's posting** archived? (mailman.ic.ac.uk/pipermail/ xml-dev/2000-January/018875.html)
(c) Dear CCLers: I want to apologize for a very silly mistake in the 6-31G set definition in **my yesterday posting**. (ccl.osc.edu/cgi-bin/ccl/message.cgi?1997+12+09+004)

Note, that the attributive *s*-genitives in (45b, 46b, 47b) are not, at least not semantically, a measure *s*-genitive, since *last night* in (45b, 46b) or *yesterday* in (47b) do not indicate duration, as is typical of measure *s*-genitives, but specification of time. Neither do they have classifying function, as descriptive *s*-genitives do: *my last night's drinking* is not a certain type of drinking but the drinking done last night, and *my yesterday's posting* is not a certain type of posting but a posting made yesterday. In fact, Brinton (2002) analyses *yesterday* as a temporal adverb that becomes used as an adjective, on a par with other temporal adverbs such as *late*, *soon*, or *then*. An adjectival analysis would be in line with the behaviour of measure genitives in Swedish, which Koptjevskaja-Tamm (2003: §2.3) has shown to exhibit adjectival properties (besides properties of determiner genitives, too). In Pepys' *Diary* I found 43 uses of *yesterday* as a determiner genitive (as in *yesterday's hurt*), and 9 attributive uses (as in *my yesterday's journall*). The use as an *s*-less variant as in (47c) is first attested in the late seventeenth century in the *OED* (cf. also Brinton, 2002: 83). It is difficult to deduce any chronology in the use of temporal possessors with these different types of dependents from these few examples and from one author only, and this must be left to further research, but it is clear that ever since the seventeenth century at least, temporal possessors such as *(last) night* and *yesterday* have been able to be used interchangeably as determiner genitives, attributive genitives or noun modifiers, with no apparent difference in meaning.

5.4 Synopsis: how constructional gradience gives rise to variation and vice versa

I turn finally to the question of what precisely the role of constructional gradience is in the semantic shift of *s*-genitives and noun modifiers along the animacy scale. We have seen that variation arises primarily at the 'fringes', namely with nonprototypical noun modifiers and *s*-genitives, that is, primarily with human noun modifiers and with inanimate determiner genitives. I have argued that at these 'fringes' the borderline between the semantic functions of determination and classification

[45] Notice the unusual status of *yesterday* as an adverbial possessor/noun modifier. This raises the question of why it can occur in positions usually reserved for nominal expressions at all, as e.g. in *s*-genitives (*yesterday's posting*) or as the subject of clauses (*Yesterday was a bright day*).

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becomes blurred. Therefore, once determiner genitives come to be used with inanimate nouns (via temporal and locative nouns) and noun modifiers with human nouns (via collective nouns), this increasingly undermines the division of labour between determiner genitives as prototypically expressing determination and noun modifiers as prototypically expressing classification. Semantically, *s*-genitive and N+N constructions come to be used in contexts compatible with both determination and classification, and variation becomes possible. To the extent that *s*-genitives and noun modifiers become more frequent in these contexts, variation becomes more likely. In turn, the very fact that in Present-day English many contexts can now be expressed either by a determiner genitive or a noun modifier in contexts semantically compatible with both determination and classification further helps to blur the distinction between the two construction types, adding further to constructional gradience between *s*-genitive and N+N constructions. That is, under this view, the relation between constructional gradience and variation is reciprocal: constructional gradience gives rise to variation, and variation, in turn, contributes further to constructional gradience.

This development towards variation between determiner genitives and noun modifiers gets mediated by the existence of attributive *s*-genitives, which already occur with inanimate nouns in earlier English (e.g. either in the form of lexicalized genitive compounds, e.g. *new year's eve,* or with temporal possessors). Likewise, there were already cases of human noun modifiers in earlier English (e.g. *saynt Marke day, seynt Volantynys day*), typically resulting from the lexicalization of a corresponding genitive construction. Such attributive *s*-genitives could already vary with noun modifiers at a time when there was as yet no systematic variation between determiner genitives and noun modifiers. In addition, the presence of *s*-less genitives (e.g. *the man name*) helped to blur the distinction between determiner genitives and noun modifiers in the Middle and early Modern English periods: superficially they look like noun modifiers, but semantically and structurally they are otherwise like determiner genitives. Constructionally, thus, attributive *s*-genitives and *s*-less genitives share properties of both determiner genitive and N+N constructions, and therefore form another 'bridge' between the two construction types. The very existence of such bridging constructions, as well as their variation with the respective other construction type at the time, is likely to have helped to pave the way towards variation between determiner genitive and N+N constructions. That is, rather than opening up a completely new case of grammatical variation in the history of English, the variation between determiner genitives and noun modifiers simply continues a kind of variation which was already there – not variation among the *same* construction types, but among construction types that overtly looked pretty much the same and had a lot in common with the two constructions that newly come to enter into a relation of variation. In this respect, then, this case of constructional variation differs from typical cases of grammatical variation. Usually there is either a tendency for one variant to 'win' over the other, becoming the sole form/construction, or, if the two variants do persist over time, they tend to become functionally differentiated (cf. e.g. Kroch, 1994). However, what is happening in our case of grammatical variation is neither one nor the other

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option. In fact, something else is happening, with the two constructions starting out relatively well functionally differentiated according to animacy, and eventually starting to step into each other's functional domain. There certainly remain large areas where only one of the two constructions can be used, no doubt about this, but the shift *towards* increasing overlap rather than *away from* it is a noteworthy departure from the usual diachronic development of grammatical variants. I believe that this is due to the special status of the two constructional variants involved: unlike typical cases of grammatical variation, such as active–passive or dative alternation (prepositional vs double object dative construction), in the present case the two variants are constructionally very similar: they both involve the juxtaposition of two nouns and they share the same order of elements, just differing, overtly at least, in the absence or presence of the possessive '*s*.[46] Being so similar on the surface, it is relatively easy for the two constructions to invade each other's territory, especially in certain favourable contexts, whereas in other cases of grammatical variation the two variants are often structurally very distinct from each other (at least differing in word order, for example).

Note finally that there might also be independent evidence for the diachronic convergence of *s*-genitives and noun modifiers from the stress behaviour of the latter. In Present-day English some N+N constructions deviate from the typical (i.e. leftward) stress of compounds. As recently shown by Plag (2006; see also Plag et al., 2006), such 'exceptions' often belong to certain semantic classes, e.g. where the first noun is a geographical or temporal noun (e.g. *Boston márathon*, *morning páper*) or a proper name (e.g. *Bush administrátion*). Historically in Old and Middle English, N+N sequences all consistently had compound stress (Minkova, 2006, and personal communication). So, at some point a shift towards phrasal stress must have occurred. Personal-noun modifiers are a relatively recent innovation in English, as shown in this study, so these can be easily accounted for. It might not be a coincidence that it is precisely those noun classes which can also be easily expressed by a corresponding determiner genitive (*Bush's administration*, *Boston's marathon, this morning's paper*) that show phrasal stress, i.e. a stress pattern also typical of determiner genitives. It may therefore be speculated that the diachronic semantic convergence of determiner genitives with noun modifiers is somehow connected to the shift of some N+N sequences to phrasal (rightward) stress, though further research is certainly needed to substantiate such a hypothesis.

6 Conclusion

In this article I have tried to show that there is variation between determiner genitives and noun modifiers in Present-day English, which emerged only in the course of (mainly)

[46] Note that the sometimes arbitrary use of the apostrophe in English may blur even this formal distinction between the two construction types; see e.g. expressions such as *lawyers fees*, where it is not clear whether we are dealing with a plural noun modifier or with a plural *s*-genitive (but omitted apostrophe). As shown by Rosenbach (forthcoming) expressions like *lawyers fees* behave semantically like *s*-genitives in occurring more frequently with animate nouns than with inanimate nouns, which speaks for their analysis as 'sloppy' plural *s*-genitives rather than genuine plural attributives. Still, such expressions give rise to further fuzziness between the constructions. See also Rosenbach (2006a: 90) and (forthcoming) for discussion.

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Modern English, due to the fact that noun modifiers climbed *up* the animacy scale, while *s*-genitives descended *down* the animacy scale. These semantic extensions have led to semantically hybrid constructions sharing elements of both determination and classification, which is precisely what makes variation possible. In fact, constructions with *s*-genitives and N+N constructions constitute a family of constructions which may overlap to a greater or lesser extent with each other. This overlap has increased in English over time, though the seeds were already there in earlier English. I interpret the emergence of such semantic hybrids and the resulting variation as further evidence for my claim (in Rosenbach, 2006a) that there is gradience in syntax which may be based on semantic overlap rather than principally on morphosyntactic properties (cf. the stance taken in the work by Denison, 2001 and Aarts, 2004).

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