

PSEUDO-QUANTIFICATION IN POSSESSIVES

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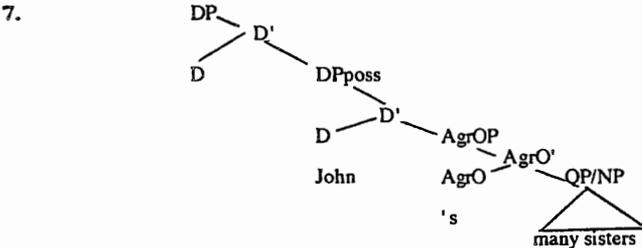
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1. Overview

In his 1993 analysis of possessive constructions, Kayne notes an asymmetry in quantifiers and determiners' abilities to modify non-relative-clause possessive constructions

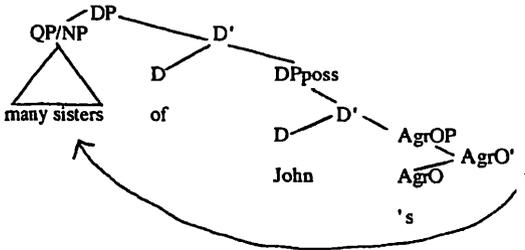
1. John's many sisters
2. *John's the sisters
3. Many friends of John's
4. *The friend of John's
5. John has many sisters
6. *John has the sisters

He accounts for this difference between (1-2) and (3-4) by positing the following structure



In this structure, *many sisters* is generated in QP/NP. It may either remain in situ, giving rise to the structure in (7) (which I will call the 'non-raised' possessive construction) or raise to spec, DP, giving the structure in (8) (on the following page), which I will call the 'raised' possessive construction

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[DP many sisters_i [_D of [_{DP_{poss}} John [_{Agro} 's [_{QP/NP} t_i]]]]]

In the latter case, *of* is inserted in the head of DP in order to case-mark the possessor. Kayne argues that *a* in *a sister of John's* must be treated as a quantifier rather than a determiner, since a determiner such as *the* would compete for the position occupied by *of* (giving rise to ungrammatical structures such as (2))

By this account, all quantifiers should be allowed in structures such as (1-6), while all determiners should be ruled out. Another asymmetry not predicted by Kayne's account is the differences in grammaticality of different quantifiers in raised and non-raised possessive constructions

- 9 (a) Some friends of John's
 (b) *John's some friends
 (c) Every friend of John's
 (d) ??John's every friend
 (e) No friends of John's
 (f) *John's no friends
 (g) Few friends of John's
 (h) John's few friends
 (i) Many friends of John's
 (j) John's many friends
 (k) Three friends of John's
 (l) John's three friends

Here, we see that *few*, *many*, and non-modified numerals are privileged in these contexts: only these items may freely modify non-raised possessed nominals. Other quantifiers, such as *some*, *no*, and *most* may modify raised, but not non-raised, possessed nominals. *Every* and modified numerals such as *less than three* are exceptional; their appearance in non-raised possessive constructions is generally marked or ungrammatical in American English, though claimed to be fully allowable in British English. I will address these cases later in this paper.

These data demonstrate two points: first, the QP/NP slot posited for possessed nominals in Kayne's model cannot allow just any quantificational element to remain in situ (as he notes without comment in his monograph), and second, the class of elements it can accept in these contexts seems, at first glance, puzzling. It has been suggested (Hoekstra, class lectures) that only weak quantifiers may occupy this slot. This hypothesis, however, turns out to be too strong: while all the elements that may modify non-raised possessed nominals are weak, not all weak QPs may do so (cf. the ungrammaticality of *some* and *no* in examples 9(b) and 9(f)).

These data suggest, nonetheless, that *many*, *few*, and the numerals form a unified semantic and syntactic class that allows them to participate in both raised and non-raised possessive constructions. In the remainder of this paper, I will address the following issues. First, how can *many*, *few*, and the numerals be unified semantically? Second, what role does the syntactic structure of possessive constructions play in determining which class of QPs it allows—or doesn't allow—to remain DP-internal?

2. More asymmetries between raised and unraised possessives

Another fact not accounted for under the analysis in (7) and (8) is a sharp difference in meaning between raised and non-raised modified possessed nominals. Consider the following

- 10 (a) John's many friends brought him a present
 (b) Many friends of John's brought him a present
 (c) John's few friends lifted the table
 (d) Few friends of John's lifted the table

The non-raised construction in 10(a), as is well known, only allows the reading in which John's friends brought a present collectively, while the raised construction in 10(b) gives the reading in which John's friends brought him gifts individually. This pattern holds true in 10(c) and 10(d) as well. 10(c), the non-raised construction, only allows the reading that John's friends lifted the table collectively, while 10(d) only allows the reading that they did so individually.

Another contrast that emerges from these data is a difference in presupposition between raised and non-raised modified possessed nominals. The non-raised examples in (10) imply exhaustive listings. 10(a) and (c), for instance, imply that all of John's friends brought him a present or lifted the table, while 10(b) and (d), the raised constructions, imply that some of his friends didn't participate in these events.

This contrast is reflected in the differing functions served by the modifiers *many* and *few* in the raised and non-raised constructions. In the non-raised constructions, they have a strictly appositive reading. 10(a), for instance, can only be interpreted as 'the group consisting of John's friends brought him a present, and they were many'. 10(b), in contrast, cannot receive such a reading; it can only be interpreted as 'there exists a group consisting of many of John's friends, and they brought him a present'.

The appositive flavor of the modifiers of non-raised possessed nominals brings to mind Szabolcsi's (1996) analysis of modifiers such as *more than six* and *many* in Hungarian (*few* and the non-modified numerals pattern differently in Hungarian). These elements differ from other quantifiers in that they "do not contribute an entity to the interpretation of the sentence [assuming a DRT-based model of semantic representation] and do not serve as a logical subject of predication" but rather "perform a counting operation on the property denoted by the rest of the sentence."

The unraised QPs with *many* and *few* in (10) seem to fit some aspects of this description. Stated informally, *many* and *few* in these contexts seem to serve the function of counting a presupposed group of entities.

Thus far, then, I have shown a number of differences in interpretation and syntactic behavior between raised and non-raised modified possessed nominals.

- Only *many*, *few*, and non-modified numerals may modify non-raised possessed nominals
- Raised modified possessed nominals have distributive readings; non-raised ones do not
- Raised modified possessed nominals receive partitive readings, non-raised ones receive cardinal readings

These contrasts raise two questions: first, why does raising the possessed nominal change the interpretation of the possessed DP, and second, since the non-raised possessed nominals shown above behave differently from other quantifiers, should they really be analyzed and treated as QPs?

3. The case against DP-internal quantifiers

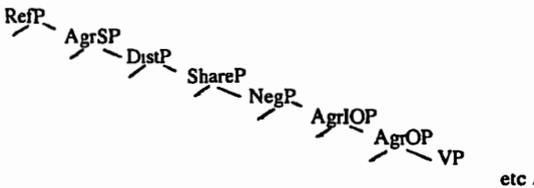
A crucial factor in determining the nature of modifiers in unraised possessives is the well-known fact that quantifiers do not behave identically. Even on its raised, potentially distributive reading, for instance, *many* behaves differently from distributive universals like *every*. Here, I use the ability for a *different NP* to be distributed over as a diagnostic of true distributivity.

- 11 (a) Every/each professor of mine recommended a different book
 (b) *Many/three professors of mine recommended a different book
 (c) Every professor recommended a different book
 (d) *Many/few professors recommended a different book

While the true distributive universals in 11(a) allow a *different book* to be interpreted as a different book for each professor, the same cannot be true for 11(b). The same holds true to *many/few* in non-possessive constructions, as seen in 11(c) and (d).

This difference in behavior between *every/each* and *many* points to the syntactic and interpretive differences among the different quantifiers proposed by Stowell and Beghelli (1995). They propose, consistent with the data shown above, that quantifiers do not behave uniformly, and that a general rule allowing variable scope relations between any pair of quantifiers is inadequate. In place of a general rule of QR mediated by quantifier-specific rules and filters, they propose a fairly rigid syntactic structure in which different quantifiers occupy different, hierarchically ordered functional projections at LF, depending on their interpretation and function.

- 12 [RefP [AgrSP [DistP [ShareP [NegP [AgrOP [VP]]]]]]]



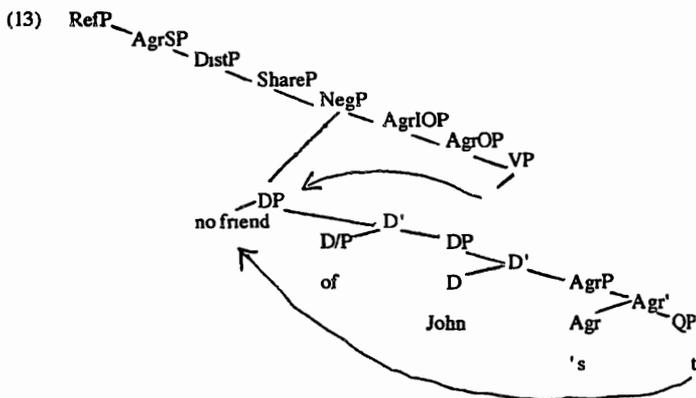
The highest of these projections, RefP, is occupied by definite NPs; distributive universals (e.g., *every*) occupy DistP. DistP, in turn, subcategorizes a filled ShareP complement, which contains either an indefinite or an existential event quantifier. Modified numerals (e.g., *less than three*) and unstressed indefinites appear in either AgrSP or AgrOP. Unlike the other QP landing spots, these positions are case-marking positions rather than pure LF scope positions; they allow their material to reconstruct to VP internal positions while the other projections do not. 'Wide scope'

indefinites raise to RefP. Definites and bare indefinites with distributive readings do not raise to DistP, but are able to distribute over complements by means of a covert operator (silent *each*) that may appear below ShareP and any of the AgrPs, but not below RefP

This model provides a solid foundation with which to examine the behavior of raised and unraised *many/few* in possessive structures, and points toward the solution to an obvious question given this hierarchy of quantifiers, where do *many/few* occur in the different possessive structures?

First, consider the case of unraised possessive structures. As noted in section 1, the range of quantifiers allowed to modify unraised possessed NPs is limited to *many*, *few*, and bare numerals. Clearly, then, possessive DPs do not contain the full range of projections necessary to house the full range of quantifiers. I will thus argue that the putative QP position within possessive DPs is actually only an NP position assigned case by AgrO, and the 'quantifiers' that may appear in this position are adjectival modifiers. **John's some friends*, for instance, is thus illicit because there is no ShareP or RefP to license *some*.

The obligatory raising of possessed nominals with other quantifiers is thus accounted for just as the full range of QPs can be base-generated VP-internally, but can only be licensed and assigned scope in the LF positions shown above, a full range of QPs can likewise be generated within possessive DPs, but must raise out to the appropriate functional projection in order to be licensed. Thus, possessed nominal QPs obligatorily raise to spec, DP, allowing their features to percolate to the remainder of the DP, thus allowing the entire possessed DP to raise to the appropriate LF projection in the matrix clause.



The semantics of non-raised possessed nominals also points to their non-quantificational nature. As previously noted, these elements behave as 'counters' rather than set introducers, as do the other quantifiers. Szabolcsi associates the 'counter' behavior of certain nominal modifiers in Hungarian with a specific projection (PredOp, or the 'predicate operator' position) which she considers analogous to Stowell and Beghelli's AgrOP/AgrSP projection.

I will argue that, on their 'counter' interpretation, *many*, *few*, and the numerals are not quantifiers at all, but are adjectival modifiers. The fact that these elements—but not other quantifiers,

even those that may also have both cardinal and proportional readings— may appear as predicates supports this claim

- 14 (a) His friends are many, and his enemies are few
 (b) *His friends are some, and his enemies are none
 (c) The Apostles are twelve

Bare numeral predicates are admittedly harder to get — and to my ear, sound archaic and forced — but are grammatical in many dialects, as seen in 14(c) from Higginbotham 1986

The non-quantificational nature of the possessed NP position is further supported by the interpretation of bare possessed NPs, which, like other weak QPs, may receive either cardinal or proportional readings

- 15 (a) John's friends threw him a party
 (b) Friends of John's threw him a party
 (c) There were friends of John's at the party
 (d) *There were John's friends at the party

Quantity-denoting adjectives such as *numerous* also show the same pattern in raised and unraised possessives

- 16 (a) John's numerous novels drew rave reviews
 (b) Numerous novels of John's drew rave reviews

Bare plurals show the same correspondence between syntactic position and interpretation as *many/few* 15(a), with the unraised possessed nominal, has an exhaustive/generic reading (all of John's friends were involved), while 15(b), with the raised possessed nominal, has a proportional/existential reading (there was a group of John's friends involved, but not necessarily all of them) Likewise, possessed bare plurals show the same contrast in definiteness effects in their raised and non-raised variants (15(c) and 15(d)) as do raised and non-raised possessed nominals modified by *many/few* and numerals This supports the idea that a feature of the DPposs-internal syntactic position for possessed nominals, rather than some idiosyncratic feature of *many/few*, is responsible for non-proportional readings

4. Constraints on Genuine Predicate Operators in Possessives

So far, I have drawn a parallel between the interpretation of non-raised modified possessed nominals and so-called 'predicate operators' In the analysis assumed above, quantity-denoting modifiers of unraised possessed nominals should be considered adjectives, rather than quantifiers, and these adjectives should be considered syntactically and semantically equivalent to Szabolcsi's predicate operators

A potential problem for this analysis is the distribution of modified numerals such as *more than three* and *less than five* In most dialects of American English (including my own), they cannot be construed as adjectival modifiers within possessives, since they cannot serve purely adjectival functions elsewhere

- 17 *John's friends are less than five

Such constructions, however, are grammatical in British English (J Higginbotham, p c) Thus, British English treats modified numerals as adjectives (as the previously described account predicts) while most American English variants do not

This contrast is reflected in the distribution of modified numerals in unraised possessives. In American English, they are generally disallowed.

- 18 (a) *John's more than five CDs lay on the floor
 (b) *John's more than five novels got mixed reviews

These examples, however, are said to be fully grammatical in British English.

It appears, then, that dialects that allow modified numerals to serve as adjectival predicates also allow them to appear in unraised possessives, while dialects that do not permit modified numeral predicates also disallow modified numerals in unraised predicates. The former case is non-problematic. British English freely allows modified numerals in non-raised possessives because it considers modified numerals adjectives, and adjectives may freely modify non-raised possessed nominals.

The constraints on modified numerals in American English, however, raise serious questions about their exact constituent status. They cannot be adjectives (since they cannot be used as adjectival predicates), and if Szabolcsi's and Beghelli and Stowell's analyses of different quantifiers are correct, they should be considered syntactically and semantically distinct from other "set-introducing" quantifiers. Yet Stowell and Beghelli consider predicate operators distinct from other quantifiers precisely because they can be licensed in any case-marking (AGR) projection and do not need to raise to any of the specifically quantificational functional projections they posit. If this is the case, and since the non-raised possessed nominal position is a case-marked position, then why can't modified numerals appear there?

A possible solution comes from an observation by Tim Stowell (p.c.). He notes that the grammaticality of modified numerals in unraised possessed nominals improves if the modified numeral is salient for the interpretation of the predicate.

- 19 (a) John's fewer than three mistakes didn't affect his final grade
 (b) ?John's more than three projects will be enough to keep him busy all week
 (c) ?Our restaurant's more than 50 kinds of pizza should please every palate
 (d) ?I'm supporting my more than five kids on half your salary!

In each of these cases, the modified numeral denotes either a quantity that makes the truth of the predicate possible (as in 19(c), in which the fact that the restaurant has more than 50 kinds of pizza is what enables it to please everyone) or is otherwise relevant to the truth value of the predicate.

Another interesting fact about modified numerals in non-raised possessives is that, in dialects that generally disprefer them, they are almost always interpreted with focus readings in the few cases they are allowed.

20. A My three workers can do the job in five days
 B Oh yeah? My MORE THEN FIVE workers can do it three days!
 A Inflation is terrible. I can barely keep my two kids in shoes on what I'm making
 B Well, I can keep my MORE THAN THREE kids clothed on the same salary!

For the purposes of this paper, I take the commonly accepted view that focus intonation in English represents movement to some higher focus projection at LF. If this is so, then a connection can be made between the limited contexts in which modified numerals may appear inside non-raised possessives and their obligatory focus readings: modified numerals in dialects

that do not treat them as adjectives are what I will call "true" predicate operators: they exist to count some appropriate feature denoted by the predicate, and thus need an appropriate property to count. In order to do so, however, they need to take syntactic scope over the predicate (that is, the verb) I will tentatively assume the following

- "True" predicate operators must c-command V by LF

If this holds, then two predictions can be made. First, modified numeral subjects may reconstruct and take scope within VP at LF, as predicted by Stowell and Beghelli, since their VP-internal position is in the specifier of VP (if not in a higher adjunct to VP, as claimed by Koopman and Sportiche 1991). Second, modified numeral objects may not reconstruct to VP-internal position, since they would then be below V

The first prediction is easily borne out. *More than three teachers read every paper*, for instance, may mean "every paper is such that more than three teachers read it" as well as "there are more than three teachers who read every paper"

The second prediction is confirmed by the interaction of modified numeral direct and indirect objects. Since AgrIOP is higher than AgrOP, modified numeral indirect objects should always scope over modified numeral direct objects, since neither would be able to reconstruct to VP-internal position. This indeed proves to be the case

- 21 John gave three books to six children, but gave more than three books to less than five children

Here, the only possible reading is that six children got three books each, and fewer than five children got more than three books each

Thus, the syntactic motivation for focus of modified numerals has been established: modified numerals must c-command V, which they cannot do from inside possessive DPs. By raising to focus (indicated by focus intonation) they are able to scope over V and perform their counting operations on the predicate

The constraint on the type of predicate allowed to occur with modified numerals in unraised possessives can also be accounted for: focus of the modified numeral is only triggered by the presence of an appropriate predicate. Thus, in 19(b), it is not John's projects per se, but the fact that they number more than three, which is relevant for the interpretation of the predicate. In contrast, in 18(a) the fact that John's CDs number more than five is irrelevant to the fact that they are lying on the floor. *More than five* has no property to count, and the sentence is thus ungrammatical

5. The position of *every*

One remaining problem is the most glaring apparent counterexample to the above analysis: the possibility of *every* in unraised possessives

- 22 (a) John's every move was tracked by the police
 (b) John's every dream came true

Unlike *many/few* and the numerals, however, *every* can only appear in a small number of possessive contexts. First, as often noted, it can appear when the set of possessed objects being described is open in number, but not when it is inherently closed or defined

- 23 (a) ?John's every Star Trek video
 (b) *John's every sister

Unraised *every* seems to appear most felicitously, however, when the possessee is internally generated by the possessor:

- 24 (a) John's every step/move/breath/ heartbeat
 (b) John's every dream/nightmare/goal/wish/preference
 (c) *John's every lunch/project/paper

I leave aside the (extremely interesting) question of why this constraint should hold, and return to the issue at hand if there is no quantifier position inside possessive DPs, then how can *every* appear in this context?

It is interesting to note that in unraised possessives, *every* cannot receive distributive readings

25. (a) *John told his every dream to a different psychiatrist
 (b) *John's every move surprised a different detective

This clearly supports the idea that no DistP projection appears within DP

One possibility is that *every* forms a constituent with the possessor, rather than the possessee. Evidence for this comes from the fact that while possessee modified by *many*, *few*, and the numerals may be coordinated with each other, they may not be coordinated with possessee modified by *every*

- 26 (a) John told the psychiatrist his many dreams and few nightmares
 (b) *John told the psychiatrist his many dreams and every nightmare

This contrast shows that *many N* and *every N* cannot be the same type of constituent. I leave aside the worthy question of the exact internal syntactic structure of *John's every* in examples such as (24)

Summary

This paper has thus accounted for the asymmetric distribution of 'quantifiers' inside possessive constructions: true quantifiers such as *every*, *no*, and *some* may not modify possessed nominals in unraised possessive constructions because DPs do not contain the appropriate functional projections to license them. They may modify the possessed nominal in raised constructions because by raising to spec, DP, they enable the entire possessive DP to raise to the appropriate functional projection in the matrix clause.

The quantity-denoting modifiers that can appear within unraised possessive constructions are adjectives; the preceding analysis has shown that these are both syntactically and semantically distinct from true quantifiers.

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