Genitives: a recursive linearization approach

Joost Kremers
University of Nijmegen, The Netherlands
j.kremers@let.kun.nl

September 9, 2000

1 Introduction

In this paper, I will present an approach to genitives that makes use of the recursive linearization procedure of Kremers (2000). In section 1.1, I will give a brief outline of this procedure. After that, in section 2 I will start with a discussion of the Arabic genitive construction, the so-called construct state, and show how it can be accounted for in a straightforward manner with recursive linearization. This discussion will be the starting point for a treatment of genitives in English and Dutch, although I will also point out some parallels in other languages.

1.1 Recursive linearization

In order to derive a linear structure from a hierarchical tree structure, a generative theory must have a linearization procedure. Recursive linearization (RLin) is a way of formulating such a procedure. It is based, unlike the linearization procedure proposed in Kayne (1994), on the assumption that linearization is achieved through a set of linearization parameters that can in principle be set arbitrarily.

The procedure RLin operates on minimalist tree structures, such as that developed in Chomsky's latest work (1995; 1998; 1999). In such tree structures, a node can be represented formally as K(A,B). K is the node formed of merging A and B. The label of K is either the label of A or the label of B: the node that projects, gives K its label. Therefore, the full representation is in fact $K_x(A_x,B_y)$, given the fact that in K, no order is determined (see Chomsky, 1995, 334).

At the level of K, the following information is available:

(1) a. the label of K
    b. whether the projecting node is A or B
    c. whether the projecting node is a terminal element

Linearization takes place on the basis of this information. It should be noted that in these minimalist tree structures, there are no levels of projection anymore, such as in standard X-bar theory. A complement is simply the non-projecting sister of a head,[1] a specifier is the

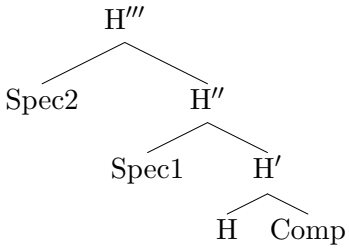
[1]Note that I use the term "head" in a different meaning than Chomsky does. For me, a head is what Kayne (1994) calls a "terminal element". For Chomsky, the head of a node is the element that gives the node its label, for which notion I simply use the term "projecting node". In what follows, I will use the terms "head" and "terminal element" interchangeably.

non-projecting sister of a non-head, and XP is the highest level of projection of X, regardless of how much material it incorporates.

Linearization takes place from top to bottom, and recursively. That is, when in a node K(A,B), A is linearized first, all the material in A will be processed before B. At the level of a node K(A,B), we have two options: either we linearize the projecting node first (label-first), or we linearize the non-projecting node first (label-second).

Suppose we have a tree structure as in (2):[2]

(2)



If we linearize (2) label-first, we get the following order:

(3) H Comp Spec1 Spec2

To see how this works, we can follow RLin in its path: linearization starts with H‴. Since H is label-first, the projecting node H″ will be processed first. In H″, it is H′ that is taken first. In H′ , it is H that is the projecting node. Since H is a head, it can be spelled out. Next, the non-projecting node of H′ is processed. As a result, everything in Comp will be spelled out immediately after H. After that, RLin returns to H″, where Spec1 still needs to be processed. When that has been done, RLin returns to H‴, and spells out Spec2.

In this structure, it seems as if RLin starts at the bottom of the tree and then works its way up. That would be in contradiction with my earlier statement that RLin starts at the top of the tree. However, this is just a side effect of the operation and the way it works. In essence, RLin selects one of the nodes of K to be linearized first, and then proceeds with that node, linearizing it to its deepest embedded element. That means that if at the level of H‴, RLin chooses H″ to linearize first, it has no choice but to go down to [H Comp] before it can process Spec2, for the simple reason that everything dominated by H″ must be handled before Spec2.

Obviously, when (2) is linearized label-second, the opposite order of (3) is derived:

(4) Spec2 Spec1 Comp H

Now, when RLin starts on H‴, it will first process the non-projecting node, Spec2, etc.

The orders in (3) and (4) are derived using the information of (1a) and (1b). It is possible to modify both procedures by using the information in (1c). Modified label-first would be 'linearize the projecting node first, unless it is a head. This results in the following order for (2):

(5) Comp H Spec1 Spec2

As one can see, the modification switches the places of H and Comp. In the same way,

[2] I have used primes to distinguish the different levels of H, but it should be noted that this is just for convenience. C_{HL} has no way of distinguishing them.

modified label-second would be 'linearize the projecting node second, unless it is a head'. That produces the following order:

(6) Spec2 Spec1 H Comp

Again, H and Comp are swapped. The four ordering principles can be expressed with two parameters: 'label-first (yes/no)' and 'modified (yes/no)'.[3] I assume that it is possible to set these parameters for each category independently.[4] In this way, we obtain a linearization procedure that is powerful enough to derive a variety of word orders with a minimum of resources, but which is strict enough to make testable predictions. Furthermore, it turns out that head adjunction can now be explained in terms of linear adjacency. (See for discussion Kremers, 2000).

2 The Arabic genitive

In this section, I will discuss the basic facts of the Arabic genitive construction in light of the linearization procedure outlined above. I will start with a discussion of the place of the genitive case in the case system of Arabic. I will then go on to show how RLin can help to explain word order in Arabic noun phrases without the need to resort to multiple and remnant movement.

2.1 Genitive case

Standard Arabic has three cases: nominative, genitive and accusative. Case is indicated by case endings, in most instances short vowels: *-u* for nominative, *-i* for genitive and *-a* for accusative. The case that a noun has is always determined by its syntactic position. A topic always has nominative case,[5] as does a subject. An object always has accusative case, and so do adjuncts of any kind. A noun that is the complement of another noun receives genitive case, as do complements of prepositions.

In all instances, case is independent of the noun's theta role. For topics, this is obvious. As for the subject of a verb, it can be an agent, but also a cause, experiencer, patient, etc. The object cannot be agent or cause, but other non-causative roles are open to it: experiencer, patient, etc. The genitive complement can be possessor, but it can have other roles, just as the possessive construction in many other languages can. For example, in deverbal nouns, it can express either the object or the subject, and consequently have the role of the object or subject.

Given the fact that the genitive in Arabic behaves like the nominative and accusative in these respects, it is plausible to say that the genitive is a structural case, like nominative and accusative. It is assigned to a noun when this noun occurs in a specific syntactic configuration, not when it has a specific theta role. It seems, then, that syntax provides not two but three positions in which arguments can be licensed.

[3] In fact, it is also possible to use 'head-first (yes/no)' instead of 'modified (yes/no)'. Which term is preferable remains to be seen.

[4] It may be that there are some restrictions on parameter settings. For example, if C and D are indeed similar heads, as is often assumed, it may be the case that they must have identical settings. However, more work needs to be done to substantiate such a hypothesis.

[5] Provided that its place in the clause is taken by a resumptive pronoun. An archaic option is to topicalize an object without using a resumptive pronoun. In that case, the topic takes accusative case.

I will use the term "argument" here in two different meanings. Thematic arguments are arguments in the traditional sense: the noun phrases (or clauses) that a verb assigns theta roles to. I will stretch this meaning to include optional theta roles, such as location, means, etc. The second sense is what I just called syntactic argument: the nouns that are assigned structural case.

As I said, there are three positions in syntax that can house syntactic arguments. I will refer to them with SU, OB and POSS. Thus, nominative in Arabic is assigned to SU,[6] accusative is assigned to OB, and genitive is assigned to POSS.

2.2 Assigning genitive case

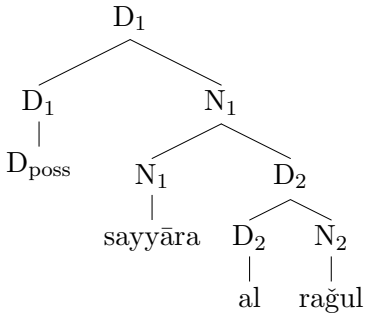
If we adopt Chomsky's assumption that both nominative and accusative are assigned in an agree relation, it seems inevitable to assume the same for genitive. The obvious candidate for assigning it seems D, as assumed in many works, e.g. Ritter (1991), Abney (1987). D is then considered to be similar to T. T occurs in two basic forms: [+tense] and [-tense]. Similarly, D can occur as [+poss] and as [-poss]. Just as [-tense] T cannot assign nominative, and [+tense] T can, [-poss] D cannot assign genitive, whereas [+poss] T can.

Let us take a look at the following simple case:

(7) sayyāra-t-u -l-rağul-i
car-f-NOM the-man-GEN
'the man's car'

(7) is a well-know example of the construct state in Arabic. The most salient property is that the head noun has no determiner, and that the entire construction takes its feature for definiteness from the genitive modifier. I will assume that the basic structure of (7) is the following:

(8)



In (8), the noun *sayyāra* takes the D *al-rağul* as its complement. This complement is then licensed by D_{poss}.

In section 1.1, it has become obvious that this is not the entire story. Apart from building the proper hierarchical structure, it is also necessary to derive the linear order. Given the tree structure in (8), we can assume that both D and N are linearized label-first. The resulting order will then be:

(9) D_{poss} sayyāra-t al-rağul

[6] And to the topic, which is in another position. Presumably, the nominative of the topic is a default case.

Of course, (9) is the correct order.[7] But it must be noted that genitive has not been assigned yet. I will follow the assumption quoted earlier that it is D_{poss} that assigns it.

I assume that D_{poss} assigns genitive through the normal agree operation. D_{poss} is active because it has unvalued φ-features. It will try to value these by probing its complement for a matching noun. The first noun that is encountered is D_2, *al-rağul*. This noun is active itself, because it has an unvalued case feature. The match is followed by agree, valuing the unvalued features on both elements.

The agree relation that occurs between D_{poss} and the complement noun also establishes the agreement in definiteness between the two. For this to work, it is of course necessary to assume that D_{poss} has an unvalued definiteness feature.

It is assumed for English that T has an EPP feature, forcing the merger of the noun with which [+tense] T agrees. If the Arabic D_{poss} operates in the same way, we can ask whether it has this EPP feature as well. At this point, the data is not sufficient to decide whether it does or not. If D_{poss} has an EPP feature, N_2 would be merged with it. On the assumption that D is label-first, the linear structure would then be the following:

(10) D_{poss} sayyāra-t ~~al-rağul~~ al-rağul

The trace of *al-rağul*, still in comp,N, would be followed by the moved element. Being the first specifier of the highest D, it is linearized last.[8] After spell-out, (10) cannot be distinguished from (9). However, if we add an adjective, the two options are distinguished. If the head noun in a construct state is modified by an adjective, this adjective follows the modifier:

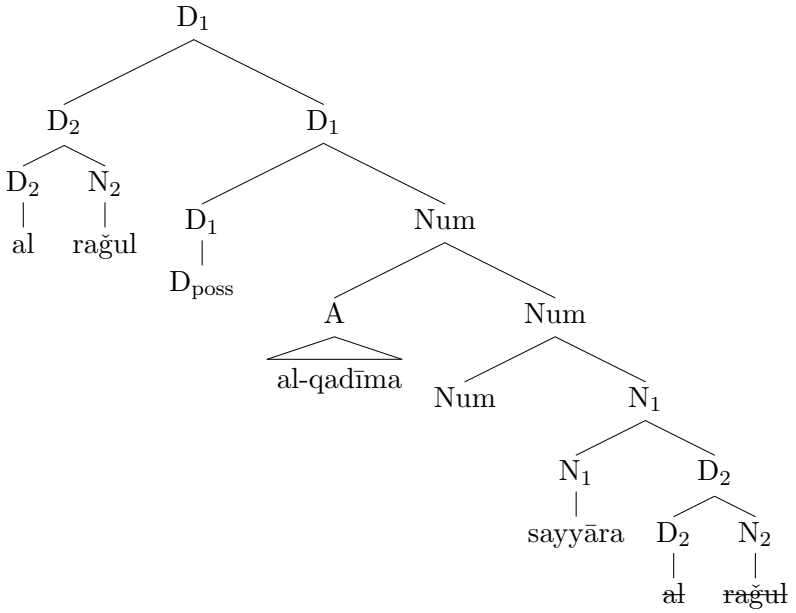
(11) sayyāra-t-u -l-rağul-i -l-qadīma-t-u
car-f-NOM the-man-GEN the-old-f-NOM
'the man's old car'

Assuming that the adjective is not a specifier of the highest head, D_{poss}, we are forced to say that the complement noun *al-rağul* is still in its base position. If it were in spec,D_{poss}, it would have to follow the adjective. (12) is the tree that would emerge if D_2 would move to spec,D_{poss}:

[7] Note, however, that there are no specifiers in this structure. Therefore, the proper order would also be derived if either D or N, or both, are modified label-second. Further data, however, will show that label-first is the correct setting.

[8] The linearization is that of (3).

(12)



I assume that the adjective is in the specifier position of a head between D and N. I have called it Num, following Ritter (1991), but the exact nature of this head is not relevant at the moment.[9] If Num is label-first, like D and N, the tree in (12) will be linearized as follows:

(13) D_{poss} Num sayyāra ~~al-rağul~~ al-qadīma al-rağul

Obviously, this is not the correct order. If *al-rağul* does not move, however, the right order is obtained, as is clear from the position of the trace of *al-rağul* in (13).

Ritter (1991) assumes that in a construct state in Hebrew, the head noun actually moves to D_{poss}. Whether it does or not in the current analysis is a question that cannot be answered: the heads D, Num and N end up adjacent in the linear structure, which means that movement from N to Num or D does not affect the word order.[10]

The question, however, is not even one that needs answering, I assume. In Kremers (2000), I argue that head adjacency in the linear structure will explain for the phenomenon of head adjunction. In (13), the three heads D, Num and N are adjacent, which means that their morphological material has had the possibility to be fused.[11] It is this fusion that explains the apparent movement.

[9]The existence of a head between D and N is often argued for. It is usually seen as the noun-phrase equivalent of T. If it is indeed, the analysis above will have to be changed slightly: instead of D being [±poss], it would be Num that has a [poss] feature. In section 4.3, I will argue for an analysis along these lines.

[10]It must be noted that I do not claim that numerals are in Num. I would argue that they are not: Num would be the locus of the number feature of the noun, which in Arabic is either singular, dual or plural. Numerals are N-like elements that have their own projections. The number of the noun is independent of the cardinality of the numeral, especially in Arabic, where numerals of 11 and up take singular nouns.

[11]The matter is in fact more complicated than this. I assume that the morphological fusion is a diachronic process, not a synchronic one. See Kremers (2000) for discussion.

3 Syntactic argument positions

Usually, the terms 'genitive construction' and 'possessive construction' are used more or less interchangeably to refer to a kind of construction that contains two nouns, one of which is directly dependent on the other. Unfortunately, neither term is entirely accurate. Such constructions do not always involve genitive case, but similarly, they do not always express possession. For want of a better alternative, I will use the term 'possessive' and 'possessive structure'. But it should be noted that I use this term purely as a syntactic notion.[12]

Above, in section 2.1, I argued for the existence of a position POSS. The existence of POSS reflects a fundamental parallel, and at the same time a fundamental difference, between the clause and the noun phrase. The functional shell of a clause provides two positions for the head verb to put its arguments in. That is, the functional shell is actually built up in such a way that it can syntactically license two noun phrases that express thematic arguments of the verb.

It is a very fundamental property of substantive lexical items that they need other lexical items to specify their meaning. A verb *see* has a very general meaning: it refers to an event in a very general manner. By adding thematic arguments, it can be made more precise: *see a house* is more specific. Adding another argument, *John sees a house*, specifies the meaning even further.

Language needs to have the ability to specify the meaning of lexical items in this way to be useful. For that reason, the functional shell of a lexical item has the ability to license the arguments. Presumably because most verbs can do with one or two arguments, there are no more than two of these syntactic argument positions. Above, I called them SU and OB.[13]

For nouns, a similar mechanism exists. The functional shell provides the ability to add a dependent noun, an argument, that can specify the meaning of the head noun. However, unlike clauses, there is only one such position available.[14] The fundamental parallel then is that both clauses and noun phrases have such positions, whereas the difference is that noun phrases have only one, and verb phrases have two, or even three.

This difference must be reflected in the functional shells of the clause and the noun phrase. In current frameworks, it is usually assumed that it is small v that introduces the subject and that licenses the object. If we assume that the noun phrase has no equivalent of v, we explain this observation. In the absence of something like n, there is only one functional projection that can license a syntactic argument: D.[15]

[12] I will continue to use the term 'construct state' in the context of Semitic. It originally refers to the form of the head noun, which is said to be *in construct state*. In Semitic languages, a noun can generally take three different forms: it can be in absolute state, emphatic state, or construct state. The precise meaning and use of the absolute and emphatic states differ from language to language, but the construct state is generally used for the head noun in possessive structures.

[13] In double-object constructions, a third position is made available, presumably by adding an extra shell, perhaps another small v.

[14] I can only speculate as to the reason for this. It may be the case that possessor is the canonical meaning of the dependent noun (although by no means the only one) and that an object usually has only one possessor. However, the matter may be relevant from a historic or evolutionary point of view, it is irrelevant to the present discussion.

[15] Or whatever the equivalent of T turns out to be.

4 Possessive constructions in English and Dutch

Germanic languages have different possessive structures. In this section, I will take a look at the constructions found in Dutch and English. First, I will discuss the so-called Saxon genitive. In the section after that, I will turn to constructions with *of*.

4.1 The Saxon genitive

As already noted by Fassi Fehri (1993), there are certain important parallels between the Semitic construct state and the English Saxon genitive. Like the construct state, the Saxon genitive does not allow a determiner on the head noun, and the definiteness of the entire construction depends on the definiteness of the dependent noun:

(14) a. (*the) John's car
b. John's (*the) car

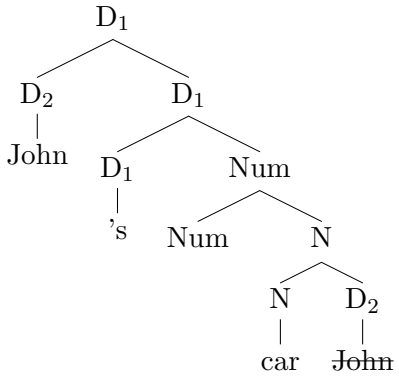
As Grimshaw (1990) notes, a Saxon genitive with an indefinite dependent noun can occur in *there*-constructions, which means the entire construction must be indefinite:

(15) a. *there is the man's shirt on the chair
b. there is a man's shirt on the chair

This being the case, we can assume that the structure of the English Saxon genitive is similar to the Arabic construct state. The dependent noun is generated as the complement of the head noun, and there is a [+poss] determiner in the construction. I assume that the determiner is in fact *'s*, and that it has an EPP feature, unlike the Arabic D_{poss}. Like Arabic D_{poss}, however, *'s* needs to agree with a noun phrase. As it does so, it assigns genitive case to the noun (which, like nominative and accusative, is null in English) and picks up definiteness from the dependent noun.

The tree structure of *John's car* is then the following:

(16)



Under the assumption that both D and N are modified label-second, we derive the correct linear structure from (16).

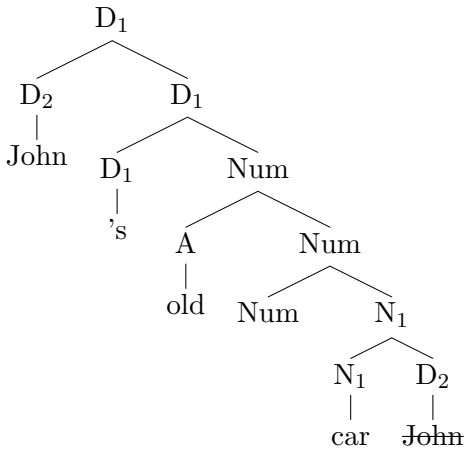
When we look at adjective placement, we find that it points in the same direction:

(17) John's old car

In (17), the adjective *old* appears between the dependent noun and the head noun. (Or rather, between the determiner and the head noun.) This is markedly different from the Arabic example, in which the dependent noun appears between the head noun and its adjective. That fact indicates that the dependent noun is in a different position in English than it is in Arabic. If we assume that the base structures are the same, we are forced to the conclusion that the dependent noun has moved in English.

The tree structure of (17) is then similar to the one for the Arabic example, except of course for the fact that *John* has moved. (18) gives both the tree structure and the linear structure, derived under the assumption that D, Num and N are modified label-second:

(18) a.



b. John 's old Num car ~~John~~

Dutch is slightly different from English. In Dutch, there are two constructions that compare to the English Saxon genitive. First, there is a construction that only occurs with proper names as dependent noun. The proper name takes an *-s* ending, similar to English, although it is usually written without the apostrophe:

(19) Jans auto
John's car

The proper name in (19) is *Jan*, the *-s* ending is the Saxon genitive. Although the *-s* is usually written attached to the proper name, the facts indicate that it should be analyzed as a [+poss] D element. We can see this in the following example. If the proper name consists of a first and a last name, only the last name takes the *-s*. The first name does not:

(20) Jan Smids auto
John Smith's car

The proper name in (20) is *Jan Smid*. As shown, the *-s* element only attaches to the last element of the name. That indicates that the *-s* is not a genitive ending or something similar. If it were, one would expect it to appear on *Jan* as well, given the fact that it can take *-s*, as indicated in (19). I will assume, then, that this construction is similar to the English Saxon genitive.

The other possessive structure in Dutch that resembles the English Saxon genitive makes use of a possessive pronoun. The pronoun agrees with the dependent noun. In this construction, the dependent noun does not have to be a proper name (although there seems to be a

restriction against non-human or inanimate dependent nouns):

(21) a. de man z'n huis
the man his house
'the man's house'
b. de vrouw d'r auto
the woman her car
'the woman's car'
c. de kijkers hun mening
the viewers their opinion
'the viewers' opinion'

In this construction it is perhaps easiest to see that the "possessive element" is indeed an independent head D, as I assumed. Possessive pronouns are generally considered D heads. In (21), they are too, but here they take a specifier. The structure is then exactly the one I proposed above for English.

It would be possible to argue that the specifiers in (21) are base-generated in their specifier position, but I assume that they are moved from the head noun's complement position, like in the English Saxon genitive. The reason for this is the agreement (although this could also be the result of simple Co-reference, as in the case of possessive pronouns that do not take specifiers), but also the fact that the semantics of the specifiers is that of dependent nouns.

The structure in (21) may also shed some light on the matter of the EPP feature of D_{poss}. It is not implausible that fronting the dependent noun was originally a way to emphasize it. It could be some sort of topicalization at noun-phrase level. That is, it may have played a role in the emergence of the constructions at hand. I am not sure to what extent it still plays a role. It may be the case that the EPP feature originally developed out of a topicalization effect, and has turned into an arbitrary fact of the language in question.

I will say a quick word about Afrikaans. The normal possessive construction has the possessor preceding the head noun, with the possessor marker *se* in between:

(22) die man se huis
the man POSS house
'the man's house'

Obviously, this construction seems very similar to the Saxon genitive just discussed. The head noun has no determiner, and the dependent noun precedes the head noun. There is also a difference: in Afrikaans, the dependent noun can easily be modified by a relative clause:

(23) die mense wat dit sê se standpunt
the people REL it say POSS opinion
'the opinion of the people who say it'

This, however, is not unexpected. If the specifier of D_{poss} is a full phrase, it is not strange that it can be modified by a relative clause. One would rather have to ask why Dutch and English are so limited. Perhaps this has to do with the fact that the construction with *se* has become much more common than its English and Dutch equivalents: it can also be used for inanimate nouns (e.g., *die tafel se poot* 'the leg of the table'). It is not surprising that as a result, the construction has become more flexible.

4.2 *of*-constructions

Apart from the Saxon genitive, English and Dutch have a possessive construction that makes use of a possessive marker: *of* in English and *van* in Dutch. The possessive marker serves the function of licensor of the dependent noun, in the absence of a D_{poss}. The two elements differ in a number of ways, however.

The Dutch *van* allows extraction, and it can be used over a copula, unlike the English *of*:[16]

(24) a. van Couperus heb ik nog nooit een boek gelezen
of Couperus have I yet never a book read
'I have never read a book by Couperus'
b. *of this car, I do not like the colour

(25) a. dit opstel is van Peter
this essay is of Peter
b. *this essay is of Peter

Furthermore, in Dutch, some constructions cannot have *van*, whereas *of* is required in English:

(26) a. een kopje (*van) koffie
a cup (*of) coffee
b. a cup *(of) coffee

The crucial distinction, I believe, is illustrated by Tremblay's (1991) work on French. French has two ways to express the possessive: it can use the possessive marker *de*, but also the dative marker *à*:

(27) a. le livre de Jean
the book of Jean
b. le livre à Jean
the book to Jean

Tremblay (1991) claims that *de* is a true possessive marker, whereas *à* is a predicative possessive marker. She gives a number of facts to support this, one of which is that only *à* can be used across a copula:

(28) a. *ce livre est de Jean
this book is of Jean
b. ce livre est à Jean
this book is to Jean

We can tentatively assume that the facts of Dutch and English above show the same thing:

[16]It should be noted that the extraction and predication of *van* is semantically restricted. When *van* expresses a possessor of some kind, it is often grammatical, but when it expresses, e.g., the object of a deverbal noun, it becomes much more difficult, although, I believe, given a proper context, it can still be acceptable:

(i) van deze computer is de reparatie nog niet voltooid
of this computer is the repair still not completed
'the repair of this computer has not been completed yet'

(i) is unproblematic to me.

the Dutch *van* is a predicative possessive marker, whereas the English *of* is of a different nature. I assume that English *of* is a true genitive marker. To see this, we must take a short look at SU and OB. The argument in SU is always licensed by nominative case. We see, however, that the argument in OB is sometimes not licensed by accusative case, but by some sort of dummy case marker. Many languages allow specific verbs to use a (semantically reduced) preposition to license their object. Other languages use a preposition-like object marker, such as the Hebrew *'et* (which, by the way, is only used with definite objects).

I assume that POSS is in this respect similar to OB: it can be licensed through (possibly null) case, but the argument in OB can also be licensed by a preposition-like element. English *of* and French *de* are examples of such elements. Dutch *van* is not, however. An argument introduced by *van* is not in POSS. Instead, *van*, together with its complement, is predicated of the head noun.

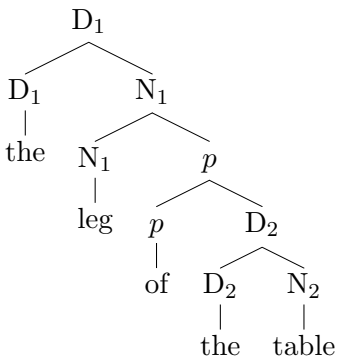
Dutch does not have an element for licensing POSS, like *of* or *de*. As a result, it cannot license an element in POSS without a D_{poss}. The only elements that can appear in POSS are elements that do not need to be licensed. The phrase in (26) is a case at hand. The dependent noun, *koffie* 'coffee', is not referential. I assume that that means that the noun is not a genuine argument, and as a result it does not need licensing in the usual manner.

I assume that the difference between *of* and *van* is not in the structural position of the elements, but in their nature. Whereas English *of* (like French *de*) is a dummy case marker, Dutch *van* is a preposition. Like other prepositions, *van* is an independent licensor. That is also the reason why *van* can be extracted and used across a copula, contrary to *of*.

Structurally, the two elements occupy the same position, presumably merged with N. This is also the position that prepositional modifiers take. To make this work for English and Dutch, it is necessary to assume that N is not modified label-second, as I did earlier, but rather label-first. In that way, the specifiers of N, all prepositional modifiers above the complement, will end up after N.

The tree structure of an *of* possessive is the following:

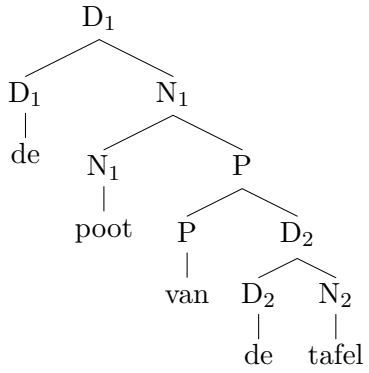
(29)



I have labeled *of* with *p* to indicate that it is presumably a deficient prepositional element.

We can be brief about the Dutch structure. It is basically the same, with the exception that *van* is not a *p*, but a fully qualified P:

(30)



4.3 A few remarks on Hungarian

Without going very deep into the matter, I will say a few things about Hungarian. In the Hungarian possessive construction (see, for example, **?**) the head noun takes a suffix that agrees in person and number with the possessor. The possessor takes nominative case and follows the determiner:[17]

(31) a fiú kalap-ja
the boy.NOM hat-POSS.3SG
'the boy's hat'

As becomes clear in Szabolcsi's article, the Hungarian determiner is problematic. When the possessor has nominative case, there is only one determiner. This is something we recognize from the Arabic and English genitive construction. The question is whether the determiner in (31b) belongs to the head noun or to the possessor. Szabolcsi argues that it belongs to the possessor, based on the following data:

(32) (a) Mari kalap-ja
(the) Mari hat-POSS.3SG
'Mari's hat'

Szabolcsi explains that the presence of the determiner in (32) is subject to dialectal variation. In dialects that normally have a determiner with proper names, the determiner is present in (32) as well. Dialects that do not have a determiner with proper names, do not have it in (32). The conclusion seems obvious, but there is a problem:

(33) az én kalap-om
the I hat-POSS.1SG

[17] Hungarian has another possessive construction, in which the possessor takes a dative suffix and precedes the determiner:

(i) a fiú-nak a kalap-ja
the boy-DAT the hat-POSS.3SG
'the boy's hat'

I assume that this construction is similar to the *van*-construction of Dutch, with the difference that there is a resumptive *pro* in the complement position of the head noun, that enables the agreement suffix on the noun. Note that the dative possessor can be used predicatively. It is the normal way in Hungarian to express the notion of "to have", as Szabolcsi (1994) explains.

'*my* hat'

In (33), the possessor is a pronoun. Pronouns cannot be combined with a determiner in Hungarian. Yet, in (33), there is a determiner present: *az* is the form of the determiner that appears before a vowel. It seems we must say that in (33), the determiner belongs with the head noun after all.

Szabolcsi already provides a possible answer to this problem. In the article, she argues that the Hungarian determiner functions as a subordinator. It has the function of turning a noun phrase into something that can be used as an argument, a function that is parallel to that of complementizers. In fact, she argues that there are two determiner-like elements in the noun phrase: D and Det. D is the subordinator, Det is the actual determiner.

Just as D finds its parallel in the clause, so does Det have an equivalent in the clause. It is a head that indicates the type of the sentence. Szabolcsi (1994) assumes that interrogative markers are instances of this head. She gives some examples of languages that have an interrogative marker that can occur with main clauses, but that can also combine with complementizers introducing interrogative subclauses.

Szabolcsi assumes that sequences of D-Det are not allowed. For that reason, whenever two of them occur adjacent, one is deleted. In this way, she explains for the fact that D and Det can both occur in a noun phrase when they are separated by some phonological material, but that only one is present otherwise.

I will propose a slightly different account. I assume that D and Det are in fact instances of the same head. They can occur separately in a noun phrase because they serve different functions: the ones that Szabolcsi proposes. One instance functions as a subordinator, the other as a determiner.

However, when the two heads end up adjacent in the linear structure, they are not needed both. In that case, the phonological material in one head can "fill" both heads. For this reason, the categories that Szabolcsi calls D and Det only occur together in a noun phrase when they are separated by some phonological material.

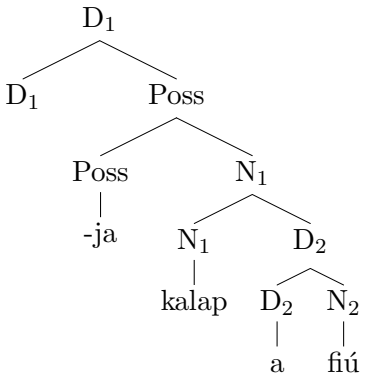
When we look at the Hungarian data, we see that the agreement manifests itself on the head noun. This poses a difficulty for the present analysis. I have assumed so-far that it is D_{poss} that triggers the agreement. But as we have just seen, the Hungarian D cannot be the element that does this. First, it is in the wrong position, since it is initial in the structure, and second, D always takes the same form, whether it is in a possessive structure or not.

Consequently, we must assume that the possession agreement is actually mediated by another head. Having now established that D is the noun-phrase equivalent of C, we can posit another head to be the noun-phrase equivalent of T. It is possible that Num, which I used above, is this head. But rather, I would suggest that it is not Num, but a head Poss that takes the place of Num.[18] The tree structure of (31), repeated here, then becomes (34b):

[18]In a sense it does not really matter what we call this head. In the clause, we need a head that can be [±tense], and we call it T. In the noun phrase, we apparently need a head that can be [±poss], and we might as well call it Poss. From a semantic point of view, I believe one must see both [±tense] and [±poss] in the way I explained in 3. The syntactic arguments SU, OB and POSS specify the meaning of the predicate. In this way, a [–tense] verb refers to an event in a more general way than a [+tense] verb does. A [–poss] noun is essentially the same. It refers to an entity that is not further specified by an argument. Obviously, this does not mean that it cannot be specific or definite. That feature is introduced not by Poss but by D.

(34) a. a fiú kalap-ja
the boy.NOM hat-POSS.3SG
'the boy's hat'

b.



If we linearize (34) on the assumption that D is label-first, and that Poss and N are label-second, we get the following order:

(35) D_1 a fiú kalap -ja

Now, as I explained, the linear adjacency of the two D heads, D_1 and *a*, results in the two heads being spelled out as one, basically a way to formulate the deletion rule of Szabolcsi (1994). The agreement in (35) is the same as in Arabic and Dutch/English: Poss (formerly D_{poss}) is active, presumably because it needs φ-features. It will probe its complement, and find a match in the noun's complement, here *a fiú*.

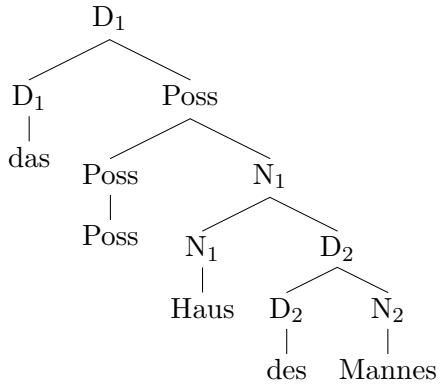
Taking apart D and Poss opens up another question. In Arabic and English, I assumed that a possessive and a determiner cannot co-occur because it is D that carries the [±poss] feature. When D and Poss are separated, this simple answer is no longer available. The analysis would predict that a determiner and a possessive can co-occur.

Actually, the fact is that they can. German is one example:

(36) das Haus des Mannes
the.NOM house.NOM the.GEN man.GEN
'the man's house'

In (36), the head noun *Haus* 'house' is modified by a possessor. The possessor takes genitive case, which indicates that there is agreement between Poss and the modifier. Still the head noun has a determiner. Under my first analysis, this is problematic. Now, however, it is perfectly expected. The tree structure of (36) is basically identical to the Hungarian example:

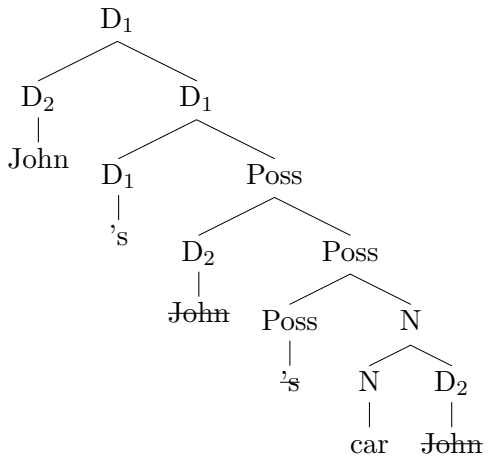
(37)



Under the assumption that D and Poss are modified label-second, (37) can derive the correct linear order.[19]

We can now explain the lack of determiners in Arabic and English possessive structures with a process of Poss-to-D movement, similar to T-to-C movement in clauses. Because Poss moves to D, D will not be filled by a determiner anymore. As in the case of T-to-C movement in e.g. Dutch, it is not only Poss that moves to D, but also spec,Poss that moves to spec,D. The tree structure of an English Saxon genitive will now be the following:

(38)



In (38), the dependent noun is generated in comp,N. Then, agreement between Poss and this complement is triggered by a feature on Poss. Lastly, Poss raises to D, and spec,Poss raises to spec,D.

These movements are somewhat problematic, however. Especially the movement of spec, Poss to spec,D is strange, since there does not seem to be any way to trigger it. There are two possible answers to this question. First, we could argue that it is not Poss that has an EPP feature, but D. In that way, Poss does not trigger movement of the possessor when it

[19] A setting of label-first would also derive the correct order. I assume a modified label-second, because German has Saxon genitives similar to Dutch. Note, however, that the occurrence of these two possessive constructions is problematic for any analysis. It appears that there are two genitive cases in German: one that is morphologically marked and results in structures such as in (36), and another that is not morphologically marked and that results in Saxon genitives. I can only assume that German is in a transient state from one genitive to another.

agrees with it. It moves to D, and then D triggers the movement of the possessor to its spec.

The alternative is to say that D and Poss can fuse, in much the same way that the two D's (or D and Det) in Hungarian can. D and Poss would then be in fact just one head, combining both functions. It is possible to separate them, but not all languages do this, and some languages presumably do it only in specific circumstances.

A similar proposal could in fact be quite useful in explaining all sorts of phenomena in the left periphery of clauses. Complementizers such as English *if, whether* or Dutch *of* function both as subordinators and as interrogative markers. In Dutch main clauses, it might be feasible to propose an analysis in which C and T have fused.[20] Furthermore, work being done by Cinque (reference) indicates that there are many more positions in the left periphery than is usually assumed. In Cinque's account, each of these positions is associated with a head. One could argue that these heads are all subsumed under C, and that they are made available as separate heads only when needed.

Of course, such a proposal raises all sorts of questions. For example, what is the status of the linearization parameters on such fused heads? One would be tempted to say that heads that can be fused must have the same parameter settings,[21] but it may also be possible to argue that of the two fused heads, the highest one preserves its settings.

These questions are beyond the scope of this paper, and I will leave them for future research.

5 Conclusion

In this paper, I show two things. First, it is possible to describe possessive structures in a number of different languages using one hierarchical structure. All that needs to be assumed is that the different heads have slightly different properties from one language to another. For example, the Poss head can have an EPP feature in one language, and may lack it in another. Combined with the system of recursive linearization, we can derive the different word orders as shown.

The second thing that I show is that the structure of noun phrases can be described in a way that is to a high degree identical to the structure of clauses. The variation encountered in both is very similar, and can be described in the same terms.

References

Abney, S. (1987). *The English Noun Phrase in its Sentential Aspect*, PhD thesis, MIT. MIT Working Papers in Linguistics.

Chomsky, N. (1995). *The Minimalist Program*, Cambridge, Mass: The MIT Press.

Chomsky, N. (1998). Minimalist inquiries: the framework, MIT Occasional Papers in Linguistics 15.

[20] Such an analysis would mean, however, that the subject does not move to spec,T, since spec,T and spec,C would likewise be fused, and spec,C can be filled by practically any constituent in Dutch. Such an analysis might be possible, but the question is whether it is desirable.

[21] In this way, Dutch T-to-C movement cannot be seen as an instance of this process of head fusion, since T is presumably label-second, whereas C is modified label-second.

Chomsky, N. (1999). Derivation by phase, MIT Occasional Papers in Linguistics 18.

Fassi Fehri, A. (1993). *Issues in the structure of Arabic clauses and words*, Vol. 29 of *Studies in Natural Language and Linguistic Theory*, Dordrecht: Kluwer Academic Publishers.

Grimshaw, J. (1990). *Argument structure*, Cambridge, Mass: The MIT Press.

Kayne, R. (1994). *The antisymmetry of syntax*, Cambridge, Mass: The MIT Press.

Kremers, J. (2000). Recursive linearization, ms. University of Nijmegen.

Ritter, E. (1991). Two functional categories in noun phrases: evidence from Modern Hebrew, *in* S. Rothstein (ed.), *Perspectives on Phrase Structure: Heads and Licensing*, Vol. 25 of *Syntax and Semantics*, San Diego: Academic Press, pp. 37–62.

Szabolcsi, A. (1994). The noun phrase, *in* F. Kiefer and K. Kiss (eds), *The syntactic structure of Hungarian*, Vol. 27 of *Syntax and Semantics*, San Diego: Academic Press, pp. 197–174.

Tremblay, M. (1991). The syntax of possession, *in* K. Leffel and D. Bouchard (eds), *Views on Phrase Structure*, Dordrecht: Kluwer Academic Publishers, pp. 57–81.