

Genitives and Determiners¹

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Certain languages have two distinct types of genitives:

(1)	synthetic genitives	analytic genitives
English ²	Saxon genitives	<i>of</i> -genitives
Modern Hebrew	Construct State associates	<i>Sel</i> -genitives
Romanian	<i>al</i> -less genitives	<i>al</i> -genitives

The main goal of the paper is to provide an analysis of synthetic genitives of category *Nmax*³. In the three languages examined here, such genitives impose strict constraints on the determiner of the head noun:

- (2) Synthetic genitives of category *Nmax* force the determiner of the head noun to be either (i) empty (English, Hebrew) or (ii) filled with a suffixal definite article (Romanian).

I will show that the unifying crosslinguistic syntactic characteristic of synthetic genitives⁴ (in languages with alternating genitives) is that they occupy a *Spec,Nmax* position (Section 1). In Section 2, I will propose that constituents sitting in (*Spec, Nmax*) are to be interpreted via the rule of semantic composition formulated in (3):

- (3) A genitive specifier (i.e., a genitive that sits in (*Spec,Nmax*)) is interpreted as the argument of a function from individuals to individuals (type (e,e)), which yields the individual denoted by the overall possessive *Nmax*.⁵

The remaining part of Section 2 will attempt to demonstrate that the constraints on determiners are due to an incompatibility between the rule in (3) and the semantic type of canonical Determiners. Section 3 contains a brief discussion of two semantic phenomena that appear to be better understood within the proposed analysis of synthetic genitives:

¹The central idea of my views on genitives was first published in Dobrovie-Sorin (2000a,b), where a detailed presentation of the Romanian and Hebrew data can be found. Dobrovie-Sorin (2002) enlarges the empirical basis by taking into account new Hebrew data brought up by Engelhardt (1999, 2000) and Danon (2001). Here, I will mainly concentrate on the semantic analysis and its consequences.

²As used here, the label 'Saxon genitives' refers to *prenominal* DPs of the form *DP*'s; the label '*of*-genitives' covers sequences of the form *of+DP_{Accus}* and *of + DP*'s (*a friend of John*, *a house of John*'s). Because I do not assume that morphological form is transparent with respect to syntactic structure, the analysis proposed below for prenominal Saxon genitives does not extend to Saxon genitives occupying other syntactic positions (e.g., the predicate position or Saxon genitives governed by *of*).

³In English and Hebrew, but not in Romanian, synthetic genitives can also be non-maximal (see the "modification" genitives (e.g., *an old man's hat*) analyzed, among others, by Quirk et al. (1985), **Woisetschlaeger** (1983), Munn (1998)). The Romanian counterparts of *synthetic* modificational genitives are PPs introduced by the preposition *de*. For further discussion of synthetic modificational genitives, see Dobrovie-Sorin (20002), who argues in particular that bare-noun associates of Hebrew Construct State Nominals are to be analyzed as modificational genitives.

⁴In this paper, the label "synthetic genitive" will be used as an abbreviation for "synthetic genitive of category *Nmax*".

⁵When the genitive DP is essentially quantificational (e.g., *every man's mother*), we need to assume Quantifier Raising (Barker (1995), Vikner and Jensen (2002))

the "(in)definiteness spread" phenomenon and the "free" or contextual interpretations of genitives.

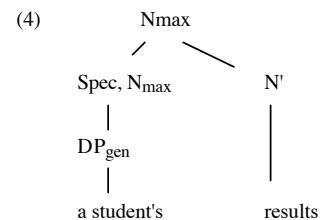
1. Synthetic Genitives occupy Spec, Nmax

In Dobrovie-Sorin (2000a,b, 2002) I showed, for each of the three languages under consideration here, that the current syntactic analyses of synthetic genitives were problematic on both syntactic and semantic grounds. I argued that an adequate analysis could be provided only by giving up the hypothesis, largely assumed among GB theorists, according to which maximal nominal projections are necessarily DPs, i.e., projections of a functional head labelled Det(erminer), which roughly corresponds to articles and other functional nominal heads. Below, I will directly introduce my own syntactic analysis.

1.1. English Saxon Genitives

Beyond their differences, Abney's (1986) and (1987) analyses of English Saxon genitives were problematic insofar as they postulated the existence of idiosyncratic determiners, 's and null AGR, respectively.

Since no Determiner is overtly realized, and since the Bare Phrase Structure theory (Chomsky (1994, 1995)) imposes no X'-theoretical constraint on constituent structure, the simplified structure given in (4) is the less stipulative possible analysis, based on the "null" hypothesis that no Determiner is projected. Since the DP-layer is lacking, the highest projection is a maximal projection of N, hence the label *Nmax*. I take 's to be a Case-morpheme, as in Abney (1987):



1.2. Hebrew Construct State Nominals

The label "construct state nominal" (CSN) refers to the phonological reduction that characterizes the head N: *bayit* > *beyt* (*ha iS*) 'house (the man), the man's house'.⁶ Correlatively, the sequence formed by the head N and its "associate" (corresponding to a genitive DP) has the properties of a phonological word (Borer (1988)).⁷ Besides their phonological properties, Hebrew CSNs differ from Saxon-genitive constructions in the following respects:

- (5) a. The linear order between the head N and the genitive is reversed.
 b. The CS-associate carries no genitive-marking, whereas Saxon genitives are marked by 's.

⁶Adjectives, as well as numerals, may appear as constructs, but we are interested here only in nominal CS's.

⁷Borer (1996) argues in favor of the stronger claim that construct state nominals are *syntactic* words.

c. The CS-associate is strictly adjacent to the head N.⁸

Beyond these important differences, Hebrew CSNs resemble Saxon genitives insofar as they show a clear complementary distribution with overt Det's:

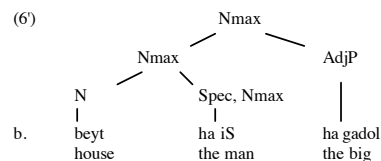
- (6) a. *ha-beyt ha-iS
the-house the-man
b. beyt ha-iS ha-gadol
house the-man the-big
'the man's big house'

Whenever an overt Det is projected, an analytic genitive built with the preposition *Sel* must be used:

- (6) c. ha-bayit **Sel** ha-iS
the-house **Sel** the-man
'the house of the man'

I will leave aside here Hebrew CSNs built with indefinite associates, which raise particular problems (see Dobrovie-Sorin (2002)).

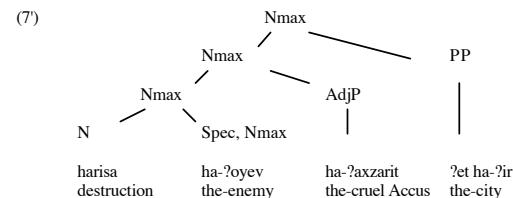
Following Ritter (1988), it is currently assumed that CSNs rely on N-to-D raising (see Fassi-Fehri (1989), Siloni (1994, 1997) and Borer (1996) for Semitic languages, and Rouveret (1994) for Welsh). Relying on this quasi-unanimous hypothesis, Longobardi (1996) takes the rule of N-to-D to constitute the defining characteristic of CSNs, a type of construction that covers, according to Longobardi, not only Semitic CSNs, but also Saxon genitives and Romanian synthetic genitives. Although I am myself convinced that the three constructions belong to the same abstract type, I will avoid the label "Construct State", because I do not think that the Semitic construction is closer to the abstract type. I will instead use the label "genitive specifiers", which is indicative of the analysis proposed here. Besides the terminology, I will diverge from Longobardi in giving up N-to-D (but note that although my analysis does not require N-to-D, it allows for it). For a detailed discussion of the various existing analyses of CSNs, the reader is referred to Dobrovie-Sorin (2002). My main claim is compatible with any of the constituent-structures proposed in the literature, but in order to avoid assuming unnecessary ingredients, I proposed Bare Phrase structure configurations of the type shown in (6') and (7'), for object-referring and event-nominals, respectively:



⁸In those contexts in which the adjacency constraint is violated, analytic genitives are used instead of synthetic genitives:

- (i) *beyt ha-gadol ha-iS
house the-big the-man
(ii) ha-bayit ha-gadol **Sel** ha-iS
'the house the-big of the-man'

- (7) harisa ha-?oyev ha-?axzarit ?et ha-?ir
destruction the-enemy the-cruel Accus the-city
'the enemy's cruel destruction of the city'



In allowing for structures of the type in (6') and (7'), I go against Kayne (1994) and follow Giorgi and Longobardi (1991) in assuming that Spec constituents can appear on the right-hand side of the head.⁹

The similarity between the configuration in (6')-(7') and Saxon genitives is clear: the CS-associate occupies the Spec,Nmax position, and correlatively, the DP-level is not projected.

This is not to say that genitive-embedding constituents rely on exactly the same syntactic configuration in English and Hebrew. One striking difference is the position of the Theme-argument in event-nominalizations: it occupies the object position in English ([I_{Spec,Nmax} the enemy's] [_Ncruel [_Ndestruction [of the city]])], but an adjunction position¹⁰ in Hebrew.¹¹ Other differences can be observed regarding the linking rules that select, from among the arguments of the head N, the argument that is merged in Spec,Nmax: in Hebrew non-event nominals, the DP in Spec,Nmax must be selected by the head N (it can be either the internal argument (Theme) in picture-nouns or the whole in a part-whole relation, or an inherent possessor). Note indeed the different linking of arguments between Hebrew examples of the type *tmunat ha-xamaniyot Sel Van Gogh* 'picture the-sunflowers of Van Gogh' and their English counterparts (*Van Gogh's painting of the sunflowers*). These differences do not bear on the syntax and semantics of genitive specifiers, which I will argue to be essentially the same in Hebrew and English.

1.3. Romanian genitives

Romanian resembles English and Hebrew insofar as it displays a remarkable alternation between synthetic genitives (marked with morphological genitive Case, which in Romanian is formally identical to the Dative) and analytic genitives, made up of a genitive-marked DP preceded by an inflected element *al/ai/ale* (decomposable in an invariable part, *a-*, followed by the definite determiner) that agrees with the head N^o.

⁹The right-merge of Spec might be dependent on the absence of a complement of N^o. The idea that in certain languages nouns do not project the N' level was put forward by Ghomeishi (1997) in her analysis of the *exafe* Persian construction. The same generalization is strongly suggested for Romanian, by the fact that two genitives (regardless of whether they are synthetic or analytic) cannot attach to the same noun.

¹⁰ I also take Adjectives to adjoin to Nmax, with Adjectives being adjoined closer to the head than PPs.

¹¹ Unlike previous accounts of Hebrew CSNs, I do not assume that the Theme arguments of event-nominals are necessarily first-merged in a complement position; they can instead be directly generated in a Case-position. This is in line with Boskovic and Takahashi (1998), Hornstein (1999) and Manzini and Roussou (2000), who abandon the D-structure level of representation (properties pertaining to theta-role assignment are specified in argument-structure).

The constraint on determiners can also be observed in Romanian, although under a slightly different form: synthetic genitives require a definite article on the head N° (see (8)); the presence of any other determiner requires an analytic genitive(see (9)):

(8) *N-def GDet_{gen}*

a. casa vecinului/vecinilor
house-the neighbour-the_{Gen}/neighbours-the_{Gen}
'the neighbour's/the neighbours' house'

b. casa unei vecine/unor vecine
house-the_{fem-Gen} neighbour/some_{fem-Gen} neighbours
'a neighbour's/some neighbours' house'

(9) *Det N al GDet_{gen}*

a. o casă a vecinului/ a unei vecine
a house a neighbour-the_{masc-Gen}/a_{fem-Gen} neighbour
'the neighbour's/a neighbours' house'

b. acest câine al vecinului/ al unei vecine
this dog al neighbour-the_{masc-Gen}/al_{fem-Gen} neighbour
'this dog of the neighbour/of a neighbour'

Note that regarding linear order, Romanian DPs resemble Hebrew DPs: genitives (both synthetic and analytic), as well as Adjectives (not illustrated here), follow the head noun. Moreover, although they do not show any phonological peculiarity, Romanian synthetic genitives show a strict adjacency constraint:¹²

(10) casele de piatră ale vecinului/ ale unei vecine
houses-the in stone ale neighbour-the_{masc-Gen}/ale_{fem-Gen} neighbour
'the houses in stone of the neighbour/of a neighbour'

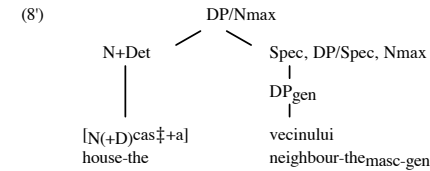
Dobrovie-Sorin (1987), Grosu (1988, 1994) and Cornilescu (1993), among many others, assumed a rule of N-to-D, which was suggested by the suffixal status of the Romanian definite article. Note however that the analysis relying on N-to-D was related to the GB model, which required N's and D's to be generated in distinct positions, even if the Determiner was an affix. Within the minimalist framework, in which words enter the derivation fully inflected, Romanian definite N's can be directly merged (as inflected words) under a single syntactic node (which can be labelled DP or Nmax, depending on whether we take Det or N to project), and N-to-D can be dispensed with:¹³

(11) DP/Nmax
|
N+Det
|
mas_f+a
table+the

Synthetic genitives target the Spec, DP/Spec,Nmax position:

¹² It seems clear that for Romanian at least, the adjacency constraint cannot be due to the phonological properties of the construction. A unitary crosslinguistic account for the adjacency constraint can therefore be based on structural properties alone: linear order, presence or absence of complements of N°, as well as properties of adjectives might be relevant.

¹³ In most minimalist analyses, the rule of N-to-D is nevertheless maintained, for reasons of "feature-checking".



1.4. Conclusions

To sum up, the morphological distinction between synthetic and analytic genitives correlates with a difference regarding their syntactic positions:

(12) In languages with alternating genitives, synthetic genitives sit in Spec,Nmax (whereas analytic genitives are either complements of N or DP-adjuncts (see Section 2.5. below).

In the next section, I will argue that the projection of Determiners is not required, and in fact banned, by the rule of semantic composition characteristic of genitives sitting in Spec,Nmax. This does not mean, however, that a purely formal constraint on constituent-structure could not exist, which might require nominal projections to be necessarily DP's.¹⁴ But the existence of such a (universal or language-particular) constraint must be established on purely syntactic grounds.

2. The semantic composition of genitive specifiers and the constraint on determiners

Assuming the syntactic analysis proposed above to be by and large correct, let us now try to understand the constraint imposed on the determiner of the head noun. What we have to explain can be broken in two parts. The positive generalization is that a nominal projection embedding Spec,N can have the semantic type of arguments (type ((e,t)t) or type e) although it is not governed by a determiner. The answer to this puzzle will be that genitives in Spec, Nmax are semantically analyzed as arguments of a function from individuals to individuals (type (e,e)), which returns the individual denoted by the overall possessive expression. The negative generalization is that Determiners (other than the definite article) are incompatible with the projection of either Spec,NP or Spec,DP. I will argue that this generalization is due to an incompatibility between the rule of semantic composition characteristic of Spec, Nmax and the semantic type of canonical Determiners.

2.1. The relational analysis

Before introducing my own proposal, let me briefly review the current semantic analysis. Beyond slight variations, Barker (1991, 1995), Partee (1983, 1995) and Jensen and Vikner (1994) assume that Saxon genitives introduce a relation, notated p below. Due to the presence of a Saxon genitive, object-denoting nouns such as *bike* do not have their canonical type of denotation (the set of individuals that are bikes), but instead denote the set of pairs of individuals (x,y) such that y is a bike that entertains an underspecified

¹⁴ Nmax projections dominating genitive specifiers, which are incompatible with standard Determiners, could be headed by semantically non-canonical Determiners.

relation p with x (see (15a)).¹⁵ Relational nouns such as *child* need not be type-shifted ((15b) says that *child* denotes the set of (x,y) pairs that are in the child-relation):

- (15) a. $[[\text{bike}]] = \lambda x \lambda y [p(x,y) \wedge \text{bike}(y)]$
 b. $[[\text{child}]] = \lambda x \lambda y [\text{child}(x,y)]$

Possessive expressions of the type *John's bike* or *John's child* are obtained by applying the denotations in (15)a-b to the individual denoted by *John*, notated j :

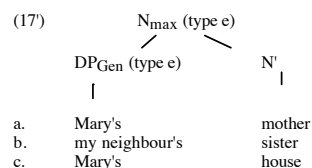
- (16) a. $[[\text{John's bike}]] = \lambda x \lambda y [p(x,y) \wedge \text{bike}(y)](j)$
 $= \lambda y [p(j,y) \wedge \text{bike}(y)]$
 b. $[[\text{John's child}]] = \lambda x \lambda y [\text{child}(x,y)](j)$
 $= \lambda y [\text{child}(j,y)]$

(16)a-b denote sets of individuals (type $\langle e,t \rangle$): the set of individuals that are bikes and entertain an underspecified relation p with John, and the set of individuals that entertain the child-relation with John, respectively. Because these expressions are of type (e,t) , they must combine with determiners in order to yield a generalized-quantifier type of denotation. Since no determiner is overtly realized, the existence of a null element must be postulated. But no empirical evidence is adduced in favor of the existence of a null article, which cannot be found elsewhere in the language. Note furthermore that the relational analysis incorrectly predicts that synthetic genitives are compatible with any kind of determiner. In order to avoid this overgeneration, Partee (1983, 1995) and Barker (1991, 1995) are forced to stipulate a further constraint: the null determiner governing the head noun can only be a definite article (for Partee), or a possessive article (for Barker).

2.2. Genitive Specifiers as arguments of a function from individuals to individuals (type (e,e))

In Section 1 above I proposed that possessives embedding synthetic genitives are to be represented as in (17'), where no Determiner is projected:

- (17) a. Mary's mother
 b. my neighbour's sister
 c. Mary's house



But how can we obtain argument-type denotation in the absence of a determiner? Dobrovie-Sorin's (2000a,b, 2002) answer can be summarized as follows:

¹⁵According to Partee (1983, 1997), the "free relation variable" comes in as part of the meaning of the genitive construction itself, and the head N governing the genitive preserves its canonical denotation. Partee and Borschev (1998) give an empirical argument against this analysis and in favor of the type-shifted denotation of the head N's (see (15)a-b), assumed by Barker (1991,1995) and Jensen and Vikner (1994).

- (18) A genitive specifier (i.e., a genitive that sits in $(\text{Spec}, N_{\text{max}})$) is interpreted as the argument of a function from individuals to individuals (type (e,e)), which yields the individual denoted by the overall possessive N_{max} .

This analysis is straightforward for those possessives that are headed by nouns that are lexically specified as functional (see Frege's (1891) analysis of *the capital of the German empire*, or Keenan's (1974) analysis of *the inside of the bottle*, *the rest of the cake*, etc.). The denotation of the overall N_{max} in (17'a) is calculated by applying the *mother of* function to the individual denoted by *Mary*. We thus obtain, as the denotation of N_{max} , the unique individual associated to the individual x (denoted by *Mary*) by the mother-of function:

- (17'') a. $[[\text{Mary's mother}]] \Rightarrow f(x)$, where f = the mother of and x = *Mary*

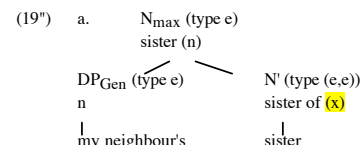
It should be stressed that the functional analysis formulated in (18) is not triggered by the lexical properties of the noun, but rather by the structural properties of those possessives that embed genitive specifiers. As such, the rule in (18) can apply regardless of whether the head noun is lexically specified as functional, relational or object-denoting. In case the head noun is not lexically specified as functional, it is shifted to denote a function from individuals to individuals (type e,e) whenever it occurs in the context of a Saxon genitive. For relational nouns such as *sister*, *friend*, etc., uniqueness is triggered: to one referent of the genitive corresponds a unique referent for the overall possessive (see (19)a). As to object-denoting nouns, the function triggered by genitive specifiers is not named by the head noun, but remains underspecified; the only role of the head noun being to restrict the value of the function (see (19)b):

- (19) a. $[[\text{sister}]] = \lambda x f(x)$, where f = the sister of
 b. $[[\text{house}]] = \lambda x f(x) \wedge \text{house}(f(x))$

Possessives of the type *my neighbour's sister* or *Mary's house* are obtained by applying the denotations in (19)a-b to the individual denoted by *my neighbour* or *Mary*:

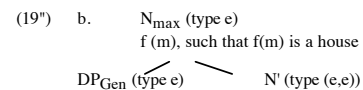
- (19') a. $[[\text{my neighbour's sister}]] = \text{the-sister-of}([[\text{my neighbour}]])$
 b. $[[\text{Mary's house}]] = f([[\text{Mary}]]) \wedge \text{house}(f([[\text{Mary}]]))$

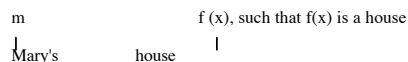
Possessives built with relational nouns (sister, friend, etc.)



According to (19'')a, *my neighbour's sister* denotes the unique individual that is associated to *my neighbour* by the sister-of function.

Possessives built with object-referring nouns





In this type of example, the denotation of the overall possessive is obtained by applying a function variable f to the individual denoted by *Mary*. The head noun, here *house*, restricts the co-domain of the function (constrains the value of the individual returned by the function).

Genitive specifiers governed by plural head nouns can also be analyzed as relying on the rule in (18). In this case, the value of the function is a plural individual (group):

$$(22) \quad [[\text{John's houses}]] \Rightarrow f(x), \text{ where } x = \text{John and houses } (f(x))$$

The overall Nmax denotes the maximal group of houses that is associated to John by the underspecified function f .

\$\$
QP possessors
\$\$

Given that functional application is not subject to any directionality constraint, the rule of semantic composition proposed in (18) applies not only to Saxon genitives, but also to the Hebrew and Romanian synthetic genitives, because they were shown to sit in Spec, Nmax.

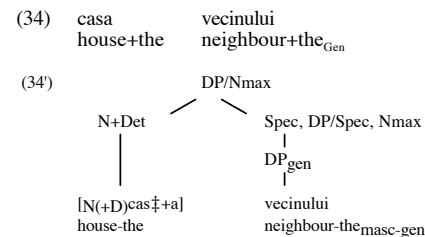
The functional analysis formulated here resembles the relational analysis proposed in Barker (1991, 1995), Partee (1983, 1995) and Jensen and Vikner (1994) insofar as a *structure-dependent* rule of semantic composition is postulated, but differs from it regarding (i) the syntactic configuration that it presupposes and (ii) the content of the postulated semantic rule.

Like Vikner and Jensen (2002), I assume that in the context of a Saxon genitive, the denotation of object-denoting nouns is shifted, but under my analysis the head N is not relational (type $\langle e, \langle e, t \rangle \rangle$) but rather functional (type $\langle e, e \rangle$). By applying this type of function to the individual denoted by the genitive specifier we obtain the individual denoted by the overall possessive. No determiner is needed for the semantic composition, which correlates with the syntactic lack of overt determiners in possessives built with Saxon genitives. Compare the relational analysis, under which a null definite article must be postulated.

Let us now recall that in Romanian, the head noun that governs a genitive specifier necessarily carries the definite article.¹⁶ The Romanian data clearly show that the functional analysis triggered by genitive specifiers is compatible with a definite article on the head N. This compatibility can be understood if we assume that the definite article does not have the semantic type of canonical Det's. We may assume it to be expletive,

¹⁶ In order to cover this case, Longobardi (1996) proposes that synthetic genitives (CSNs in his terminology) are compatible either with null Det's or with suffixal Det's. The Arabic tanwin (an *-n* suffix, which is currently analyzed as an indefinite article; but see Ayoub (1991), who argues that the tanwin is rather a marker of nominal status) offers a counterexample: the head noun of Arabic CSNs cannot be marked with the tanwin, even in those cases in which the genitive itself is indefinite (this limitation is needed in order to exclude a violation of the "(in)definiteness spread" requirement, see section 3.1. below). This prohibition can be easily understood given the proposal made here: whether it is an indefinite article or a "marker of nominal status", the tanwin has a semantic type comparable to that of Determiners (it must apply to a property-denoting expression). This requirement is not satisfied by synthetic genitives (and in particular by the genitives embedded inside CSNs), which denote individuals. In sum, suffixal status may be a necessary, but not a sufficient condition for a Det to be able to co-occur with a synthetic genitive.

i.e., semantically invisible (see Milner (1982) and Vergnaud & Zubizarreta (1992)). Another possibility is to suppose, following Löbner (1985), that the role of the definite article is to indicate that the head noun denotes a function of type $\langle e, e \rangle$.¹⁷ Since the same function is triggered by the presence of a genitive specifier, the definite article is semantically redundant in Romanian definite possessives. But quite interestingly, the *affixal* nature of the Romanian definite article perfectly correlates with the semantic analysis proposed above: the definite article does not take scope over the overall possessive (in which case the overall possessive would have to be interpreted as a canonical definite DP, i.e., as denoting a generalized quantifier, obtained from applying a definite Det to a set-denoting constituent), but instead directly attaches to the head N, thus allowing the genitive DP to sit in Spec, Nmax and to be interpreted as the argument of a function from individuals to individuals:



The Romanian data thus seem to provide direct evidence for the relational analysis, according to which the head N that co-occurs with a genitive expression carries a definite article. Although this analysis seems adequate for Romanian, the existence of a null definite article on the head noun co-occurring with English Saxon genitives is not supported by any empirical evidence. Under the alternative account proposed here, a suffixal definite article and the lack of any article constitute two distinct syntactic options, which are both compatible with the functional analysis of the head noun.

2.3. NP projections containing Spec,NP cannot be governed by canonical Determiners

In what follows I will show that unlike the relational analysis, the hypothesis proposed above can account for the constraint on determiners.

Let us first consider the following examples:

- (23) a. *every/each [_{NP}Mary's sister]
b. *any [_{NP}my friend's students]
- (24) a. *a [_{NP}Mary's sister]
b. *two [_{NP}my friend's students]
- (25) a. *fiecare [_{NP}sora Mariei]
each sister-the Mary_{gen}
b. *orice [_{NP}studentul prietenului meu]
any student-the friend_{gen} my
- (26) a. *o [_{NP}sora Mariei]
a sister-the Mary_{gen}
b. *doi [_{NP}studen^{ti}ii prietenului meu]

¹⁷ Contrary to Löbner, I do not believe that this analysis covers the anaphoric use of the definite article.

two students-the friend_{gen} my

Given the rule of semantic composition proposed above for synthetic genitives, the NP-constituents in (23)-(26) have an individual-type denotation, which cannot compose with quantifiers such as *every* and *each* nor with indefinite articles or numerals, all of which must combine with property-denoting expressions. The ungrammaticality of the examples above can thus be analyzed as being due to a type-mismatch.

Consider now the quantifier *all*:

- (27) a. all the students
b. to[†]i copiii (same gloss as (27)a)

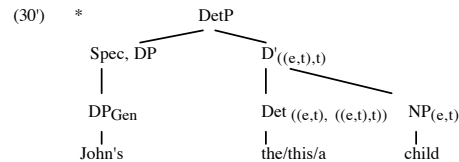
The examples in (27) show that *all/to[†]i* may govern definite DP complements. Whatever rule of semantic composition is responsible for (27)a-b, it will also account for (28)-(29), since according to our analysis, the bracketed constituents in (28)-(29) have the semantic type of arguments, just like definite DPs:

- (28) a. all [Mary's students]
b. all [my friend's students]
(29) a. to[†]i [studen[†]ii Mariei] (same gloss as (a))
b. to[†]i [studen[†]ii prietenului meu] (same gloss as (b))

2.4. Determiners block the projection of Spec,DP

The fact that canonical determiners (i.e., determiners that apply to properties and yield generalized quantifiers or individuals) block the projection of Spec,DP follows from their semantic type: by applying Det^o (type ((e,t), ((e,t),t)) to NP (type (e,t)) we obtain a constituent that already has the semantic type of an argument (type ((e,t),t)), and as such can further expand only via adjunction. But Saxon genitives (as well as Romanian *al*-less genitives and Hebrew CS-associates) cannot be adjuncts, but instead must sit under a Spec, N node:

- (30) *John's the/this/a child



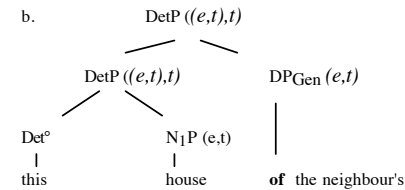
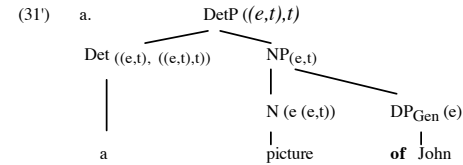
2.5. Analytic genitives

When the head noun is headed by a canonical determiner, genitive DPs can be either N^o-complements or DP-adjuncts. In the three languages under examination here, these positions cannot be occupied by synthetic genitives, but only by analytic genitives:

- (31) a. a picture *John's/of John
b. this habit *the neighbour's/ of the neighbour's

Although the analysis of analytic genitives is outside the scope of the present paper, it is worthwhile observing that they are subject to important crosslinguistic variation. Thus,

whereas Romanian and Hebrew have only one morphological form for analytic genitives (*al*-genitives, and *Sel*-genitives, respectively), English distinguishes between genitives of the form *of John* and genitives of the form *John's*. The generalization seems to be that these two distinct forms occupy respectively the N^o-complement position and the DP-adjunction position:



The complement position seems to be subject to a linking constraint: it can be filled only if the head noun is either relational (see *son*, *friend*, etc.) or a deverbal noun (Barker (1991, 1995), Lyons (19**): *a son/friend/sister/picture of John vs a house/pen/shirt of John's/*of John*).

Let us furthermore examine the following paradigm:

- () a. John's picture of Mary.
b. *John's picture of Mary's.
c. a picture of Mary's.

The contrast between ()a and ()b shows that the Spec,Nmax position is compatible with an analytic genitive sitting in the N^o-complement position, but incompatible with a genitive sitting in the DP-adjunction position (this position is otherwise available for the same type of head noun, as shown in ()c).

Turning now to Romanian and Hebrew, the existence of only one form of analytic genitive is compatible with two hypotheses: (i) analytic genitives are underspecified for a particular syntactic position, but depending on a given context, they may occur in either the complement or the adjunction positions; (ii) analytic genitives are always adjuncts. The latter option is strongly suggested for Romanian by the fact that two genitives cannot attach to the same head N:

- () *tabloul vecinului al Mariei.
picture-the neighbour-the_{Gen} al Mary_{Gen}

Assuming that the incompatibility between Spec,Nmax and DP-adjoined genitives shown in ()b holds crosslinguistically, the ungrammaticality of () indicates that *al*-genitive cannot be in the complement position. This piece of data constitutes evidence in favor of

- b. There is a man's dog/*the man's dog??John's dog in the garden.

The same generalization holds for definite CSNs (for indefinite CSNs, see Section 4 of Dobrovie-Sorin (2002)) and for Romanian possessives embedding synthetic genitives.

The explanation that is currently agreed upon in the syntactic literature (Fassi-Fehri (1989, 1993), Siloni (1994), Longobardi (1996), among many others) is that the D° of the head noun, although phonologically absent, is syntactically present, in the form of an empty functional head that inherits the +def or -def features from the genitive DP. This transmission of (in)definite features was implemented either as copying/percolation or as an agreement relation between Spec and the empty functional category, the identity of which varies from one author to the other.^{20 21} This account is problematic: how can it be that the ±def features, although realized only once, are interpreted twice? Agreement phenomena are exactly of the opposite kind: a φ-feature (gender, number, person, Case) is interpreted only once, although it shows up on several elements.

Given the analysis proposed here, the transmission of (in)definiteness²² is a consequence of the functional analysis that characterizes genitive specifiers:

- (36) a. Mary's farm => y = f(x), where farm (f(x)) and //x// = Mary
b. a neighbour's farm => y = f(x), where farm (f(x)) and a neighbour (x)

In (36)a the function f applies to the constant individual denoted by *Mary*, and therefore the value of the function is itself a constant individual, hence the definite-like interpretation. In (36)b, on the other hand, the denotation of *a neighbour's farm* is obtained by applying the function f to the individual variable x introduced by *a neighbour*.²³ The denotation of the overall possessive varies with the values of the genitive specifier itself.²⁴

By definition, the rule of semantic composition that characterizes genitive specifiers (see (18)) triggers uniqueness: for each value of the genitive there is only one value for the function. However, the issue of uniqueness is complicated by pragmatic factors, which lie beyond the main goal of this paper (see Barker (1995), Storto (2000)).

3.2. Interpretive variability

It has often been observed that the interpretation of Saxon genitives is context-dependent. A DP such as (37)a may take, depending on the context, the various interpretations given in (37)b:

²⁰Theorists agree neither on the number nor on the label of the different functional categories: see NumP, AGRP and PossP in Ritter (1991), Siloni (1994), Longobardi (1996), among many others.
²¹Borer (1988, 1996) proposes a somewhat different account, according to which the percolation of ±def features is ensured via the incorporation of the genitive DP onto the head N. This proposal cannot cover Saxon genitives or Romanian genitives.

²²Although I continue to use the label "(in)definiteness spread", it should be clear that my analysis does *not* identify possessives embedding (in)definite genitive specifiers with (in)definite DPs. From both a syntactic and a semantic point of view, the two types of expressions are distinct, which predicts important differences (see in particular Flaux (1992, 1993)): (in)definite expressions are DPs obtained by composing a Determiner with a set-denoting constituent, whereas possessives embedding (in)definite genitive specifiers are composed in an entirely different way, via a function from individuals to individuals. Within this account, "definiteness vs indefiniteness spread" means "constant vs variable interpretation".

²³I assume here the analysis proposed by Discourse Representation Theory (Kamp (1981), Heim (1982)), according to which indefinites translate as individual variables.

²⁴A similar account of (in)definiteness spread can be found in Partee (19**), Vikner & Jensen (2002). For these authors, it is the presence of a null definite article on the head N that has the effect of inducing the uniqueness effect: **to each value of the genitive DP is associated only one value ...**

- (37) a. John's book
b. the book possessed by/ about which talks/of which takes care/that edits/written by John

Within my analysis, the interpretive flexibility characteristic of genitive specifiers is due to the underspecified nature of the function that underlies the semantic composition of genitive specifiers. This function is contextually determined, hence the various interpretations given in (37)b.

The observations regarding the context-dependent readings of genitives were refined by Storto (2000, 2002, this volume), who observes that definite possessives²⁵ take truly "free" interpretations, whereas all the other possessives (headed by determiners other than the definite article) are more constrained (see (38)b vs (38)a):

- (38) Yesterday John and Paul were attacked by (different) groups of dogs.
a. ... unfortunately, John's dogs were rabid.
b. # unfortunately, **some/two/many/these** dogs of John's were rabid.

The examples in (38) show that definite possessives allow truly free interpretations, which are disallowed by non-definite possessive DPs (headed by singular and plural indefinite determiners or cardinals, demonstratives, etc.). The latter group of possessives allow only interpretations that can be analyzed in terms of (a broadly extended sense of) possessive relations (*be entrusted, take care of*):

- (39) Yesterday, John and Paul were entrusted (different) groups of dogs.
unfortunately, **some/two/many** dogs of John's were rabid.

I will follow Storto in assuming that the free interpretations characteristic of possessives other than definite rely on a *constant relation*, labelled "control" relation, which is a constant, context-independent relation, with a "bleached", underspecified meaning that can be contextually specified: the context determines the choice among various specific meanings of this underspecified constant relation. Unacceptability arises whenever the relation provided by the context is not a sub-type of the control relation (see *be attacked, be hit*, etc.).

My analysis of definite possessives is however different from Storto's proposal, according to which possessive DPs uniformly rely on a genitive *relation*, introduced by a functional head, which is lexically ambiguous: it may supply either a *variable* or a *constant relation*. According to Storto, definite determiners are peculiar insofar as they supply an existential quantifier that can bind a relation *variable*.²⁶ Hence the completely "free" interpretation that characterizes definite possessives. Since the other determiners cannot supply an existential quantifier, they are incompatible with a relation *variable* (no text-level existential closure or discourse anaphora is available for relation variables). The only possibility is to supply a *constant* relation, the possessive/control relation, which explains why the interpretation of possessives other than definite are relatively constrained: their meaning must be a contextual realization of a constant control relation.

Within my own analysis, the contrast between definite possessives (as well as possessives built with genitive specifiers)²⁷ and all other possessives derives from the fact that the former rely on a *function* from individuals to individuals (type <e,e>), whereas the latter rely on a *relation* (type <e, <e,t>>). Against this background, Storto's observations can be derived if we find a way to explain why functions can be *variable*,

²⁵In line with Partee (1983, 1994), Storto assumes that possessive expressions that embed Saxon genitives are headed by a null definite Det.

²⁶A particular rule of semantic composition for definite possessives ("Rule 73") needs to be assumed, which makes the relational variable visible at the level of the complement of Det).

²⁷Recall that under my analysis, possessives embedding Saxon genitives are not definite possessives, but rather Nmax projections containing a genitive specifier.

whereas relations can only be *constant*. I think that this can be achieved, but I will leave the issue open for further research.

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