

Few Dogs Eat Whiskas or Cats Alpo*

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One of the interests in the Gapping construction is the headache it causes for those trying to get constituency structure right. On the assumption that Gapping, like other processes of sentence grammar, respects constituency, it is very hard to deliver the right constituents in cases such as (1).

- (1) a. Some consider him honest and others ~~consider him~~ pleasant.
- b. The faculty brought scotch to the party and the students ~~brought beer to the party~~.
- c. The girls occasionally ate peanuts and the boys ~~occasionally ate~~ breath mints.

(Understand the material in strikeouts to be Gapped.) Everything else tells us that the Gapped strings in (1) should not form a constituent which excludes the material left behind. Yet, the fact that only when the verb Gaps may the other material too suggests just the opposite. That is, if we deny that the verb forms a constituent with the other material, and let Gapping apply to each of the elided constituents independently, we would have no way to express this dependency. If we let Gapping only elide constituents that house the verb, on the other hand, it follows.

But the constituency problems are small potatoes when compared to the problems Gapping poses for scope. If one makes the normal assumption that everything in a Gapping construction is either in the first or the second of the coördinates, then one can get a full-blown migraine trying to work out cases like (2)-(4).

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- (2) a. Not every girl₁ ate a GREEN banana and her₁ mother ~~ate~~ a RIPE one.
 b. No boy₁ joined the navy and his₁ mother ~~join~~ the army.
- c. *Not every girl₁ ate a green banana and her₁ mother sold a ripe one.
 d. *No boy₁ joined the navy and his₁ mother headed the army.
- (3) a. Kim didn't play bingo or Sandy ~~didn't~~ sit at home all evening.
 $\neg((\text{Kim played bingo}) \vee (\text{Sandy sat at home all evening}))$
 $*(\neg(\text{Kim played bingo}) \vee \neg(\text{Sandy sat at home all evening}))$
 (Oehrle 1987 (27):205)
- b. Kim didn't play bingo or Sandy didn't sit at home all evening.
 $(\neg(\text{Kim played bingo}) \vee \neg(\text{Sandy sat at home all evening}))$
- (4) a. A German shepherd is rarely named Kelly or an Irish setter ~~is rarely named~~ Fritz.
 b. A German shepherd is rarely named Kelly or an Irish setter is rarely named Fritz.
 c. A German shepherd is rarely named Kelly and an Irish setter is rarely named Fritz.
 (\approx Few German shepherds are named Kelly and few Irish setters are named Fritz.)

Unexpectedly, the scope of a quantificational subject in the left conjunct seems to include material in the right conjunct. That is why the pronouns in (2a) and (2b) can be bound by *not every girl* and *no boy*, but the parallel pronouns in (2c) and (2d) cannot. Similarly, the sentential negator, *not*, in the first disjunct of (3a) appears to have both of the disjuncts in its scope. Thus, (3a) denies that either Kim played bingo or Sandy sat at home all evening. This isn't the reading that arises when there is no Gapping in the second conjunct, however, as in (3b). This sentence is truly a disjunction of two denials. Finally, the quantificational adverb, *rarely*, acts as if it has scope over both disjuncts in (4a), where Gapping has applied, but not in (4b), where it hasn't. Thus, (4a) has a reading similar to that found in (4c), in which the rarity of both German shepherds named Kelly and Irish setters named Fritz is asserted. The statement in (4b) is weaker: it merely claims that one or the other the propositions is rare.

I have suggested in an unpublished paper¹ that there is a way of relieving the migraine of scope which brings relief to the headache of constituent structure as well. Let us accept the consequence from the scope evidence that the material which appears to have scope over the conjoined or disjointed clauses is in fact not within the left clause. Suppose instead that the subject, verb, and clausal modifiers are outside of coördination, as in (5).

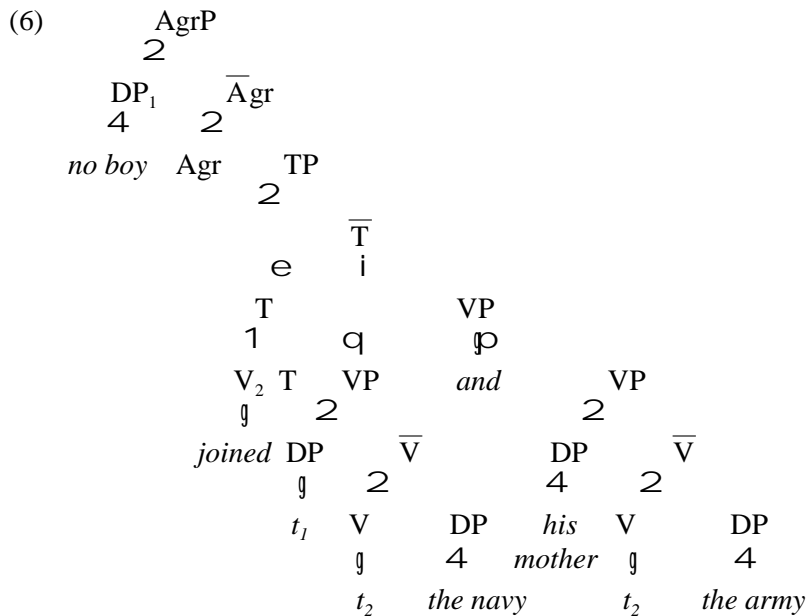
- (5) Subject V *not* adverb [...Object] and [Subject ... Object].

This can be achieved with a judicious mixture of across-the-board and non-across-the-board movement of the wide-scope material out of the coördinates.

Let me illustrate by considering how the instances of surprising wide-scope in (2)-(4) can be achieved. Imagine that Gapping constructions involve coördinated VPs, rather than full clauses. Imagine furthermore that main verbs move overtly in English, as argued in Johnson

¹See Johnson 1996.

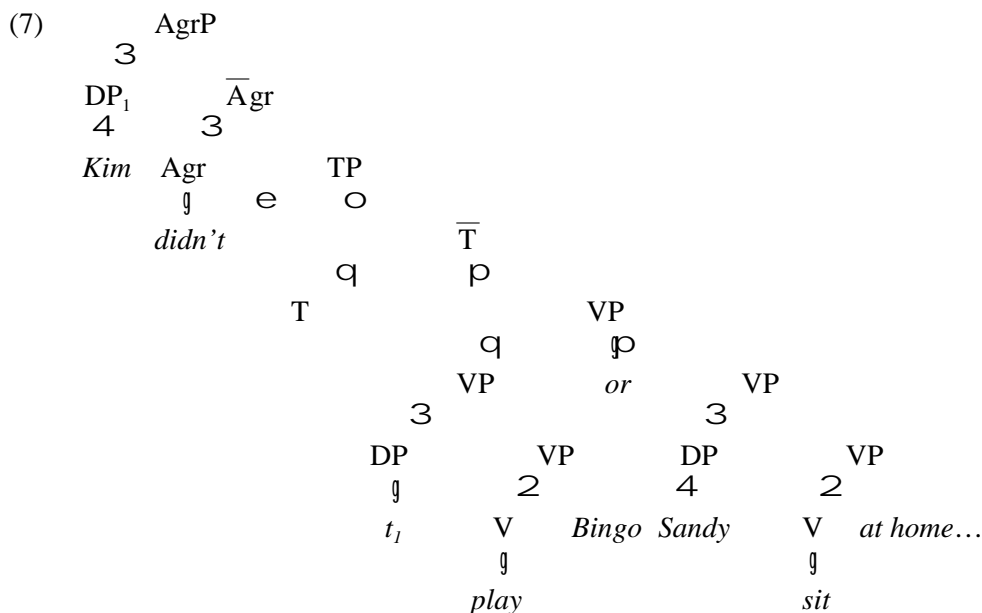
1991, Runner 1995, Koizumi 1995 and others. Gapping of a verb can then be seen as an instance of across-the-board movement of the verb out of each of the coöordinated VPs. The relative order of the subjects can be brought about by moving the subject of the first coöordinate into a position to the left of the main verb, and leaving the subject of the right coöordinate in its underlying position. Fixing some background assumptions about English clauses,² this will give to (2b) the surface representation in (6).



This parse correctly gives *no boy* scope over both coöordinates.

In (3a), where it is an auxiliary verb and the negation attached to it that has scope over the coöordinates, this proposal would produce a surface parse like (7).

²In particular, I will assume that main verbs can move into T°, the position associated with tense morphology; and that there is a higher functional position, Agr°, associated with agreement morphology that auxiliary verbs can move to in English. (Here, I follow basically Pollock 1989.) I will also assume that subjects have an underlying position within VP, and that the Specifier of AgrP must be occupied by some phrase on the surface, forcing movement of the subject of the first coöordinate into Specifier of Agreement phrase.



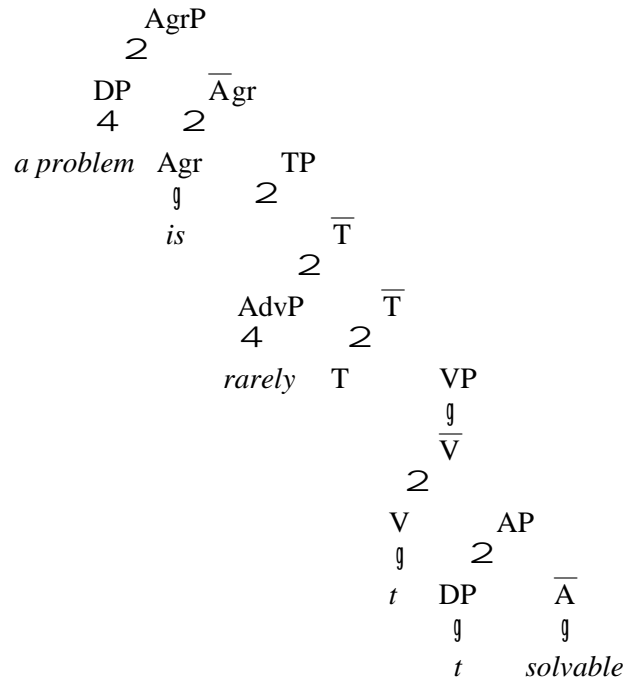
In this example, *didn't* embeds the disjoint VPs, and the subject of the first moves into the Specifier of AgrP, while the subject of the second remains in its underlying position. The result is a parse that correctly gives *not* scope over the entire disjunction.

Finally, let's consider the situation in (4a), in which *rarely* has scope over the coördination. To understand this case, we need to make some prior decisions about how quantificational adverbs are interpreted in contexts like these. The interpretation for (4a) that we are interested in is one in which *rarely* relates the indefinite subjects of the two disjuncts to the predicates of those disjuncts in much the same way that the determiner *few* would. On one popular method of capturing this kind of interpretation of quantificational adverbs, they are treated as "unselective binders" which catch variables in the subjects and predicates of the sentences they are found in. In Heim 1982 (and Kamp 1981), for instance, the indefinite determiner *a* differs from other determiners in being semantically vacuous – indefinites with this determiner are open predicates. We can think of *a* as introducing the variable that the NP predicates on and which is bound by the quantificational adverb. Thus, for instance, in (8), we can imagine that there is a representation in which *rarely* binds both a variable in the VP and the variable that *a* invokes.

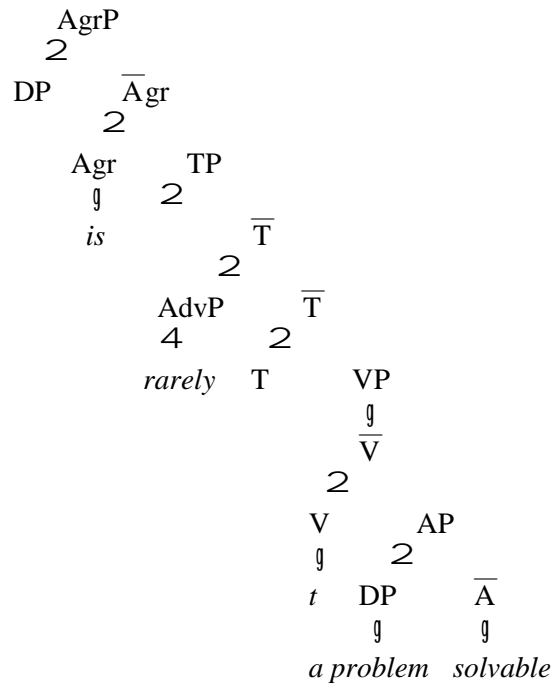
(8) A problem is rarely solvable.

So, from the surface parse in (9a), let the reading we are interested in come by way of the Logical Form in (9b) which results from lowering the Subject.

(9) a.



b.



With this background, the proposal here about Gapping would give to (4a) the surface representation in (10).

(12)

AgrP
2
DP_i Agr TP
4 2
some Agr TP
2
T̄
2
T AgroP
1 3
V₃ T DP₂ Agr
g 4 3
consider *him* Agro VP
g q p
*t*₃ VP *and* VP
2
DP V̄ DP V̄
g 2 4 2
*t*₁ V AP *others* V AP
g 2
*t*₃ DP Ā *t*₃ DP Ā
g 4 g 4
*t*₂ *honest* *t*₂ *pleasant*

The parse in (12) assumes that Accusative Case marked DPs overtly move out of the VPs they start in, perhaps to get Case. I have indicated this in (12) by moving the Accusative subject into the Specifier of Object Agreement phrase. With this assumption it is possible for both the Accusative subject and the verb in this construction to Gap independently, without losing the fact that the Accusative subject cannot Gap if the verb doesn't also. It was this dependency, recall, that lures one to the belief that there are strange constituents in (1). Under the proposal here, however, Gapping is the product of the small size of the constituents coördinated (which is what solves the scope migraine) and the availability of across-the-board movement out of those coördinates. Only when the coördinated constituents are small enough for the verb's movement to occur across-the-board, and create the Gap, will it be possible for the movement of other terms to occur across-the-board, and create a Gap. Consider, for example, what would have to happen on this account for the Accusative subject to Gap and the verb not to. If the verb doesn't Gap, then its movement to T° must not have brought it out of the coördinates. If the verb's movement is obligatory, then this means that the coördinates must be larger than T° ; and if the coördinates are that large, they are too large for the Accusative subject to have escaped them by across-the-board movement. This is how a solution to the scope problem can be seen as solving the constituency problem too.

Perhaps this kind of strategy can be extended to the other cases in (1). If indirect objects undergo the kind of short movement that I have credited Accusative DPs with, then the Gapped indirect object in (1b) can be achieved through across-the-board movement. (Runner 1995 argues that indirect objects do undergo this kind of movement, and so does Hornstein 1995.) And if the adverb in (1c) can be generated outside of the constituents that have been coöordinated (in a way parallel to (10), perhaps), then this case too will not require a departure from normal views of constituency.³

To make this approach convincing, I would have to exhaustively study the cases in which the scope and constituency problems arise, and show that they do connect in the way just sketched. I would also have to find a way to make some of the oddness of the parses I have offered for Gapping constructions more palatable. Why, for example, doesn't the movement of the subject out of the first coöordinate violate John Ross's Coöordinate Structure Constraint? And how is it that the subject of the second coöordinate is able to remain in its underlying position? Subjects are not normally able to stand in this position in English.

In this short paper, I will not attempt either of these, large, projects. Instead, let me offer one positive attribute of the suggestion made here as evidence on its behalf, and then turn to an understudied instance of Gapping which I believe recommends this direction.

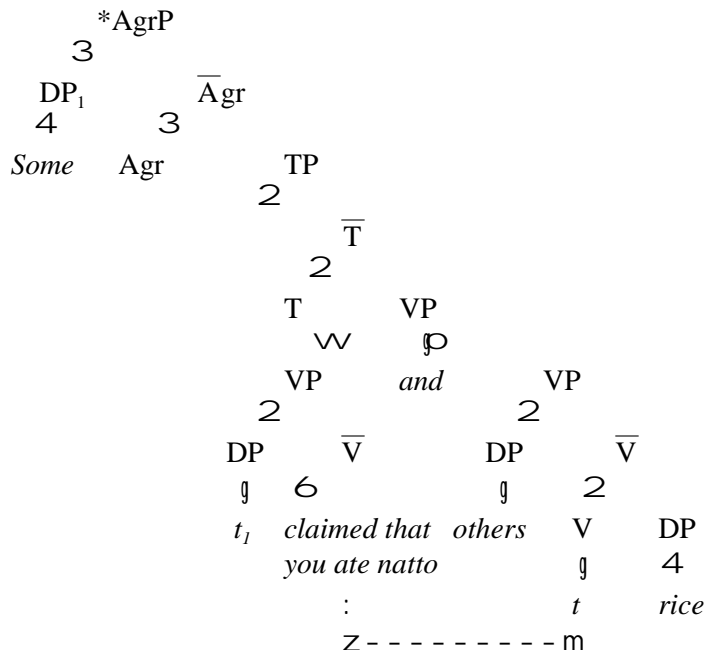
The positive attribute of this proposal is that it can use constraints on movement to give shape to Gapping constructions. For example, because the proposal makes Verb Movement responsible for Gapping a verb, the effects of Lisa Travis's Head Movement Constraint should be forced on Gapping constructions. The Head Movement Constraint prevents one verb from moving past another, and in some incarnations, forces a verb to move to c-commanding positions as well. And, in fact, Hankamer 1979 discusses a constraint on Gapping which could be described in just these terms. Neither the Gap, nor its antecedent, may be embedded under another verb, as in (13).

- (13) a. *Some claimed that you ate NATTOO, and others ~~ate~~ RICE.
 b. *Some ate NATTOO, and Mittie claimed that others ~~ate~~ RICE.

On the present proposal, (13a) is blocked because it would require the Gapped verb to move downwards, from a root clause into an embedded clause, as indicated in (14).

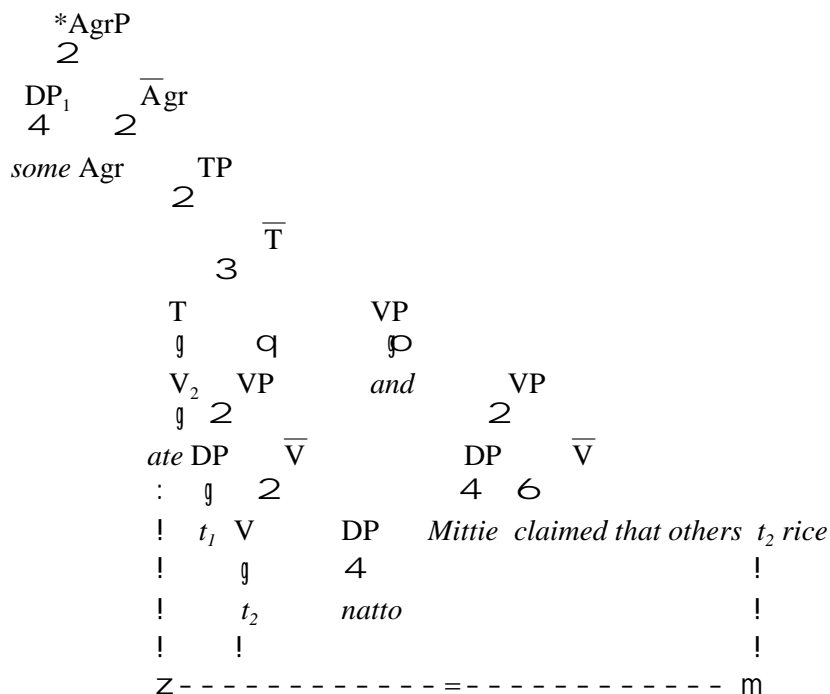
³Of course, some of the constituency problems posed by Gapping may find their solution in a revision to standard parses.

(14)



And (13b) will be blocked because it would require the verb to have moved out of an embedded context, past many intervening heads, as shown in (15).

(15)



Similarly, because this account predicts that a verb can Gap together with an embedded subject only when that subject can move out of the embedded clause, we should see here too the effects of constraints on movement. It is well-known that a subject can move into a higher clause

only out of non-finite clauses.⁴ The subject of the infinitival clause in (16a), for example, is able to move into the higher clause past the particle *out*, but a similar move is not available to the subject of the finite clause in (16b).

- (16) a. Sam made *this*_{*t*} out [*t*_{*t*} to be a good idea].
 b. *Sam made *this*_{*t*} out [*t*_{*t*} is a good idea].

And, as expected, the subject of a finite clause is not able to Gap along with a higher verb, though the subject of an infinitival complement is. There are contrasts such as (17).

- (17) a. Some believe him to be honest, and others ~~believe him~~ to be crooked.
 b. *Some believe he is honest, and others ~~believe he~~ is crooked.

Because the subject of the infinitival clause in (17a) is able to undergo movement into the higher clause, there is a parse for this sentence parallel to (12), in which the subject moves across-the-board out of the conjoined VPs. But no such movement is possible for the subject of the finite clause in (17b), and so a representation like that in (12) is unavailable.

In general, then, some of the constraints on Gapping constructions can be found in the constraints known to hold of movement operations under the present proposal. And to a significant degree the shape that Gapping constructions take do, in fact, seem to reflect these constraints on movement. (The discussion of Gapping in Pesetsky 1982 is instructive in this regard.) Despite the obstacles to be overcome, therefore, let's pursue this solution to the constituency problem.

McCawley 1993 introduces a dramatic instance of the constituency problem. He shows that, under certain circumstances, a determiner may Gap with a verb, and leave behind the NP that the determiner would normally combine with. Some examples are found in (18).

- (18) a. Too many Irish setters are named Kelly and ~~too many~~ German shepherds ~~are named~~ Fritz.⁵
 b. The duck is dry and ~~the~~ mussels ~~are~~ tough.
 c. Your daughter is 16 and ~~your~~ son ~~is~~ 17 ½.
 d. No representative voted for the proposition or ~~no~~ senator ~~voted~~ against it.
 e. Each student brought beer and ~~each~~ faculty member ~~brought~~ scotch.
 f. Few dogs eat Whiskers or ~~few~~ cats ~~eat~~ Alpo.

Of course, determiners cannot normally elide in English:

⁴In addition to the work cited above by Runner, Koizumi and myself, see Postal 1974, Lasnik and Saito 1991 and Hornstein 1995.

⁵(18a)-(18c) are from McCawley's paper, who found the first in a column by William Safire and the second and third in the Chicago Tribune.

- (19) a. *Too many Irish setters are named Kelly and German shepherds are named Fritz.
 b. *The duck is dry and mussels are tough.
 c. *Your daughter is 16 and son is 17 ½.⁶
 d. *No representative voted for the proposition or senator voted against it.
 e. *Each student brought beer and faculty member brought scotch.
 f. *Few dogs eat Whiskers or cats eat Alpo.

It is Gapping that has allowed them to go missing in (18). We have here, then, another instance of the contingency in Gappability that might lure one to unorthodox constituent structure. But in this case, we would have to posit a constituent made up of the verb and determiner that excludes the rest of the sentence. Our present understanding of English syntax does not make that outcome likely.

These examples do not find an account under the proposal I am advocating here either. My proposal demands that the Gapped phrases stand outside the coordinated phrases and bind some position in each of them. Gapped verbs and objects, for example, move across-the-board out of coordinated VPs, and bind a trace in each coordinate, when they Gap. And the Gapped adverb in (4) is base-generated outside of the disjointed VPs, and unselectively binds into each. To apply that strategy here would require that we see the determiners standing outside the coordinated VPs, and bind into each. Our present understanding of English syntax does not provide that outcome either.

But perhaps it should. Let me sketch a way of rethinking determiners that would have this outcome, and show how it would give us the Gaps we see in (18). I will concentrate, in this task, on the cases of Gapping in (18d) and (18f), where the determiners are *few* and *no*. This is because I can see how to make some semantic sense out of the rethinking I'm about to propose for these determiners. Spreading this thinking in a semantically sensible way to the other determiners will have to await another occasion.

The determiners *few* and *no* have the interesting property that their meanings can be decomposed into two parts, one equivalent to the sentence negator *not* and the other equivalent to the indefinites *many* (for *few*) and *any* (for *no*). Thus, the sentences in (20) and (21) are, perhaps, semantically equivalent.

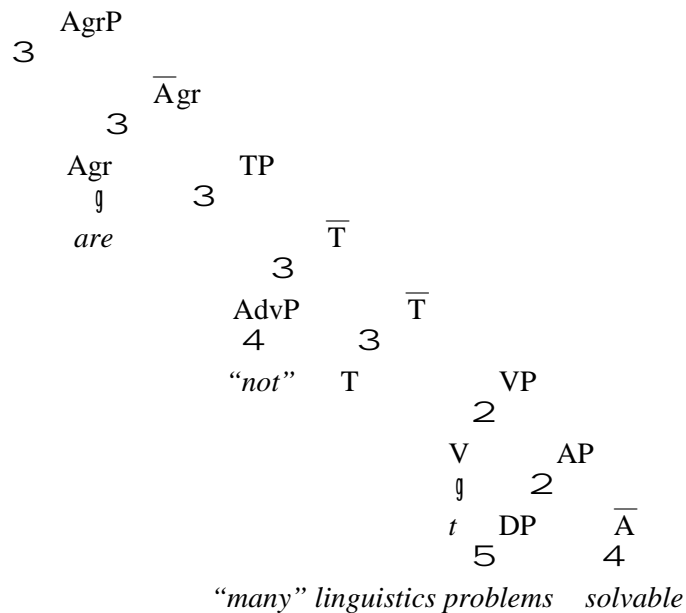
- (20) a. I have read few books on photosynthesis.
 b. I haven't read many books on photosynthesis.
 (21) a. I have read no books on photosynthesis.
 b. I haven't read any books on photosynthesis.

From a syntactic standpoint, the negation part of this meaning is most sensibly assigned to an adverb. If we take this decomposition seriously, and clothe it in a syntactic representation, then we might think of *few* and *no* as being amalgams of two syntactically distinct formatives: one equivalent to *not* and the other to the indefinites. There is a precedent for this idea in German, Norwegian and other Germanic languages in situations equivalent to *no* (see Bech 1983, Kratzer 1995 and Christensen

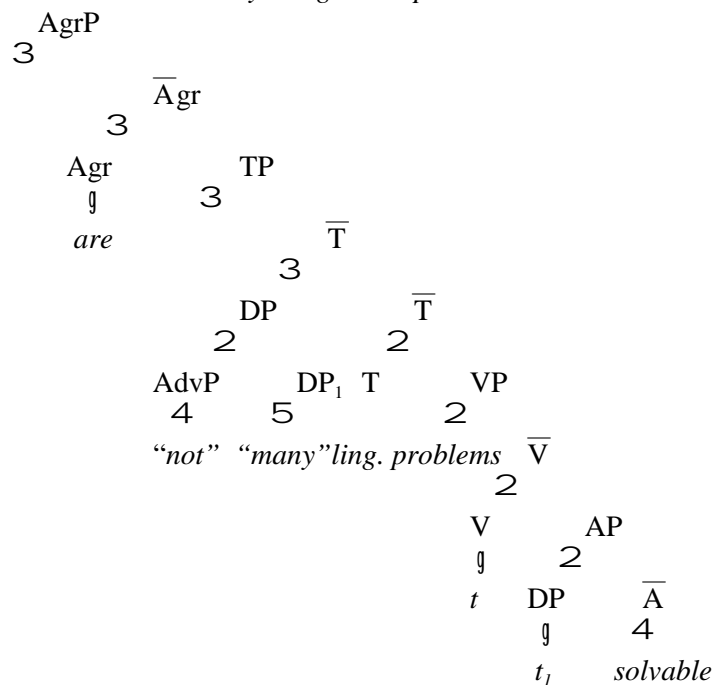
⁶We can treat genitive pronouns as if they are (definite) determiners for the purposes of this paper.

1986 for examples), and Kayne 1998 recommends (something like) this treatment for the English determiner as well. The expressions *no* and *few*, then, could be composed syntactically from their semantic parts, maybe along the lines indicated in the following derivation.

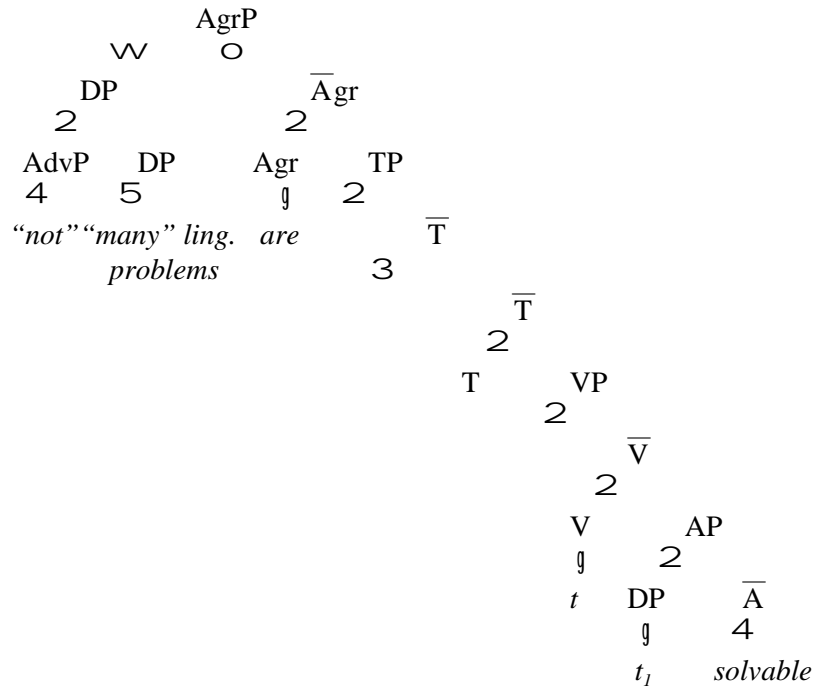
(22) a.



b.



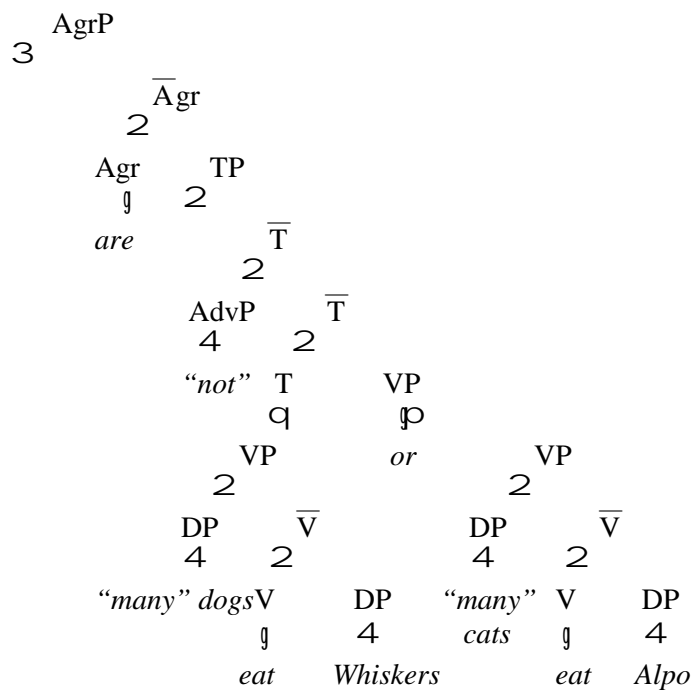
C.

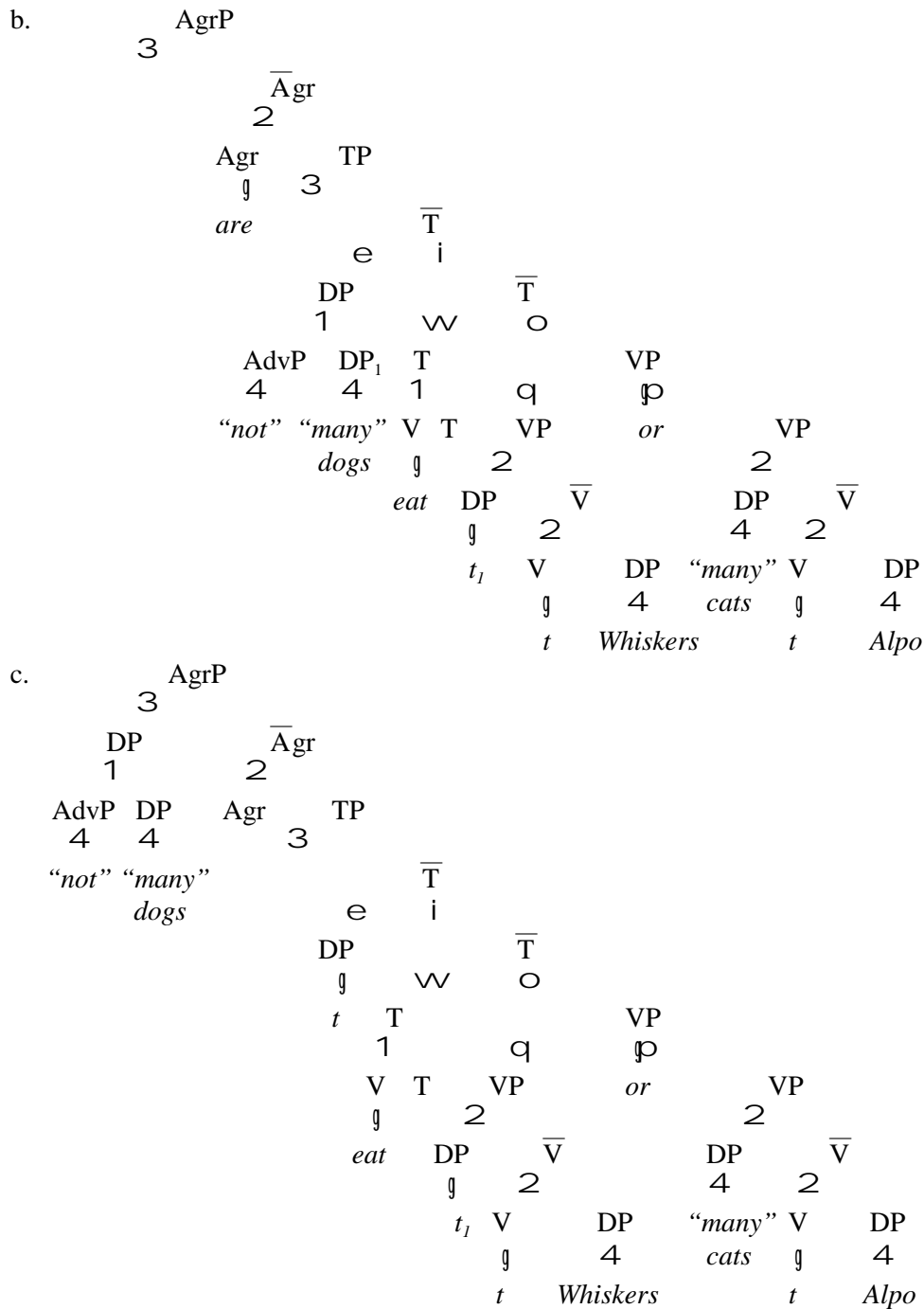


In this derivation, I have placed the negative meaning of *few* in roughly the same place that *rarely* is positioned in (9), and I've assigned the "many" component of its meaning to the determiner position.

Now, under this proposal, the examples of Gapping in (18) would get a derivation something like (23).

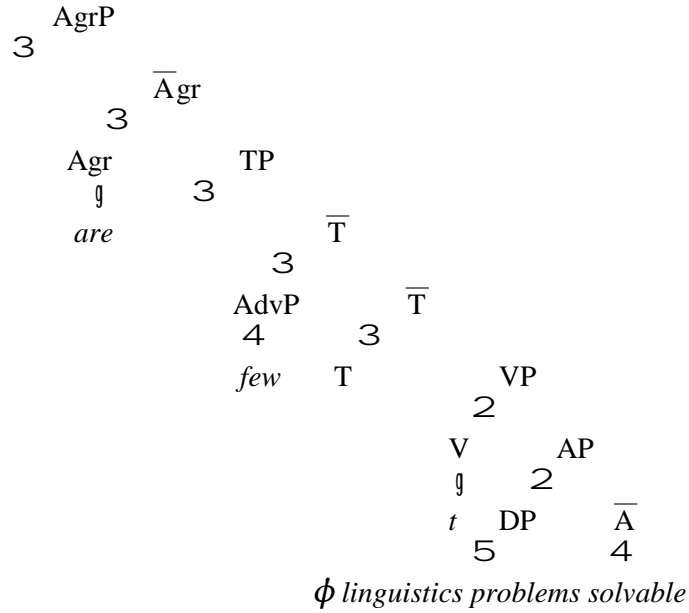
(23) a.





If this is to be the surface representation of (18f), then the “many” part of “many cats” corresponds to the Gap. Let’s interpret this to mean that the “many” component of *few* is a silent indefinite, I’ll indicate it with ϕ . We can assign the “not” part of the meaning, then, to the lexical item *few* itself. Thus, for instance, the sentence *few linguistics problems are solvable* would have (24), rather than (22a), as its underlying representation.

(24)

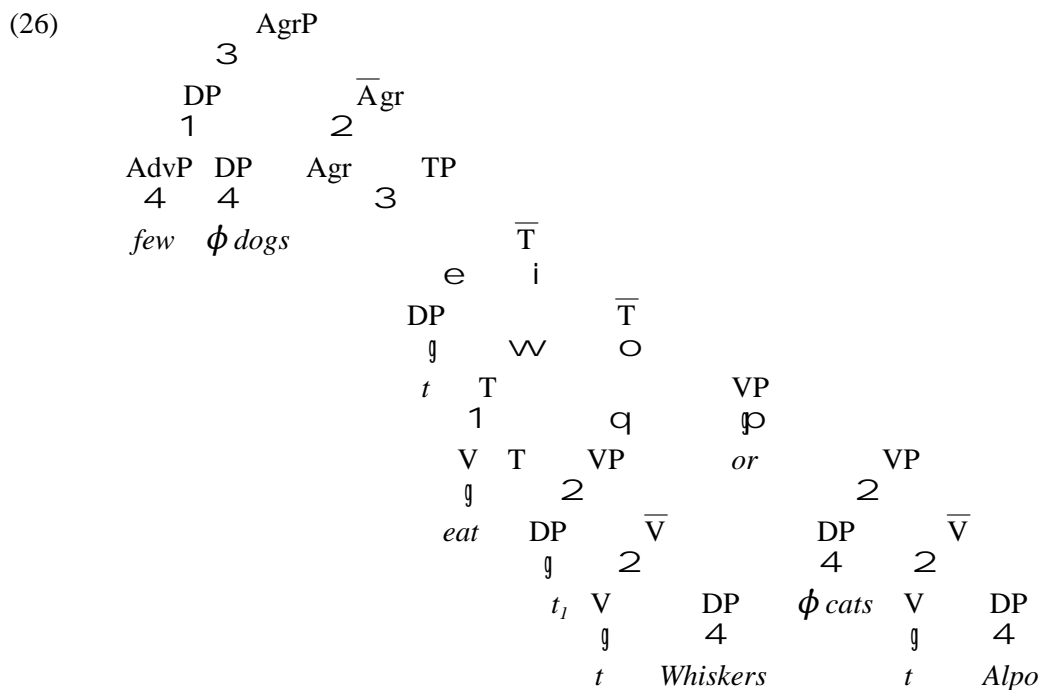


To guarantee that we do not get ϕ without *few*, and that *few* surfaces as a constituent with the DP headed by ϕ , I suggest we adopt the following two constraints.

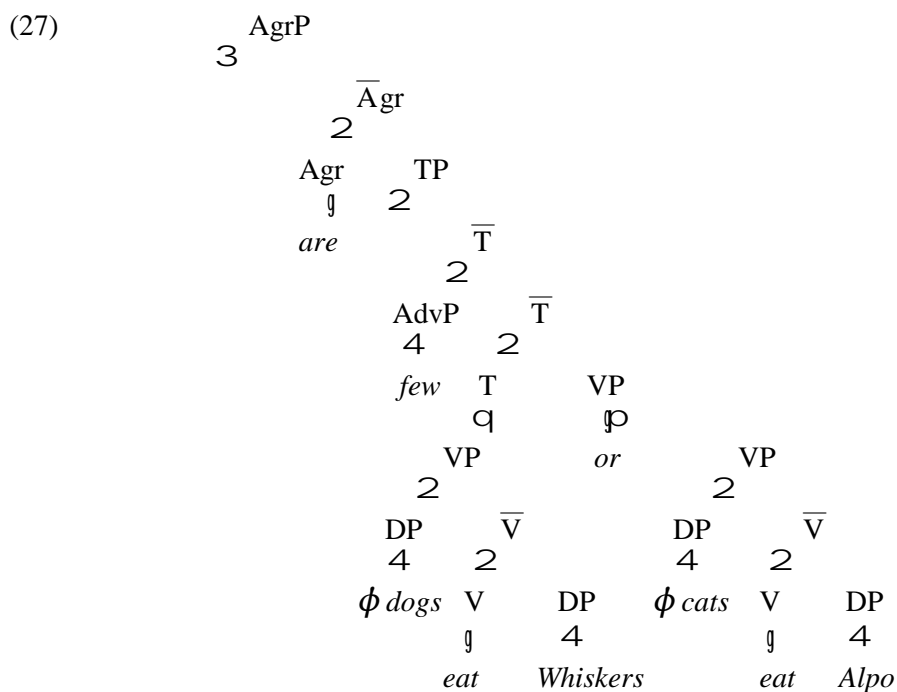
- (25) a. ϕ must be within the c-command domain of *few* at LF.
 b. *few* must be adjoined to a DP headed by ϕ by Spell Out.

Hence, ϕ is a kind of negative polarity item, and *few* is an adverb that has the unusual requirement of surfacing attached to a DP.

With these assumptions, consider again the surface representation that (18f) will receive. Rather than (23c), it will get something like the parse in (26).



This representation meets the requirement on surface forms in (25b), but it does not meet the LF requirement in (25a). In particular, the ϕ in ϕ *cats* is not c-commanded by *few*. To meet this requirement, I suggest that the underlying representation is reconstructed from the surface parse in (26), yielding (27).



This representation correctly captures the fact, observed by McCawley, that (18f) does not have the same meaning as its ungapped counterpart; compare (28a) with (28b).

- (28) a. Few dogs eat Whiskers or few cats eat Alpo.
b. Few dogs eat Whiskers or cats Alpo
- (29) a. Either it's not the case that many dogs eat Whiskers or it's not the case that many cats eat Alpo.
b. It's not the case that many dogs eat Whiskers or that many cats eat Alpo.

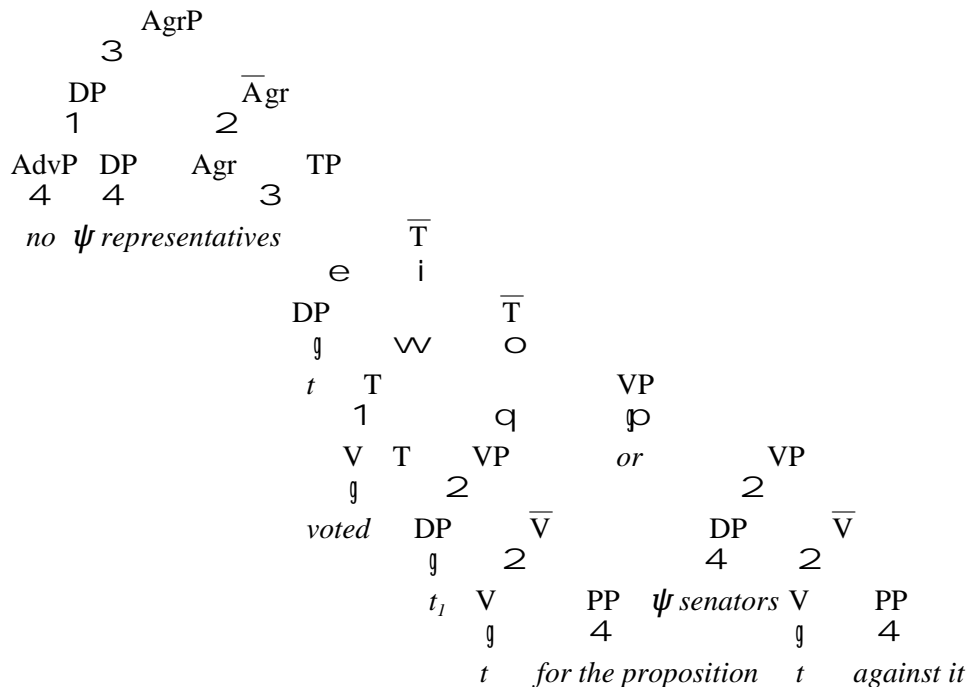
The ungapped sentence in (28a) is a disjunction of denials, as (29a) indicates. It claims that either the number of Whisker eating dogs is small, or that the number of Alpo eating cats is. But the Gapped sentence in (28b) is a denial of a disjunction, as (29b) indicates. It claims that the number of Whisker eating dogs is small, and that the number of Alpo eating cats is too. If *few* means “not,” and ϕ means “many,” then this is just how (27) will be interpreted.

A parallel account can be given of (18d), in which the determiner *no* has Gapped. It too has a different interpretation than its ungapped counterpart, as the contrast in (30) indicates.

- (30) a. No representative voted for the proposition or no senator voted against it.
b. No representative voted for the proposition or senator against it.
- (31) a. Either it's not the case that any representative voted for the proposition or it's not the case that any senator voted against it.
b. It's not the case that any representative voted for the proposition or that any senator voted against it.

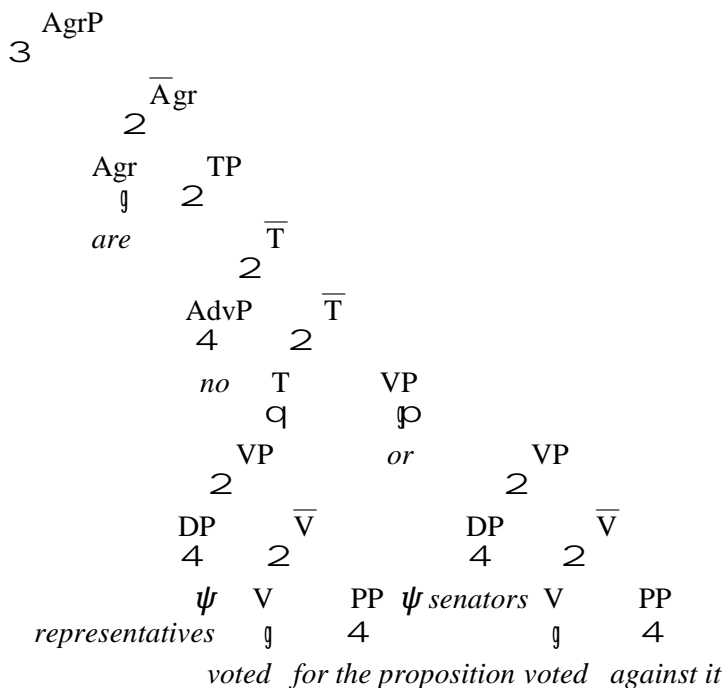
The sentence in (30a) claims that either the proposition got no votes from representatives, or that it got all of the senators' votes; it is equivalent to (31a). But the outcome of Gapping in (30b) denies that the proposition had any supporters among the representatives and any detractors among the senators; it is equivalent to (31b). If we let *no* be an adverb which, like *few*, is subject to something like (25b), and imagine that it licenses a silent indefinite equivalent to *any* (let's represent this with ψ), then (18d) would get the surface representation in (32).

(32)



To bring the ψ in ψ senators within the c-command domain of *no*, this surface representation would yield the LF in (33).

(33)



And this has the interpretation that (30b) does.

This way of thinking about determiners, therefore, allows us to use the method sketched at the beginning of this paper for solving what appear to be constituency puzzles in Gapping. That solution expresses the relationship that holds between a Gapped verb and the other terms whose

Gappability is dependent on that verb in terms of the size of the phrases coöordinated. In our earlier examples, this contingency worked as follows: when the coöordinated phrases are small enough to allow one to see the verb's movement (as a Gap in the right coöordinate), then they are small enough to allow movement of other material to be seen (as a Gap in the right coöordinate). In the cases of Gapped determiners, the situation is slightly different. Here the Gapped determiner is not a trace left by something moved leftwards, but is instead a silent polarity item that is required to be within the scope of the adverbs *few* or *no*. Thus, just when the coöordinated phrases are so small that the verb's movement becomes apparent as a Gap are they also small enough to place one of these silent polarity items within the scope of *few* or *no* without also combining this polarity item with *few* or *no*. It's this silent polarity item that we experience as the Gapped determiner.

This relationship between the scope of the licensing *few* or *no* and the silent polarity item might be responsible for another constraint on the construction, one that McCawley noted. He observed that for a determiner to Gap, it must be in the leftmost DP of the coöordinate holding the Gaps. The contrast in (34) illustrates.

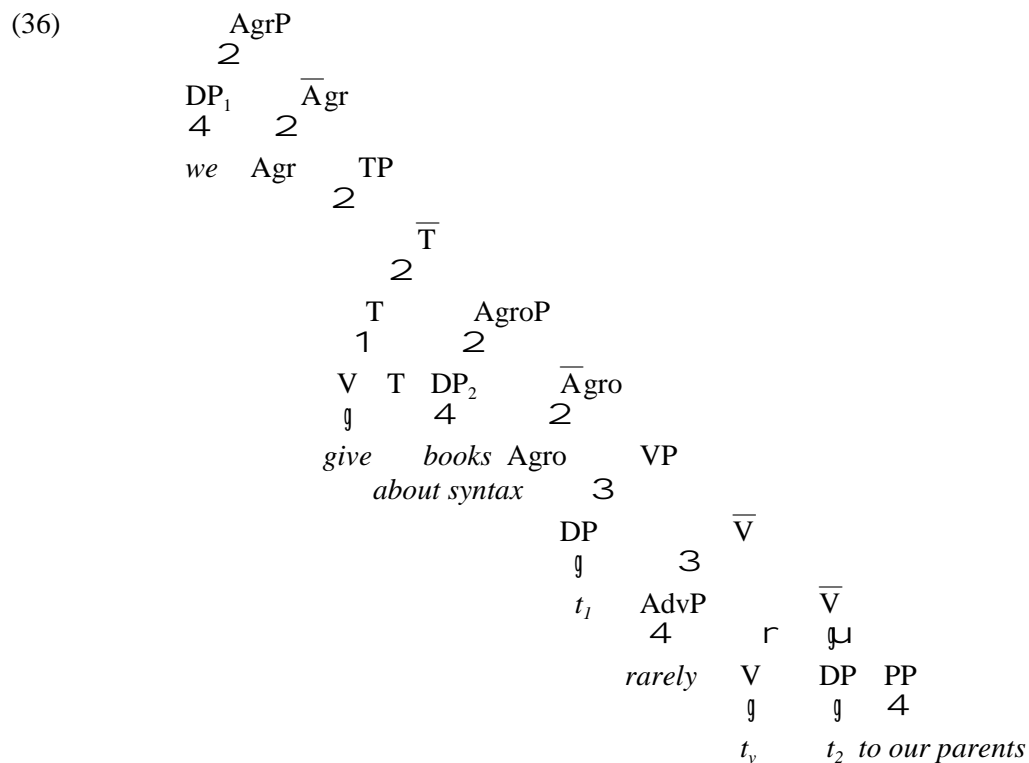
- (34) a. *Some will eat few Brussels sprouts or others ~~ate few~~ lima beans.
 b. I'll give few Brussels sprouts to Mary or lima beans to Max.

The determiner, here *few*, cannot Gap out of an object, unless the subject of that clause does not precede it. Note, then, that (34b) must be an instance of VP disjunction, out of which Gapping has removed the verb and determiner of the second disjunct.

Let's begin by considering how the account offered here would produce the Gap in (34b). If we continue to follow the guess that *few* has the same syntactic distribution that *rarely* has, then (34b) makes use of the fact that *rarely* can be positioned within the VP, as in (35).

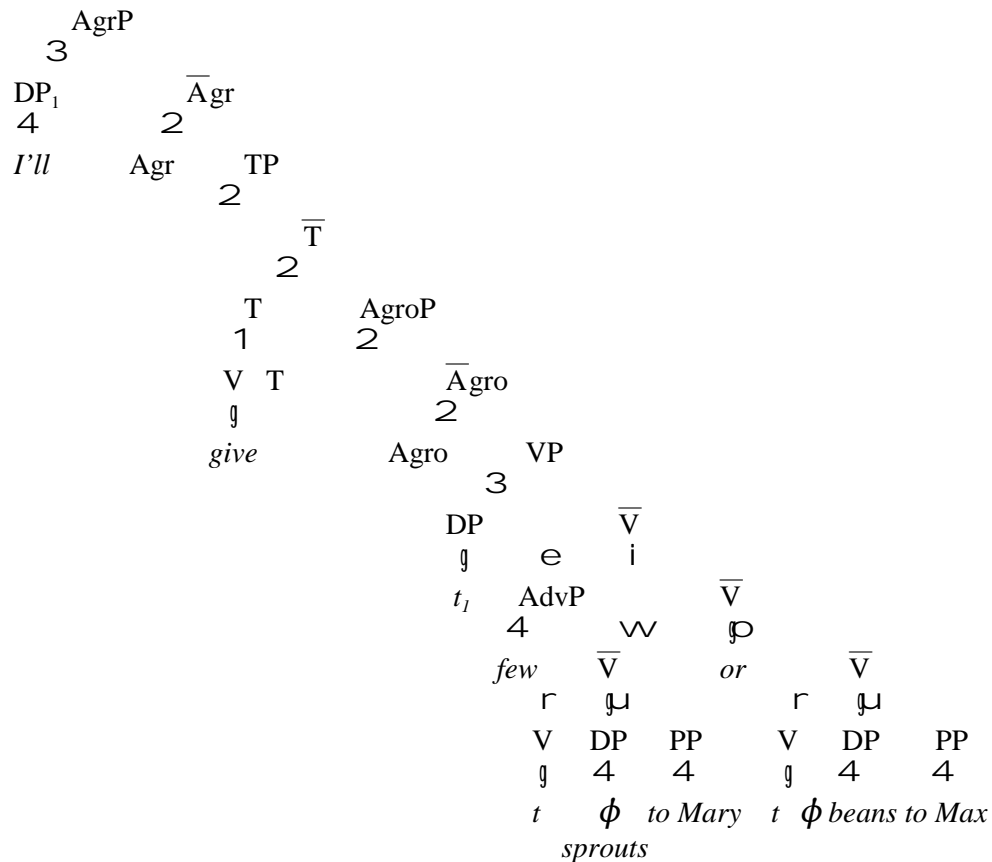
- (35) We give books about syntax rarely to our parents.

Suppose that (35) has a surface parse something like that in (36).

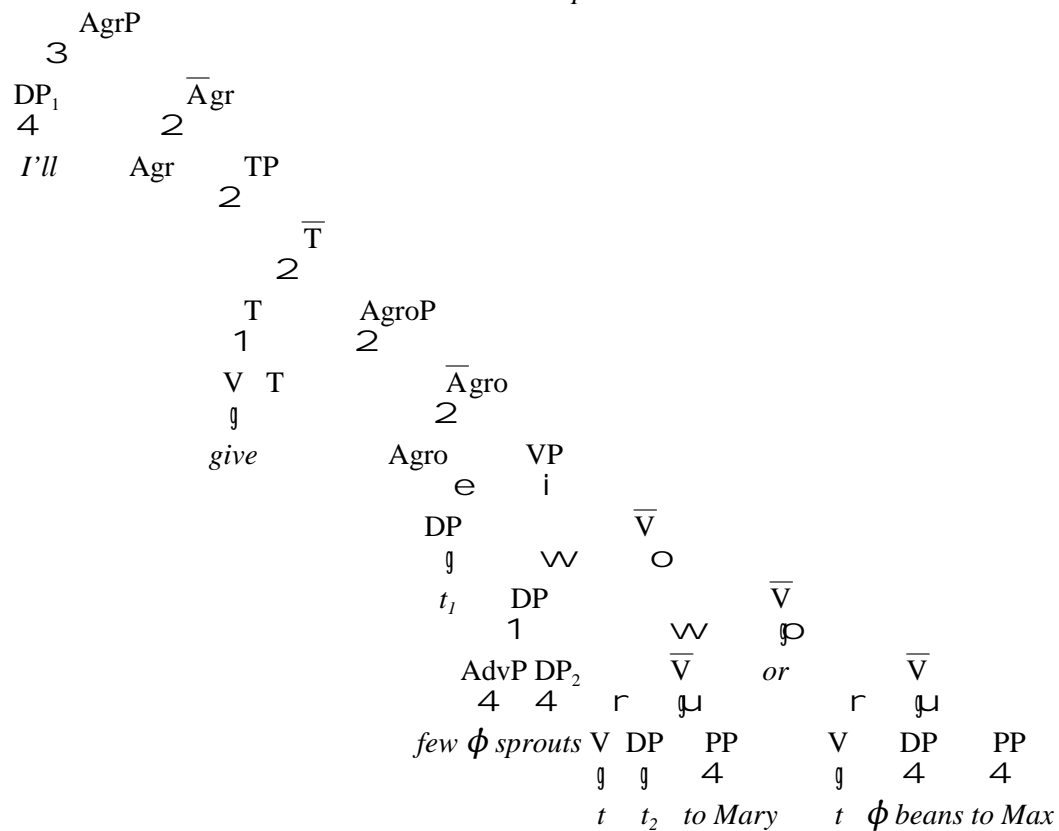


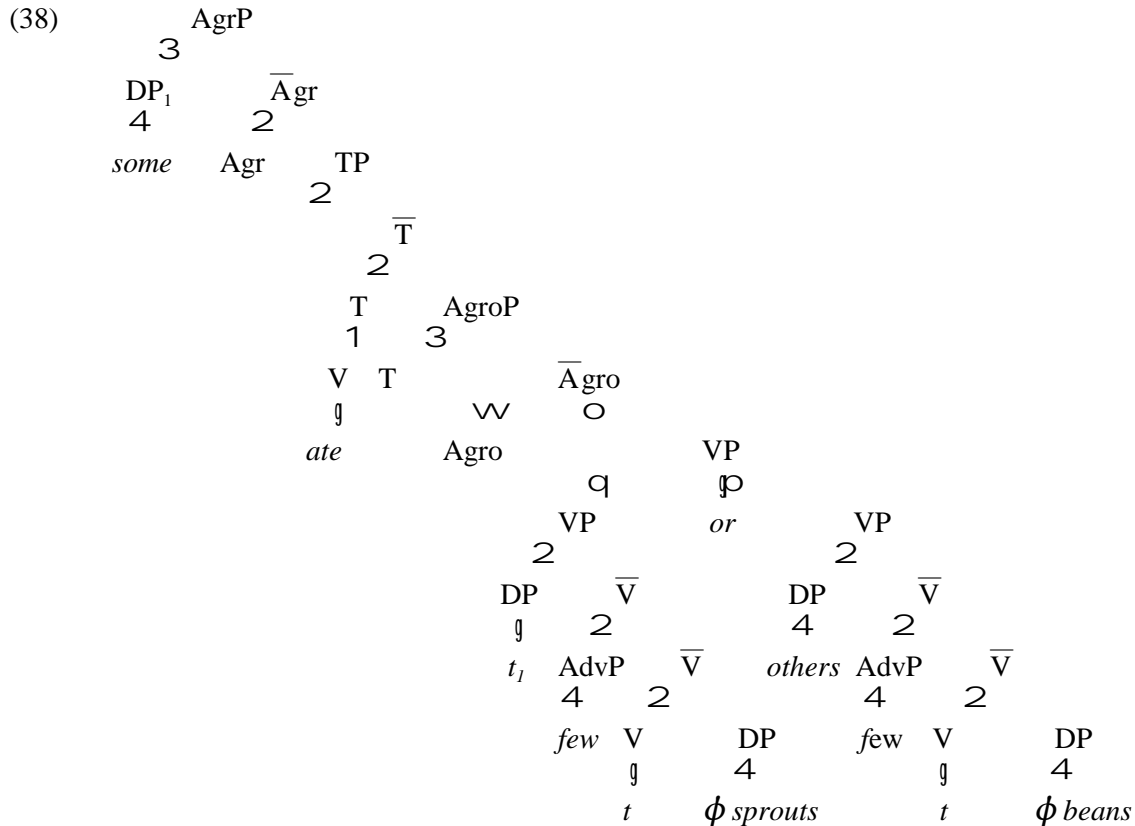
In (36), *rarely* is adjoined to \bar{V} , and the direct object, *books about syntax*, overtly moves into the Accusative Case marked position. Transposing this structure to the Gapping in (34b) gives it the derivation in (37).

(37) a.



b.





But if it is in its higher position, adjoined to $\bar{\text{T}}$, it will combine with the subject (as in (18f)) rather than with the object. Thus, when the coördinated phrases are large enough to contain a subject, they will be too large to Gap a determiner in an object.

As encouraging as these successes may appear, they leave the very large puzzle of finding a sensible extension to the other examples of determiner Gapping in (18). Why is it that these various quantifiers, and the genitive, may Gap, but not the determiner *a*, as in (39), or other prenominal material, as in (40)?

- (39) a. *A soup was too salty and pie too sweet, but otherwise the food was outstanding.
 b. *An Irish setter should be called Kelly and German shepherd Fritz.
 (McCawley 1993 (5): 245)

- (40) a. *Italian red wines are outstanding and white wines excellent.
 b. *Red wines from Italy are outstanding and wines from France excellent.
 (essentially McCawley 1993 (10): 246)

Could it be that all determiners, including the one hidden in genitives but not *a*, contain a hidden adverbial part?

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