

# Lowering and Mid-Size Clauses\*

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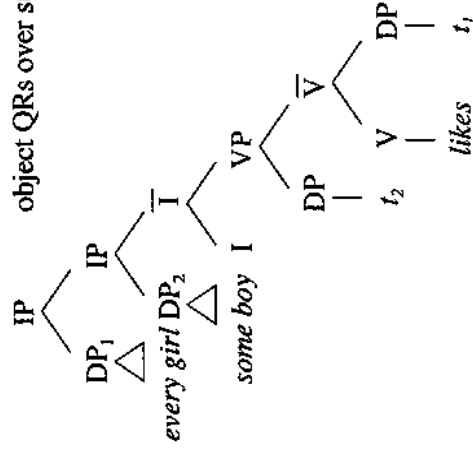
## 1. WHAT KIND OF MOVEMENT IS QR?

When a sentence contains more than one scope bearing element, it often gets an ambiguous interpretation. Under the assumption that scope relations are unambiguously represented at the level of Logical Form (LF), such a sentence is associated with two or more LF representations, each of which is mapped to a distinct semantic interpretation. These LFs are typically derived from the one surface structure by movement of the scope bearing constituents. The operations of this sort that we will be concerned with are Quantifier Raising (QR), which raises a DP from its surface position, and Quantifier Lowering (QL), which restores a DP into one of the positions it moved from.

In situations where objects scope over subjects, one of the following is true: Objects QR past the surface position of the subject (cf. May (1985)) or subjects QL to a position below that which QR gives to objects. For instance, when (1) has a reading in which the object scopes over the subject, its LF could be either as in (2) or (3).

(1) Some boy or other likes every girl.

(2) object QRs over subject.

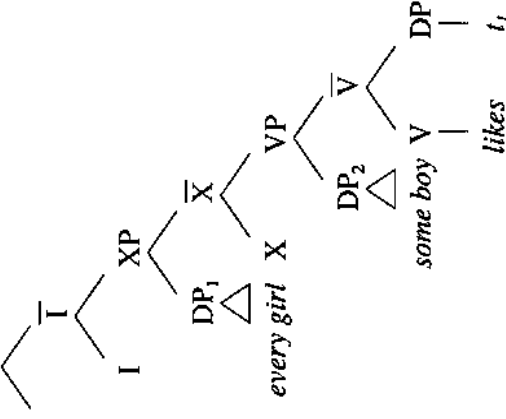


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(3) subject QLS below (QRd) object



Hornstein (1995) argues for (3), where XP is identified with AgroP, the position Hornstein takes Accusative Case to be assigned in. An object and a subject must undergo A-movement to Spec of AgroP and Spec of IP respectively so as to receive structural Case. These movements are sufficient to fix the scope of the subject and object arguments (cf. Kitahara (1996)). This analysis has the advantage of collapsing the locality condition on QR with those on A Movement since this is what movement to AgroP is. QR appears to be more severely constrained than other types of LF movement, such as movement of Wh-in-situ; it may not apply out of finite clauses, for example. In May’s interpretation of QR this difference is a mystery. Under Hornstein’s it is not, since A Movement is similarly more constrained than most kinds of Movement – it cannot remove things from finite clauses, for instance.

**2. QR IS NOT A MOVEMENT**

Despite this obvious advantage for Hornstein’s conception of QR, we agree with Kennedy (1997) that QR cannot be the Case-seeking A Movement that Hornstein proposes. In examining QR’s role in resolving Antecedent Contained Deletions, Kennedy discusses cases such as (4), which cannot involve A Movement.

(4) I met a representative from every committee.

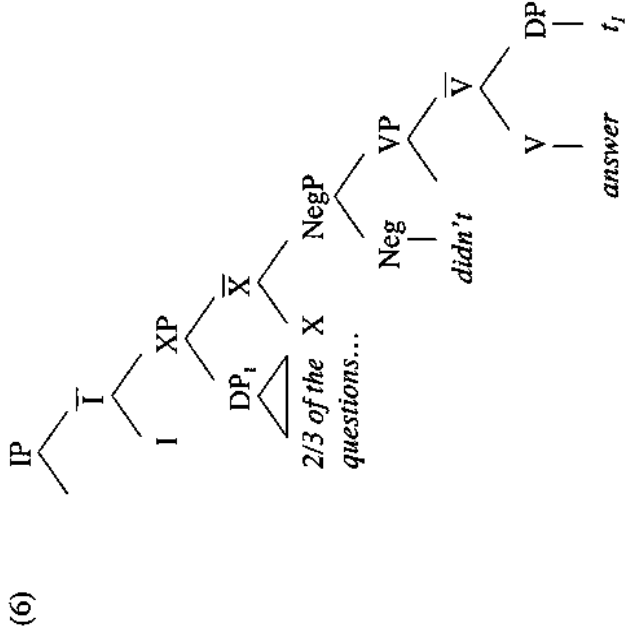
(4) is an instance of the so-called ‘inverse linking’ scope reading, in which a quantifier takes scope over the DP which contains it. Hence, (4) means: For every committee, I met a representative from that committee. If QR is always an instance of A Movement, this scope reading cannot be derived.

We can add to Kennedy’s problem, (5).

(5) Jill didn’t answer two thirds of the questions on the exam.

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This sentence is ambiguous. On one of its interpretations, Jill answered less than two thirds of the questions on the exam. On the other, Jill left two thirds of the questions on the exam unanswered. Imagine, for instance, that Jill answered half of the questions; in this situation, (5) would be true under the first interpretation, but not the second. The availability of the second reading suggests that QR must be able to move objects at least past the surface position of negation, as illustrated below.



This is unexpected on Hornstein’s account, at least if the typical relative positions of negation and AgroP are adopted. If Hornstein’s proposal is to be preserved, it requires one to postulate that AgroP can be projected either below or above NegP. However, such freedom in projecting functional phrases is unattested.

We therefore reject Hornstein’s proposal that QR is movement to Case marked Specifier positions.

Nonetheless, we would like to preserve the virtue of Hornstein’s proposal, which is that it removes the mystery of QRs boundedness. We would like to find another movement operation to equate QR with, which, like Case driven Movement, is constrained in a suitably strict way. One possibility, entertained by various authors, would be to identify QR with the kind of Scrambling found in West Germanic. Scrambling can do the things we need of it: It can remove a quantifier from the DP that contains it (as in (7)), and it can move a quantifier past negation (as in (8)).

- (7) ...weil über Ellipse<sub>1</sub> [ein neues Buch *t<sub>i</sub>* | erschienen ist.  
 ...because about ellipsis a new book published is.  
 (... because a new book about ellipsis is published.)

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- (8) ...weil Hans ein neues Buch über Ellipse<sub>t</sub> nicht *t*<sub>i</sub> gekauft hat.  
...because Hans a new book about Ellipsis not bought has  
(...because Hans has not bought a new book about Ellipsis.)

This change to Hornstein's hypothesis leaves intact the two means by which objects might gain scope over subjects we discussed at the outset. Which of the LF representations in (2) and (3) is the correct one now hinges on this question: Can Scrambling bring an object past the surface position of the subject? As it happens, West Germanic gives different answers to this question. Scrambling in German can bring an object past the surface position of the subject, whereas Scrambling in Dutch cannot, as the contrast in (9) indicates.

- (9) a. ...weil das Buch ein Mädchen gekauft hat. (German)  
...since the book a girl bought has  
b. \*...omdat het boek een meisje gekocht heeft. (Dutch)  
...since the book a girl bought has

So now, are English LFs like German or Dutch?

### 3. ENGLISH QR IS DUTCH SCRAMBLING.

In this section we construct examples which distinguish (2) from (3).

Before we consider the first of these examples, we set up some background. First, recall that QR can give object quantifiers scope over negation, as in the following example.

- (10) Billy hasn't answered two thirds of the questions on the exam.  
(= Billy answered less than two thirds of the questions on the exam.  
= Billy left two thirds of the questions on the exam unanswered.)

The ambiguity of this sentence depends on whether object QR is beyond NegP or not. Either of the two hypotheses we are entertaining about QR is compatible with this, of course. All that is necessary is for QR to be able to bring the object to a lower (than negation) position, as well as to a higher (than negation) position. It's where the higher position is that distinguishes the two hypotheses.

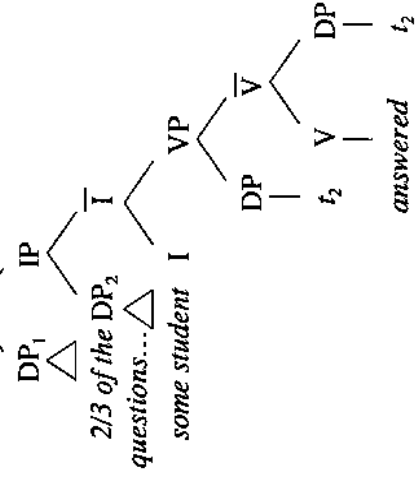
What we want to know is where the *two thirds of the questions* DP is when it scopes over *some student* in examples like (11).

- (11) Some student or other answered two thirds of the questions on the exam.  
(= There's a student that answered two thirds of the questions on the exam.  
= Two thirds of the questions on the exam got answered.)

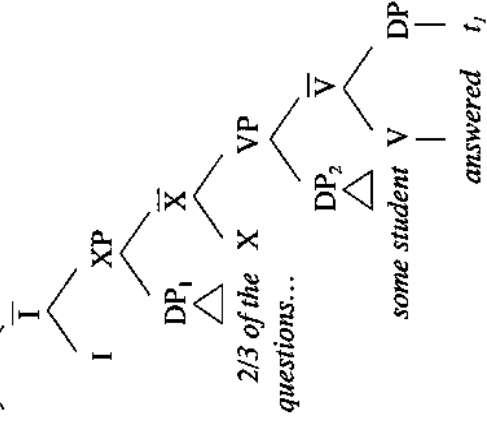
The "German" hypothesis gives (11) the parse in (12), while the "Dutch" hypothesis gives (11) the parse in (13).

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(12) (What we would expect if English QR is like German Scrambling)



(13) (What we would expect if English QR is like Dutch Scrambling)



Now consider our test sentence: (14).

(14) Some student or other hasn't answered two thirds of the questions on the exam.

Since there are three scope bearing elements involved in this sentence, it is potentially six-ways ambiguous, as shown below.

- (15) a. Some >> Neg >> Two thirds
- b. Some >> Two thirds >> Neg
- c. Neg >> Some >> Two thirds
- d. Neg >> Two thirds >> Some
- e. Two thirds >> Some >> Neg
- f. Two thirds >> Neg >> Some

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However, there is an additional constraint on the scope interaction in (14). *Some* is a positive polarity item and cannot fall under the scope of negation, as shown by (16).

- (16) I don't like some quantifiers.  
 (= Some quantifiers, I don't like.  
 ≠ I don't like any quantifiers.)

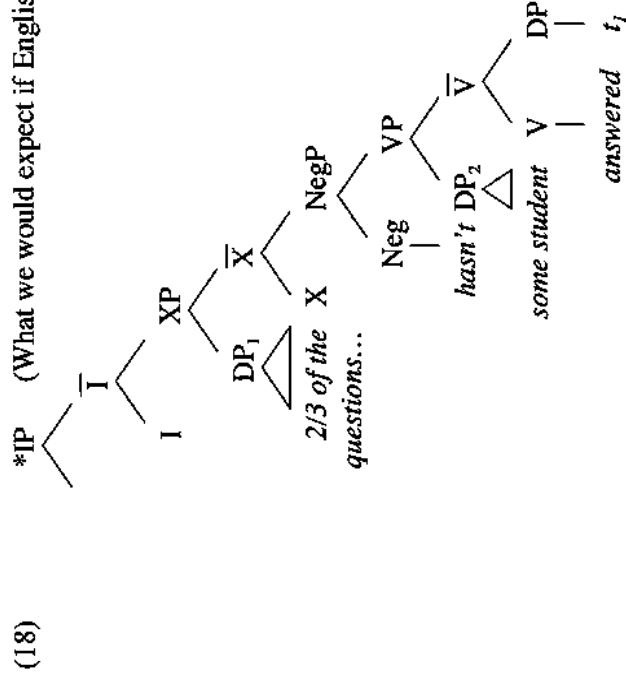
Therefore, three of the six interpretations, namely (15c), (15d) and (15f), should be unavailable for this reason. They are.

Interestingly, however, not all of the remaining three interpretations are available either.

- (17) a. There's a student that answered two thirds of the questions on the exam. (= (15a))  
 b. There's a student that left two thirds of the questions on the exam unanswered. (= (15b))  
 c. \*For two thirds of the questions on the exam, there was a student who didn't answer them.  
 (Or: \*Less than two thirds of the questions on the exam were answered by all the students.) (= (15e))

As indicated, the reading that gives the object wider scope than the subject, and both subject and object wider scope than negation, is not available.

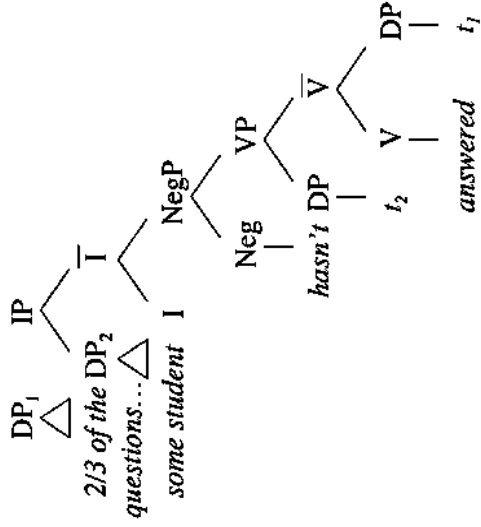
This is expected on the “Dutch” view of English LFs, but not the “German” one. Because the Dutch view requires subjects to QL in order to fall within the scope of an object, in (14) the subject will have to fall within the scope of negation as well. But because *some* is a positive polarity item this is prevented. Thus, on the Dutch hypothesis, there should be no object >> subject scope relationship in cases in like (14) – as shown in (18) – where QL is blocked.



And this is correct.

On the German conception of English LFs, by contrast, the fact that the subject in (14) cannot QL has no effect on the relative scopes of subjects and objects. The subject should still be able to take narrower scope than the object, because QR should be able to achieve this alone. So (14) should be able to get the parse in (19), in which the object QRs over the subject.

(19) IP (What should be possible if English QR is like German Scrambling)



This is incorrect.

Our second test example involves inverse linking, but is otherwise similar to (14). Consider, first, the scope ambiguity indicated for (20), which can be derived successfully under either the ‘German’ or the ‘Dutch’ hypothesis.

- (20) Some linguist speaks some language from every family.  
 (= There is a linguist that speaks a representative from every language family.  
 = Some language from every family is spoken by a linguist.

In the first reading indicated, QR would place *every family* somewhere higher than *some language*, but lower than the subject: *some linguist*. In the second interpretation, QR places *some language* from *every family* higher than *some linguist*.

Consider now, however, what happens when (20) contains negation, as in (21).

- (21) Some linguist doesn't speak some language from every family.  
 (= There is a linguist who is unable to speak a language from every family.  
 ≠ Some language from every family has some linguist who doesn't speak it.

As in (14), the positive polaritiness of *some linguist* prevents QL in (21). This has no consequence for the German hypothesis: Both of the readings indicated for (20) should be present here too. Under the Dutch hypothesis, however, this should prevent either *some language* or *from every family* from having scope wider than the subject: *some linguist*. We cannot tell, directly, whether *some language* has wider or narrower scope than *some linguist* (there is no way

to do this for pairs of existentially quantified DPs). But, we can tell whether or not *from every family* has scope over *some linguist* because the wide-scope reading is (truth-functionally) different from the narrow-scope one. Interestingly, *from every family* cannot have scope wider than *some linguist*. Hence, (21) again shows that the Dutch hypothesis is correct.

We conclude that English QR is Dutch Scrambling. Subjects must QL to get scope narrower than objects.

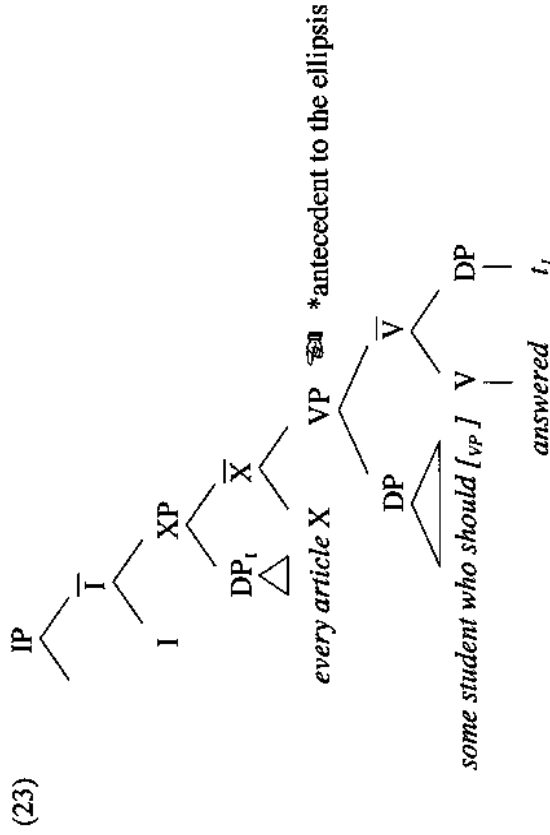
#### 4. RECONSTRUCTION INTO VPs ISN'T NECESSARY

While the examples of the previous section show that subject QL is necessary in producing object-wide scope readings, it does not show that a QLed subject is restored to a position within the VP, as the parse in (3) suggested. In fact, we believe that this is not a necessary consequence of QL. This section explains our belief.

In situations, like (22), where a DP contains an ellipsis, we do not expect this DP to be able to stand within the antecedent for the ellipsis at LF.

(22) [Some student who should <sub>[VP]</sub> ] read every article.

This is because LF is the level at which ellipses are resolved, and one way to fail to resolve an ellipsis is to poison its antecedent with the very ellipsis in need of resolution. Thus, in (22), the subject DP should not be able to be QLed back into the VP that follows, as this is the antecedent for the ellipsis it contains. If QL always brings subjects back into the VPs from which they get their  $\theta$ -roles, then this means that (22) should not allow an object-wide scope reading. Under the conclusions of the previous section, this reading demands an LF like that in (23), which, as we've said, would prevent a resolution of the ellipsis.



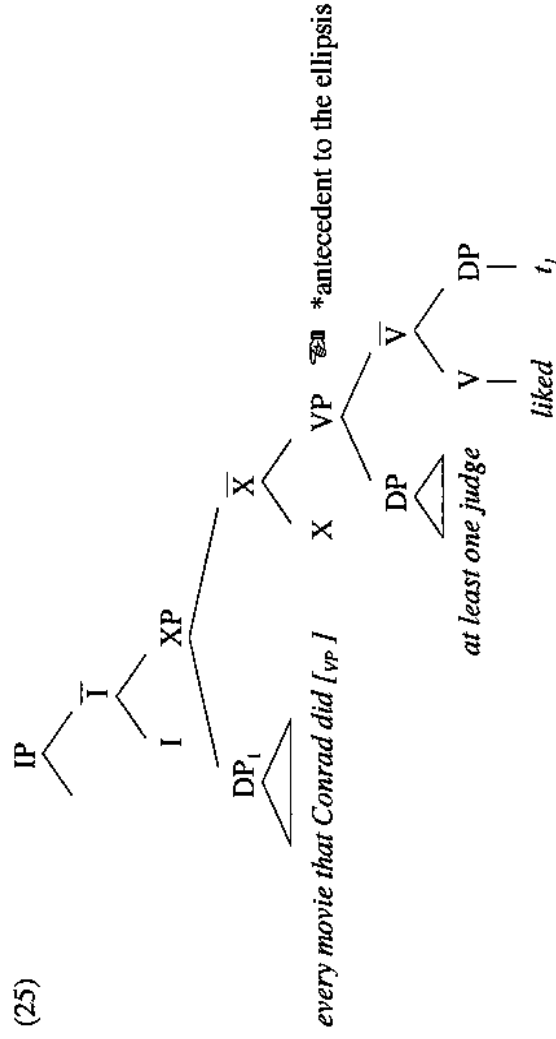
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But (22) does have the object-wide scope reading; it can mean: Every article was read by some student who should read it.<sup>1</sup> It therefore doesn't appear that QL necessarily restores a subject into the VP from which its  $\theta$ -role derives.

The availability of an object-wide scope reading in (24) points to the same conclusion.

- (24) At least one judge liked every movie that Conrad did [<sub>VP</sub> I].  
 (= every movie that Conrad liked was liked by at least one judge.)

If QL had to restore the subject of this example into the VP for this reading to emerge, then at LF we would expect it to have a parse like that in (25).



But, as before, the reconstructed subject is unwelcome here. The antecedent VP for the missing VP should not contain the subject, since it will resolve the ellipsis into the ungrammatical: *every movie that Conrad (did) at least one judge like t<sub>i</sub>*.

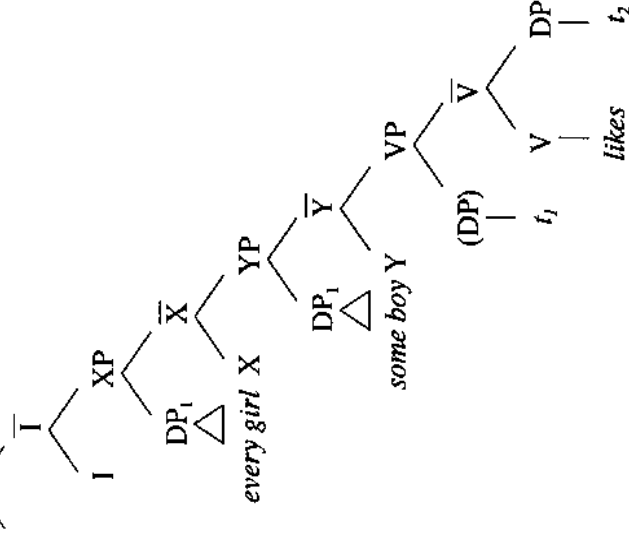
These data suggest that subjects need not be restored to a position within VP. Instead, there must be some position higher than VP and lower than negation into which subjects can lower.

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<sup>1</sup>Hornstein considers examples like these, but expresses different grammaticality judgements. We should note, too, that this argument relies on the presupposition that VP Ellipsis cannot elide just  $\bar{V}$ s; or more generally, VP Ellipsis must elide a verbal projection that includes the subject's  $\theta$ -marked position. This is a standard assumption, but not one that we know to have been securely established.

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(26) IP (a possible parse for (1) with subject narrow scope reading)



Section 3 showed that QL is necessary for the object-wide reading. And this section shows that the object-wide reading does not demand that the subject return to VP. Thus, there must be some position lower than where objects can QR to, but higher than the VP. In other words, English sentences contain a mid-sized clause, whose Specifier can hold a QLed subject.

It would not be unreasonable to expect us to identify these mid-size clauses. Perhaps, for instance, it occurs to you that they are the Predicate Phrases in Bowers (1993), or one of the VP Shells in Larson (1988), or the Voice Phrase which Kratzer (1994) posits, or the Transitive Phrases which Collins (1996) discusses, or one of the many other similar proposals now appearing in the literature. A trait common to all these proposals is that the subject does not receive its  $\theta$ -role from a position within (what we are calling) the VP, but instead gets it from the Specifier of (what we are calling) the mid-size clause. Therefore, identifying the mid-size clause with one of these proposals predicts not only that a QLed subject need not be placed within VP, but that it cannot be so placed. That is a conclusion stronger than the evidence in this section warrants.

### 5. SUBJECTS DO NOT RECONSTRUCT INTO VPs

If mid-size clauses are one of the projections suggested above, then they can be identified by determining whether their Specifier is the position in which subjects get  $\theta$ -marked. There is some evidence that bears on this, we believe, but only indirectly.

There are facts which can be construed as indicating that subjects are incapable of being lowered into the position to which their  $\theta$ -role is assigned. If this construal is correct, then because we have seen that subjects can reconstruct into mid-size clauses, we should conclude

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that a mid-size clause is not a phrase in which a subject is  $\theta$ -marked. Hence, mid-size clauses are none of the projections suggested above. Instead, we should conclude that a subject's  $\theta$ -marked position is within what we will continue to call VP.

Now if this is correct, it means that, in fact, subjects cannot QL into VP; but not because there is no position within VP from which they moved. Rather, they cannot QL into VP because the position they would QL to is their  $\theta$ -marked one.

What would prevent a subject from lowering into its  $\theta$ -marked position? We suggest that this prohibition arises because subject  $\theta$ -marked positions are of the wrong semantic type to permit reconstruction. We sketch out this suggestion at the close of this section, after we have introduced the evidence for the unreconstructability of subjects into their  $\theta$ -marked position.

This evidence comes from the behavior of small clause subjects. One difference between full clauses and small clauses, which sometimes encourages disbelief in small clauses, is the unavailability of QL for their subject. Williams (1983) notes the contrast in (27), for example.

- (27) a. Someone seems to be angry at the Federal Government.  
(wide scope and embedded scope for *someone*)
- b. Someone seems angry at the Federal Government.  
(only wide scope for *someone*)

The subjects of raising predicates can lower into an embedded clause when that clause is “big,” (i.e., an infinitival clause headed by *to*) but not when it is small, as is *angry at the Federal Government*.

A similar fact can be discovered from the behavior of the positive polarity item, *some*. As we've seen, *some* needs to have scope wider than negation, but, interestingly, this is only required when the negation shares a clause with *some*. Thus, *someone* in (28) need not have wider scope than negation.

- (28) I didn't say that someone in England is well-paid.  
( $\neq \neg$  wider scope than  $\exists$ )

The contrast in (29) suggests, then, that *someone* and *not* are in the same clause in the b-case, but not the a-case.

- (29) a. I don't consider [someone in England to be well-paid].  
(? $\neq \neg$  wider scope than  $\exists$ )
- b. I don't consider [someone in England well-paid].  
( $\neq \neg$  wider scope than  $\exists$ )

Naturally, disbelievers in small clauses should find this encouraging too.

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Finally, Postal (1974 section 6.6) notes that *nobody* cannot share a clause with sentential negation – at least in one popular English dialect. Examples like (30) are ill-formed.

(30) \*Jerry didn't like nobody.

This constraint, like the one concerning *some*, only cares about negation which shares a clause with *nobody*, as the grammaticality of (31) indicates.

(31) I didn't say that nobody in England is well-paid.

Like (29), then, the contrast in (32) suggests that *nobody* is not separated by a clause boundary from *not* in (32b) but is in (32a).

- (32) a. ?I don't consider [nobody in England to be well-paid].  
b. \*I don't consider [nobody in England well-paid].

More comfort for the non-believers.

Don't be misled into thinking that the contrasts in these examples are due to something special about the non-verbal nature of the predicates in the small clause construction, because the same range of facts are found in verbal small clauses.

- (33) a. I didn't make [someone from MIT run the Boston marathon].  
(= There's someone from MIT that I didn't make run the Boston marathon.  
≠ I didn't make anyone from MIT run the Boston marathon.)  
b. \*I didn't make [nobody from MIT run the Boston marathon].

It really seems to have something to do with the difference between what a small clause is and what a full clause is.

We do not think that this difference is that small clauses do not exist; that is, we are believers in small clauses. While we do consider the existence of small clauses still an open question, it appears to us that the best account for the contrast in (34) requires them.

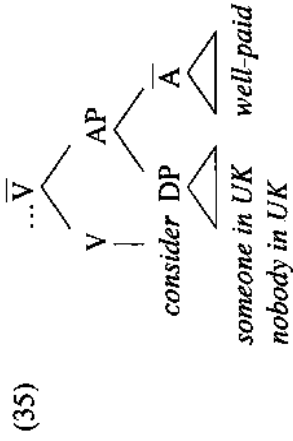
- (34) a. \*Jerry asked *there* how to be a small clause.  
b. Jerry made *there* be a small clause.

The ungrammaticality of (34a) indicates that an expletive (here *there*) cannot stand in the complement position of a verb – even when the  $\Theta$ -role that would be assigned to that position needn't be (note that *Jerry asked how to be a small clause* is grammatical). Indeed, the only places in which expletives seem to be licensed are Specifiers, and this leads to the conclusion that there is a small clause in (34b) in whose Specifier *there* sits.

But if small clauses exist, then why are they different from full clauses in the ways we've just reviewed? One thing, descriptively, that distinguishes small clauses from full ones is the presence of functional projections. There is no evidence (in English) for the agreement phrase or

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tense phrase in small clauses that is thought to constitute full-bodied clauses. Imagine, then, that small clauses have roughly the shape in (35), which comes close to Tim Stowell’s original conception of small clauses.<sup>2</sup>



The subject of the small clause in (35) is marked with accusative Case. In current approaches to structural Case assignment, this means that this subject, like the subjects of small clauses generally, undergo A Movement into the higher clause into a position which determines

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<sup>2</sup>The facts we report here hold – so far as we have been able to detect – for all kinds of small clauses. They are not restricted to just those involving an adjective phrase, like that we have used to illustrate the effect in (35). This could cause problems for our claim that it is the lack of functional projections that gives rise to these effects, because there are some small clauses which are good candidates for having these functional projections. Those based on NPs, for instance, could easily have the kind of parse indicated in (i).

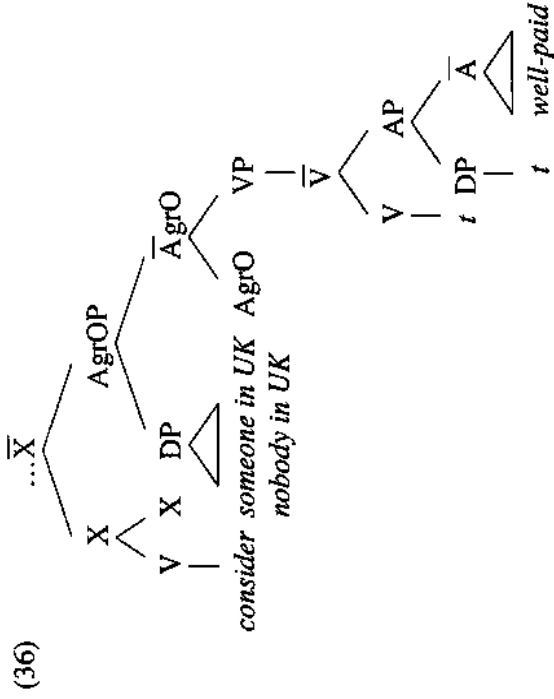
- (i) We consider [<sub>NP</sub>OP this sentence]<sub>VP</sub> [<sub>DP</sub> *t<sub>i</sub>* [<sub>DP</sub> *t<sub>j</sub>* [<sub>N</sub> a potential problem]]]].

If nominal small clauses are DPs (as the presence of *a* might suggest), then it is not unlikely that the subject of the small clause can have raised from Specifier of DP. It is also widely believed that to the extent that  $\theta$ -roles are assigned inside nominals, they are assigned to subjects in Specifier of NP, not DP. (See Stowell (1989), for instance.) If correct, then the subject of nominal small clauses might have originated within Specifier of NP and moved through Specifier of DP in the journey to its higher Case-marked position, as shown in (i). We will propose below that it is precisely the absence of these two subject positions which is responsible for the facts we have just reviewed about small clauses. It is necessary for us, then, that the plausible parse in (i) is wrong. We are encouraged by the paucity of determiners that can be found in nominal small clauses:

- (ii) \*We consider this sentence every problem.  
 \*We consider these sentences many problems.  
 \*We consider these sentences few problems.  
 \*We consider these sentences several problems.  
 \*We consider this sentence each problem.

Perhaps this indicates that nominal small clauses are not DPs, contrary to their appearance in (i). This is the assumption we shall adopt here. Assume that the sole subject position in predicate nominals is Specifier of NP.

Accusative Case. For concreteness, let's adopt Chomsky's terminology and call the head that determines Accusative Case, AgrO (for object agreement), and let Case assignment be determined on Specifiers only. Thus, the small clause in (35) will (also) be associated with a representation like that in (36).



There is some controversy about whether this representation arises only at LF (in which case the verb would not have to have moved in the way shown) or on the surface. We are unavoidably biased by Johnson (1991), and also Koizumi (1995), Runner (1995) and Adger (1994), so we will talk about (36) as if it is the surface representation of small clauses.<sup>3</sup>

The feature of (36) which bears on the facts in (27), (29), (32) and (33) is that it places the subject within the higher clause. As a consequence, when the higher clause contains negation, the subject will be close enough to that negation for the constraints on *nobody* and positive polarity items to come into play. Moreover, if the subjects of small clauses must be interpreted when they are in the higher clause, as in (36), then these constraints will be forced to come into play. As we have seen in (29), (32) and (33), this is the case.

Moreover, if subjects must be interpreted in Specifier of AgrOP, then they will not be able to be construed as if they had scope solely within the embedded (small) clause. This too is confirmed by (27b).

The facts we have reviewed suggest therefore that the subjects of small clauses must remain in Specifier of AgrOP at LF: (36) is the only LF representation for small clauses. But small clauses differ in this respect from parallel full clauses, which would get a surface

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<sup>3</sup>We think our conclusions remain if (36) turns out to be only an LF.

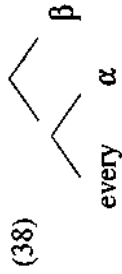


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So let us approach the question from the other direction. We will offer a reason for expecting subjects to be banned from lowering into their  $\theta$ -marked position that is independent of the small clause-full clause differences under scrutiny. This, we hope, will make our analysis of small clause subjects seem more plausible; but more importantly, it gives an independent reason for concluding that mid-size clauses are not the source of the subject's  $\theta$ -role.

It seems initially plausible that an alleged prohibition on lowering subjects into their  $\theta$ -marked position would have a semantic source. Indeed, we will show that it is a consequence of one way of conceiving of determiner quantification.

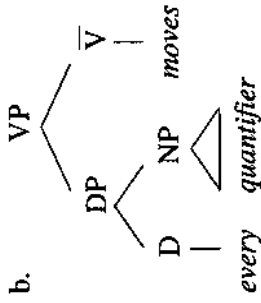
Under the widely accepted Generalized Quantifier theory of quantification (cf. Barwise and Cooper (1981)), a determiner governs the relationship of two sets. In an LF structure shown below, therefore, both  $\alpha$  and  $\beta$  must denote sets.<sup>5,6</sup>



For any  $g$ ,  $[\text{every } \alpha \beta]^g = 1$  iff  $[\alpha]^g \subseteq [\beta]^g$

This theory imposes no restriction on the reconstruction of subjects. When a subject is lowered back into its  $\theta$ -marked position at LF, the result is a perfectly interpretable structure.

(39) a. Every quantifier moves.



For any  $g$ ,

$[\text{quantifier}]^g = \{x: x \text{ is a quantifier}\}$

$[\text{move}]^g = \{x: x \text{ moves}\}$

$[\text{every quantifier moves}]^g = 1$  iff  $\{x: x \text{ is a quantifier}\} \subseteq \{x: x \text{ moves}\}$

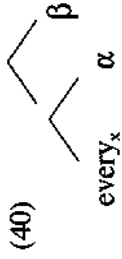
<sup>5</sup> Throughout our discussion of quantification, we ignore intensionality.

<sup>6</sup> Alternatively,  $\alpha$  and  $\beta$  can be thought as functions from individuals to truth value. Then, the truth condition for  $[\text{every } \alpha \beta]$  should be something like (i).

(i) For any  $g$ ,  $[\text{every } \alpha \beta]^g = 1$  iff  $\{x: [\alpha]^g(x) = 1\} \subseteq \{x: [\beta]^g(x) = 1\}$

Hence, as far as the semantics of Generalized Quantifier are concerned, there is no good reason to prohibit the reconstruction of a subject into its  $\theta$ -marked position. This contrasts with quantificational objects. If a quantificational object occupies its  $\theta$ -marked position at LF, it leads to uninterpretability because of a mismatch in semantic types (modulo type-shifting).

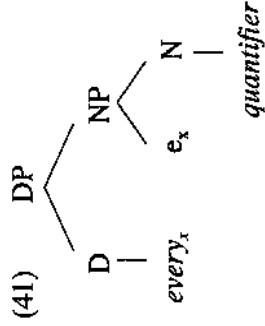
There is an alternative view, however. Heim (1997) argues on the basis of facts independent of the ones considered here for a different treatment of determiner quantification. In her proposal, a determiner dictates a relation between formulae, rather than sets, as indicated in (40).



For any  $g$ ,  $[\text{every}_x \alpha \beta]^g = 1$  iff for every  $a \in D_g$ , if  $[\alpha]^g^{a/x} = 1$ , then  $[\beta]^g^{a/x} = 1$

The notation, ' $g^{a/x}$ ', designates an assignment that is exactly like  $g$  except that it assigns  $a$  for  $x$ . Heim's theory has some important consequences in the syntax of quantification. First, the syntactic constituents which correspond to  $\alpha$  and  $\beta$  above must denote formulae. Second, these constituents must contain syntactic elements which act as variables bound by the determiner via coindexation.

To satisfy these requirements for  $\alpha$ , the structure of a DP needs to be modified. The NP embedded under  $D$ , must contain an empty category (most likely a small *pro*) coindexed with the determiner, as, for example, in (41).<sup>7</sup>



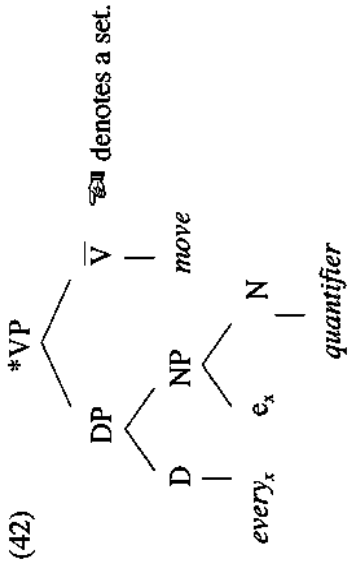
This is required to provide the quantifier with the first of the two formulae it relates.

Now, consider what happens when this DP is reconstructed inside VP. The syntactic constituent which corresponds to  $\beta$  in (40) is a  $\bar{V}$ . Under the Heimian theory of quantification,

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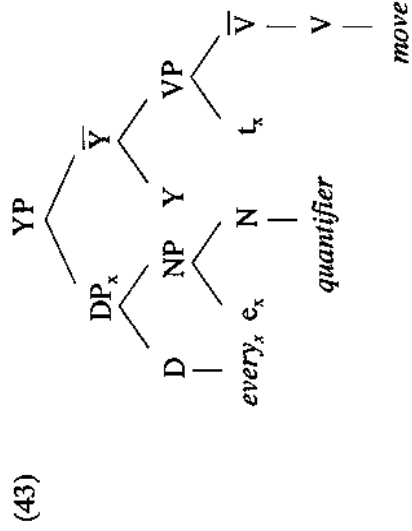
<sup>7</sup> We don't think that this is an unreasonable move. See the previous discussion on predicate nominals in footnote 2.

however,  $\bar{V}$  cannot be successfully combined with a subject DP because it does not contain a variable bound by the determiner. It is not a formula.<sup>8</sup>



For any  $g$ ,  
 $[quantifier]^g = \{x: x \text{ is a quantifier}\}$   
 $[e_x \text{ quantifier}]^g = 1 \text{ iff } g(x) \in \{x: x \text{ is a quantifier}\}$   
 $[move]^g = \{x: x \text{ moves}\}$   
 $[[every [e_x \text{ quantifier}] moves]^g \text{ cannot be interpreted!}$

On the other hand, if the subject is lowered into our mid-size clause, the result is an interpretable structure, like that in (43).



In (43), the subject trace in the  $\theta$ -marked, Specifier of VP, position acts as the much needed variable bound by the determiner, and  $\bar{Y}$ , the sister node of the DP, denotes a formula as it must.

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<sup>8</sup> Sternefeld (this volume) independently argues for a similar view of determiner quantification. However, there is a crucial difference between the two proposals which has led us to adopt Heim's version. In Sternefeld's analysis, the lexical meaning of a verb is an open formula. The principle that drives compositional interpretation is the identification of arguments, rather than the saturation of arguments (i.e., Functional Application). In other words, all verbal projections, including  $\bar{V}$ , are formula-denoting expressions. This would make the subject reconstruction into its  $\theta$ -position possible.

## LOWERING AND MID-SIZE CLAUSES

Heim's theory of quantification in effect demands that a quantificational DP, whether it is a subject or an object, be outside the VP in which it receives its  $\theta$ -role. We suggest that this is the reason why subjects should be expected to be prevented from lowering into their  $\theta$ -marked positions. This expectation, as mentioned above, might be easily seen as confirmed by the behavior of small clauses.

To the extent that it is, we have support for the central conclusion of this paper: English clauses contain at least two non- $\theta$ -marked positions for subjects, and the lower of these is the position they occupy when their scope is narrower than objects.

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