

# On the Acquisition of Word Order in Nominals

Jill de Villiers, Tom Roeper, Deanna Moore, Kyle Johnson

and Sarah Bateman

## 1. The Syntax of Determiner Phrases

A comparative study of how constituents are arranged within nominals reveals two important respects in which languages can differ. In some languages, like English, the genitive Case-marked possessor is in complementary distribution with the determiner. The genitive Mary's, for example, cannot grammatically combine with a determiner in English, as the contrasts in (1) indicate.

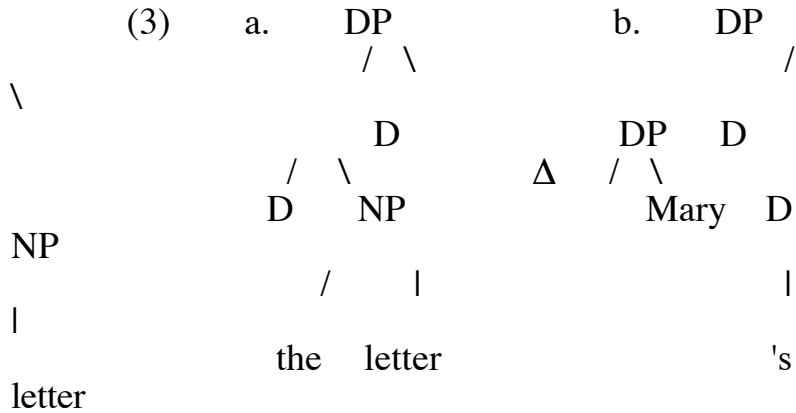
- (1) a. Mary's letter  
b. \*Mary's the letter / the Mary's letter  
c. \*Mary's some letter/ some Mary's letter

But in many languages, possessors are able to arise without the aid of genitive Case, and these can often combine with Determiners, as in the Italian (2a) or the Norwegian (2b).

- (2) a. la lettera di Gianni a Maria  
the letter of John to Mary  
(John's letter to Mary)  
b. valget til Per av leder.

election-the to Peter of leader  
(Peter's election of the leader)

The standard account for the unavailability of determiners and genitives in English is to let determiners and the genitive Case assigner compete for the same position. Since Abney (1987), this has been expressed by making either a determiner or a genitive Case assigner, here indicated with the phrasal clitic *s*, the head of the nominal, as in (3).



The possessors of Italian or Norwegian, by contrast, are not forced to appear in construction with a genitive Case-marking "determiner," and can instead receive Case from the Case particles *di* or *til*. This alternative method of Case assignment allows possessors in these languages to avoid being forced into a prenominal position. That they are thereby permitted to appear post-nominally is the result of a process that is responsible for the other locus of language variation. A variety of authors have argued that the postnominal possessors in (2) reside in the Specifier of the noun phrase that *lettera* and



(5a) and the Norwegian (6a); but the noun's complement cannot hold the antecedent to a possessive anaphor, as in (5b) or (6b).

- (5) a. L'opinione di Gianni<sub>1</sub> di se stesso  
the opinion of John of self  
(John's opinion of himself)
- Gianni<sub>1</sub> b. \*L'opinione di se stesso<sub>1</sub> di  
the opinion of self of Gianni  
(himself's opinion of John)  
(from Giorgi and Longobardi  
(1991, p. 24))

- (6) a. forfremmelsene til Per<sub>1</sub> av  
sin<sub>1</sub> venner  
promotions-the to Peter of his  
friends  
(Peter's promotions his own  
friends)
- av Per<sub>1</sub> b. \*forfremmelsene til sin<sub>1</sub> venner  
promotions-the to his friends  
of Peter (his own friends promotions of  
Peter]  
(from Taraldsen (1990))

These facts suggest, then, that the possessor is higher in the nominal than is the complement -- a picture that is consistent with the parses in (4). Norwegian provides another argument for placing postnominal possessors in a Specifier position past which the head noun has moved. As Taraldsen

(1990) shows, the av-objects of nouns in Norwegian cannot be separated from that noun by any other material; this is indicated by the contrasts in (7).

- (7) a. plaseringen av bildet i  
 skuffen  
 drawer-the  
 drawer)  
 placing-the of picture-the in  
 (the placing of the picture in the
- b. \*plaseringen i skuffen av  
 bildet  
 picture-the  
 picture)  
 placing-the in drawer-the of  
 (the placing in the drawer of the

Norwegian syntax requires that av-phrases be adjacent to the nouns they are complements of. The only exception to this generalization is found when postnominal possessors are present; these may intervene grammatically between noun and object, as we have seen in the examples above. This is explained if nouns in Norwegian nominals move out of the NP they head, as in (4), past the possessor.

Consider now whether English falls into the class of languages which have  $N^-$  Movement. Clearly, it does not pattern with Norwegian and Italian -- nouns in English do not typically precede possessors. But this is because English possessors must always bear the genitive Case which is assigned by  $D^-$  to Specifier of DP. As a consequence, English possessors are always in the very highest position in the nominal, and therefore even if English did have  $N^-$  Movement to X, it

would never result in post-nominal possessors. Indeed, so far as we know, there is no evidence from adult English for N<sup>-</sup> Movement.

It comes as some surprise, then, that there is evidence for N<sup>-</sup> Movement in the English of children. The presence of N<sup>-</sup> Movement in children's English becomes visible because children go through a stage, we will argue, where possessives need not be marked with genitive Case. Instead, they can be placed in Specifier of NP where, as in Italian or Norwegian, they are Case-marked by a dummy preposition. In these circumstances, the possessors appear postnominally, just as in their Norwegian and Italian counterparts. In what follows, we report four studies in which these constructions were elicited.

## 2. The Facts

In a serie sof studies, we have investigated the syntax of nominal phases in young English-speaking children, and reached some surprising conclusions. In our first study, 16 children from 3.5 to 5.9 were given a series of 12 sentences of the form in (8) and asked to choose from two pictures the one in which the activity reported takes place.

- (8) the crowning of him
- the watering of her
- the patting of him
- the kicking of him
- the pushing of him
- the vacuuming of me
- the sweeping of me
- the dusting of me
- the washing of me
- the hugging of me

the riding of her

So, for example, when presented with the crowning of him, they were asked to choose between (9a) and (9b).

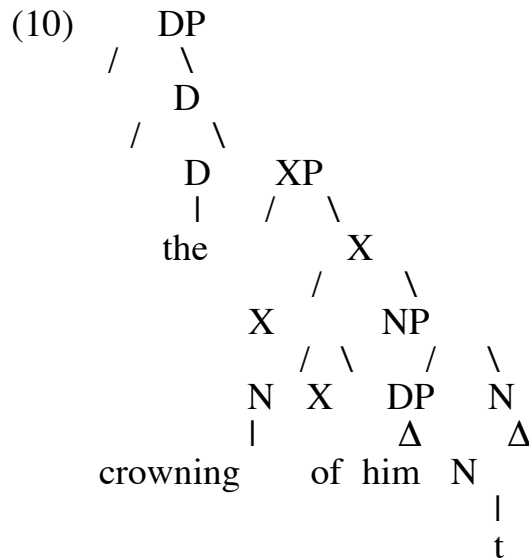
- (9) a.  
b.

the crowning of him'

16 children; 3.5-5.9

Adults would normally choose 9b) as the answer to "the crowning of him", but children chose the subject interpretation in 9a) almost three times more often. So, while the adult English judgement is that only the "object" interpretation is possible for the of-phrases in these examples, a significant number of the children favored the "subject," that is possessor, interpretation. Out of 201 responses, 147 gave the examples a "subject" interpretation, and only 54 gave them an "object" interpretation. Interestingly, with one exception, our children seemed to favor the "subject" or "object" interpretation on an individual basis. Five favored the adult-like "object" interpretation, while the other ten favored the "subject" reading.

It appears, then, that children at this stage are able to express possessors without genitive Case, employing instead the dummy Case-marker, *of*. In this respect, children make use of a strategy for Case marking possessors like that found in Italian and Norwegian. Notice that the possessor thus appears postnominally. Assuming that the grammars which children form are subject to the same constraints that adult grammars are, we suggest that such structures have used N<sup>-</sup> Movement to bring the noun before the possessor just as in Italian and Norwegian. This would give to the crowning of him a representation like that in (10). In other words, the possessor phrase is in the Spec of NP, and the noun has moved past it from the head of NP.



However, in the first study, all the nouns used were deverbal, and all the *of*-phrases had pronouns in them. This may represent a special case, so the second study extended this paradigm to other kinds



of nouns with of-phrases. In this study, 14 children aged 4-5 years were shown a set of five short pictured stories one at a time and after each one, they were asked a crucial question involving a potentially ambiguous of-phrase e.g. "show me the bowl of Crystal" where Crystal is a character in the story who owns a plastic bowl (possessive reading) and a second referent is a bowl made from crystal (substance reading). The five phrases were:

- (11) bowl of crystal
- flowers of June
- mug of clay
- jar of honey
- leaves of ivy

Table of Response Types (Study 2)

Substance of	Possessive of	Both	Adult speakers of English reject the possessive reading in
42	26	2	

favor of the substance reading, but every child gave at least 1 out of 5 possessive readings, with a total of 28 out of 70 possible. The implication is that their grammars permit both possessive and substance readings of the final of-phrase.

Unlike in the first study, however, we did not find that children segregated into groups that either uniformly got the possessive reading or uniformly got the substance reading. Instead, individual children vacillated between the two readings across trials. We entertained the

possibility, therefore, that the children's answers in the second study may have reflected guessing. That is, they may not have been able to get either possessor or substance readings for of-phrases, and chose between the pictures on the basis of some other criterion.

To test for this possibility, we decided to determine independently whether children at these ages have the substance interpretation for of-phrases. We consulted the English CHILDES corpora were consulted, but very few substance of-phrases were found. The vast majority of of-phases had either a quantity ("some of that") or containment ("cup of coffee") meaning. However, this could represent lack of opportunity for these expressions rather than a gap in their grammars; so we decided to elicit knowledge of substance of-phrases from young children.

In this study (Study 3), eight 3-4 year olds participated in an elicited production task, in which we presented the children with novel objects that were either containers, or were created out of an unusual substance. For instance, we presented them with a shoe full of pennies (unusual containment) and a shoe of tin-foil (unusual substance). In each case, we prompted the child by saying, "look, what's this? it's a shoe of " and recorded their continuation. We reasoned that a child who lacked the substance reading might be driven to say "a shoe of nothing" when presented with an empty shoe made of tin-foil. However, all eight subjects happily produced substance of-phrases for unusual objects e.g. "a shoe of tin foil," and "an envelope of fabric," in addition to containment of-phrases such as "a shoe of pennies" and "a box of marbles." Because these children were a year younger than

those in the second study, we assume that the substance of-phrases were also available to the children of the second study. The fact that they opted in favor of possessives so frequently suggests that both were still viable options for the grammars of 4 year olds.

The results of the second study therefore confirm that children go through a stage in which possessives can be expressed without genitive Case. And further, as in the first study, the conclusion follows that nouns must have been moved to a position preceding the possessive. So children are permitting possessives following the NP, the option permitted in adult Italian and Norwegian. But on what basis do children discover the more restrictive adult method of expressing possessives, a method which only allows possessives in the genitive Case-marked Specifier of DP position? A reasonable hypothesis is to imagine that the two strategies for expressing possessives are mutually exclusive. On this view, once children discover that adult English employs a prenominal, genitive form for the possessor, they would be forced to abandon the post-nominal possessive.

This hypothesis appears to be wrong: it is well-established (e.g. Brown, 1973) that children at these stages also produce utterances like "daddy's doll" from age 2 or 2 and 1/2 years. So it would seem that children simultaneously have both methods for expressing possessives.

But appearances can deceive, and there is some evidence that in this case they do. Two studies whose results suggest that expressions like "daddy's doll" do not have the same syntax for children at this stage as they do for adults. What other form could it have?

In the first of these studies (Study 4) the same eight 3-4 year old children who participated in Study 3 were run through the protocol in Study 2, but were asked at the conclusion to point to "Crystal's bowl," rather than to "the bowl of Crystal." Adults can only give a possessive reading to such a phrase. Surprisingly, there were many responses from the children (12 out of 40 possible, representing 7 of the 8 children) that reflected substance readings for such a phrase, suggesting that the meaning of the genitive form in such cases is closer to that of a prenominal modifier. Notice that this form exists in adult English grammar, where it is not a possessive. Consider the case of "ladies room" - the phrase resembles a possessive, but in the sentence "this conference center has a very nice ladies room" it is evident that it behaves as a compound. The sentence does not mean that the room belongs to a very nice lady.

This provides us with a way to test whether the structure is genuinely a prenominal possessive or a compound in the grammar of young English speakers. In the last study (Study 5), we tried to determine directly whether the renominal genitive form was in the same syntactic position that it is in the adult grammar. If the possessive noun is not in the Specifier of DP, the way it is in adult grammar, then it should be possible to have an additional determiner in front of such a phrase. In the adult grammar, as we have seen, the genitive 's in D, displaces the determiner. As a consequence, expressions like (12) only have a meaning where the two combines semantically with bears.

(12) The two bear's trees

In (12), the number of bears is two, and the number of trees is an unspecified plurality. If children do not put the prenominal genitive forms in Specifier of DP, however, we should expect them to be able to interpret expressions such as these with a meaning under which the two modifies trees rather than bears. That is, "bear's trees" might be interpreted as a kind of compound, and the two is a determiner attached to that compound. So for children, we might expect that they interpret such expressions as leaving the number of bears unspecified, but the number of trees is two.

We devised Study 5 as a test of this hypothesis with a further group of 26 3-5 year old children. The children were pretested on their ability to count to three, and their ability to give an exhaustive reading to a plural NP. In this pretest the children were told a story about a bad driver, Mikey, who was just learning how to drive and kept running into things. The children had control of Mikey in his car, and several toy trees were positioned on the table. the children were told to do exactly what E said, and E said:

- (13) Mikey knocked over two of the trees.  
Mikey knocked over one of the signs  
Mikey knocked over the chairs.

All children passed the pretest: they drove Mikey into exactly two trees, one sign and all of the chairs. Like adults, then, children understand unspecified pluralities in these contexts like universals.

After the pretest, a small village was set up with two or three bears in one house and two or three lions in another. No possessives were used:

the script called for E to say e.g. "this house belongs to the two bears" and "these three lions live in this house." The final scene, shown in (14), consisted of two houses with the creatures in them, then four trees and four signs in rows outside each.

(14)

The children were then asked to carry out one of the four actions in (15).

- (15)
- a. Mikey knocked over the two bears' trees.
  - b. Mikey knocked over the three lions' signs.
  - c. Mikey knocked over two of the bears' signs.
  - d. Mikey knocked over three of the lions' trees.

Consider only the critical cases (15a) and (15b). For the 26 children, these two requests resulted in 52 responses. Interestingly in 23 of these, children responded as if the two and the three modified trees and signs, rather than bears or lions.

Table of Response Types (Study 5)

[two bear's] trees	two [bears' trees]	other
24	23	5

Notice that these interpretations involve a rather careful (but unnecessary) counting of the objects, they were not "bash-em-down" responses. This strongly suggests that in the children's grammars, the genitive form does not correspond to that of the adult grammar.

In summary, we have presented evidence from 5 studies that converge on the following:

- (16) a. 4 year old children allow possessive interpretations of post-nominal of-phrases, as in Italian or Norwegian.
- b. 3 year old children permit substance-of-phrases in their grammars as well.
- c. 3 year old children allow substance readings of prenominal genitives.
- d. 3 to 5 year old children permit compound-type readings of prenominal genitives.

Apparently prenominal genitives may at first be more like compounds in adult English than like adult possessive structures. It remains to be explored what the trigger is for changing the grammar of these children to the option employed in adult English where the possessor is in the case marking position in the spec of DP. One possibility is that it is when children hear and can figure out from context the

meaning attached to phrasal possessives such as "the man in the middle's foot".

### References

- Abney, S. (1987) *The English Noun Phrase in its Sentential Aspect*, Doctoral Dissertation, Massachusetts Institute of Technology.
- Bernstein, J. (1991) "DPs in French and Walloon: Evidence for Parametric Variation in Nominal Head Movement," *Probus* 3(2): 101-126.
- Bernstein, J. B. (1993) *Topics in the Syntax of Nominal Structure Across Romance*, Doctoral Dissertation, CUNY.
- Giorgi, A. and G. Longobardi (1991) *The Syntax of Noun Phrases*. Cambridge, Cambridge, University Press.
- Picallo, C. M. (1991) "Nominals and Nominalizations in Catalan," *Probus* 3(3): 279-316.
- Taraldsen, T. (1990) D-projections and N-projections in Norwegian, *Grammar in Progress* *Glow Essays for Henk van Riemsdijk*. J. Mascaro and M. Nespør. Dordrecht, The Netherlands, Foris Publications: 419-432.
- Valois, D. (1991) *The Internal Syntax of DP*, Doctoral Dissertation, University of California, Los Angeles.