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Frozen Scope and Predication*

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1 Introduction: Frozen Scope, Problem for the Overt QR Analysis

Normally there is scope interaction between the subject and the object in transitive sentences as in (1a) or between the direct object and its PP complement as in (1b) (May 1977, 1985; Aoun and Li 1993; Hornstein 1995; Kitahara 1996)

- (1) a. Someone loves everyone. some><every
 b. John put something on every table. some><every

However, in certain three-place predicate constructions, no scope interaction is observed between the second and third arguments (Aoun and Li 1993; Hornstein 1995; Bruening 2001). Consider the following examples from Bruening (op.cit).

- (2) a. I gave a child each doll. a>*<each (Bruening's (2))
 b. I gave a doll to each child. a><each
(3) a. Which student did you give each book? wh>*<each
 (Bruening's (17a,b))
 b. Which book did you give to each student? wh><each

In the double object construction in (2a), the first object takes scope over the second object but no inverse scope is possible, whereas in the

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corresponding dative construction in (2b), both scope interpretations are possible. The same is true of the pair in (3): the double object construction in (3a) is unambiguous with respect to the relative scope between the first object and the second object, while the dative counterpart is ambiguous.

The same is true of the *with* construction and its PP counterpart in the *spray/load* alternation. Again examples are from Bruening (op.cit).

- (4) a. Maud draped a (different) armchair with every sheet.
a>*<every (Bruening's (4))
b. Maud draped a (different) sheet over every armchair.
a><every
- (5) a. Which armchair did he drape with every sheet? wh>*<every
(Bruening's (5a) (6a))
b. Which sheet did he drape over every armchair? wh><every

In the *with* construction of the *spray/load* alternation in (4a) the first object takes scope over the *with* phrase, but not the other way around, while either scope interpretation is possible between the first object and the PP complement in (4b). Likewise in (5), the *with* construction in (5a) is unambiguous while the PP construction in (5b) is ambiguous.

The lack of scope ambiguity in the a-examples of (2-5), dubbed "frozen scope", constitutes a serious challenge for the Overt QR Analysis of Tonoike (2003), where it was proposed that the inverse scope observed in (1a) and (1b) arises as a consequence of Overt QR applying to the sentence-final *every* phrase, adjoining it to a sentence-final higher position where it asymmetrically c-commands the *some* phrase (namely, the subject in (1a) and the direct object in (1b)). Overt QR should be applicable to the *each* phrase in (2a) and (3a) as well as the *every* phrase in (4a) and (4b), adjoining them to a position where they asymmetrically c-commands the (first) object, according the former with wide scope over the latter. But this prediction is not borne out: none of these

examples exhibits the expected scope ambiguity.

In the rest of the paper we will show that the frozen scope phenomena are due to the predication relationship holding between the first and the second object in the double object construction and the object and the *with* phrase in the *spray/load* alternation, and hence are independent of the validity of the Overt QR Analysis of scope ambiguity.

This paper is organized as follows. Section 2 gives an overview of Bruening's account of frozen scope in two parts. One about the relevance of Superiority (2.1) and the other about the demonstration of QR application (2.2.). Section 3 discusses various problems with Bruening's analysis, both theoretical and descriptive. Subsection 3.1. discusses theoretical problems with the target of QR (3.1.1) and with the assumed phrase structure (3.1.2). Subsection 3.2. discusses descriptive problems of mysterious lack of scope interaction (3.2.1) and additional cases of frozen scope not covered by Bruening's analysis (3.2.2). Section 4 offers an alternative account in terms of the notion of predication. Subsection 4.1 offers a principled reason for the lack of scope interaction between the subject and the predicate. Subsection 4.2 demonstrates that frozen scope follows as an automatic consequence from an analysis of the relevant constructions as involving a possessional predication relation, but points out a possible problem. Subsection 4.3 offers a solution of the problem by regarding *with*/*WITH* as Predication (of possession). Subsection 4.4 offers an alternative account of examples involving Antecedent Contained Deletion. Section 5 expands the proposed account to another case of frozen scope so far unnoticed, namely verbs denoting deprivation. Section 6 discusses the implication of the analysis to the treatment of the verbs *be* and *have*. Section 7 is the conclusion.

2 Bruening's Account

2.1 C-command and Superiority

First let us start by reviewing and examining Bruening's account. It is based on the following set of assumptions:

- (6) a. The object quantifier is not interpretable in its original position, and therefore, it has to move to the closest v or T by Quantifier Raising (QR) at LF so as to form an Operator-Variable construction.
- b. The subject quantifier is in an O-V construction due to the fact that it has undergone A-movement, and it can reconstruct freely to the original position or to an intermediate trace position.
- c. QR obeys Superiority and is subject to tucking-in. (Richards 1997)
- d. Therefore, the c-command relationship between the 2nd and the 3rd argument is retained even after QR

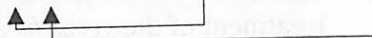
Let us review the derivation of (2a). It goes through the following steps.

- (7) a. First, the closest QP, *a child*, gets attracted and adjoined to vP. Then the remaining QP, *each doll*, gets attracted, and tucked in below *a child*.
- b. I gave Q₁ Q₂[a child][each doll].



The derivation of (3a) goes through the following steps of derivation.

- (8) a. First, the closest QP, *an armchair*, gets attracted and adjoined to vP. Then the remaining QP, *every sheet*, gets attracted, and tucked in below *an armchair*.
- b. Maud draped Q₁ Q₂ [an armchair] with [every sheet].



As a result, the c-command relationship between the two QPs is retained, resulting in "frozen scope".

For this account to go through, it is necessary that the relevant two QPs satisfy the following two conditions. The first and the second QPs

are referred to as QP_1 and QP_2 .

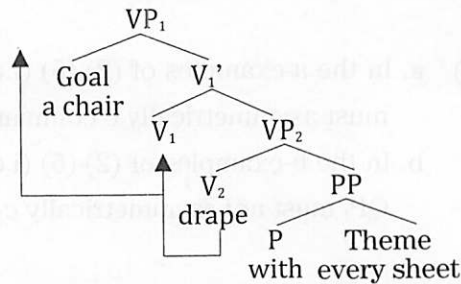
- (9) a. In the a-examples of (2)-(5) (i.e, the frozen scope examples) QP_1 must asymmetrically c-command QP_2 .
 b. In the b-examples of (2)-(5) (i.e, the non-frozen scope examples) QP_1 must not asymmetrically c-command QP_2 .

In Bruening's account two conditions are met by assuming the following two VP structures (adapted from Bruening's (59b) and (61b)) for the double object construction and the dative construction).

- (10) a. Double object construction b. Dative construction
-
- (I gave a child each doll) (John gave a doll to each child)

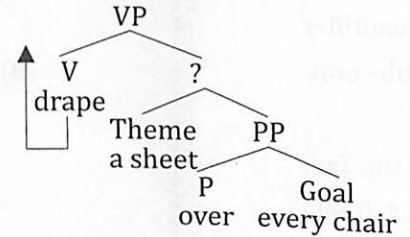
In the double object construction structure (10a), the goal asymmetrically c-commands the theme, meeting (9). Therefore, QR, obeying Superiority, applies first to the goal and then to the theme, but tucking the latter under the former, accounting for the frozen scope. In the dative construction structure in (10b), on the other hand, the theme and the PP that contains the goal c-commands each other, meeting (9b). Therefore, Bruening argues, QR can apply to them in either order, and that accounts for the lack of frozen scope.

Basically the same structural difference is proposed for the *spray/load* alternation as shown below (adapted from Bruening's (63aii) and (63bii)).

(11) a. *With* Construction

(Maud draped a different chair with every sheet)

b. PP Construction



(Maud draped a sheet over every chair)

In (11a) the goal asymmetrically c-commands the theme whereas in (11b) the theme and the PP c-command each other.

2.2 Demonstration of QR Applying to the Second Object

Bruening then gives an impressive list of examples to show that QR is operative in frozen scope examples. They all show that QR has applied to the second object to give it wide scope over the subject. We will review only some of them.

The examples in (12) below from Bruening (his 21b, 22b and 27a) show that Antecedent Contained Deletion (ACD) examples exhibit frozen scope.

(12) a. Ozzy gave someone everything that Belinda did [_{VP} Δ].

*every>some

b. Cleo wrapped a (different) bedpost with every dress Chloe did [_{VP} Δ]. *every>a

c. Ozzy refused to fill a glass with every drink that Monty did

[_{VP} Δ]. (Δ = refuse to fill) a glass>every drink>refuse

The standard account of ACD is that QR applies to the DP containing the deleted VP, which creates a VP with the trace left behind by QR and that that VP can be copied to the deleted VP. Under this standard account, QR must have applied to the second objects in (12). Yet they exhibit frozen

scope. Therefore, it must be the case that QR also has applied to the first object but the two applications of QR obeyed Superiority, hence lack of scope ambiguity. Particularly interesting is (12c), where QP_1 has scope over QP_2 but both have scope over *refuse*.

The following examples from Bruening (his 28a, 31b, 32a and 32b) also exhibit scope ambiguity between the subject and the second object, showing again that QR has applied to the second objects.

- (13) a. A (different) teacher gave me every book. *every>a*
 b. A (different) waiter filled my glass with each drink last night.
each>a

The second object can have wide scope over the *wh*-subject.

- (14) a. Which judge awarded Eddy the Eagle each trophy?
 b. Which waiter filled your glass with each drink?

(13a-b) show that the second object in a double object construction and the PP complement in a PP version of a *spray/load* alternation can have scope over the subject. (14a-b) show that the clause final universal quantifiers have scope over the *wh*-subjects.

To summarize so far, Bruening proposes to account for the frozen scope between the two QPs, QP_1 and QP_2 , in double object constructions and PP versions of *spray/load* alternation by making the following assumptions. (a) QR obeys Superiority. (b) Frozen scope examples have a structure in (9a) or (10a), where, QP_1 asymmetrically c-commands QP_2 . (c) Non-frozen scope examples have a structure in (9b) or (10b), where QP_1 and QP_2 c-command each other. He supports the claim that QR is involved in frozen scope examples by showing that QP_2 can contain a relative clause with ACD, and that QP_2 can have scope over the subject.

3 Problems with Bruening's Analysis

Bruening presents what appears to be a tightly knit argument to show that frozen scope is a result of QR obeying Superiority. But it suffers from serious problems, theoretical and descriptive, as shown below.

3.1 Theoretical Problems: The Target of QR and the Theory of Phrase Structure

3.1.1 The Target of QR

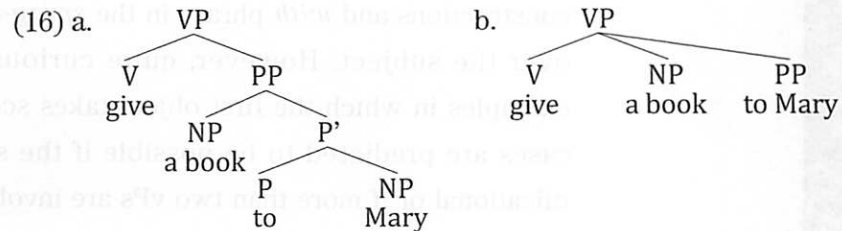
One crucial assumption in Bruening's account is that QR applies to PP rather than to the goal DP in (9b) and (10b). However, Economy Principle dictates that operations in general and operations at LF in particular such as QR target the minimal element. This means that in (9b) and (10b) it has to apply to Goal DP (*each child* and *every chair*) rather than to PP. The theme asymmetrically c-commands the goal in (10b) and (11b). Hence, it is incorrectly predicted that (10b) and (11b) also exhibit frozen scope. Bruening supports the assumption that QR applies to PP by citing the following examples (his 66a-c).

- (15) a. What did you send to who?
b. *Who did you send what to?
c. ?To who (m) did you send what?

However, the movement here is overt *Wh*-Movement and it involves pied-piping. There is no reason to assume that LF movement involves pied-piping (cf. Tonoike 2000). Moreover, the fact that (15b) is ungrammatical shows that the theme does asymmetrically c-command the goal. Thus, the application of QR to PP as opposed to the quantified DP cannot be guaranteed without some kind of stipulation to that effect. The null hypothesis is that QR, if it exists, applies to the smallest element that contains a quantifier.

3.1.2 Phrase Structure Theory: Endocentricity and Binarity

The constituents marked by ? in (10b) and (11b) lack a head, if it is a maximal projection. Under the binary merge theory of phrase structure, such a structure cannot be generated. Therefore, neither (10b) nor (11b) can be maintained without complicating UG. Bruening, in fact, considers two alternatives (his 71 and 72), given below.



Each alternative, however, has its own problem. The problem with (16a) is that QR must apply to an intermediate projection (P') rather than a maximal projection (PP). This is so because Bruening assumes that QR applies to the sequences, *to each child* and *over every chair* in (10b) and (11b), respectively. This goes against the general assumption that operations apply to a head or a maximal projection, but not to an intermediate projection. Therefore, this proposal again requires some kind of stipulation that is otherwise unnecessary. The structure in (16b) also requires an otherwise unnecessary complication of UG. Under the binary merge theory of structure building widely assumed in the literature, such a structure is impossible to generate. Thus, neither (16a) nor (16b) can be maintained without unduly complicating UG. This means that one of the two conditions for the Superiority account of frozen scope in (9), namely (9b) is not met. In fact, there does not seem to be any independent evidence that no asymmetric c-command holds between two non-subject QPs.

3.2 Descriptive Problems

In addition to the theoretical problems discussed above, Bruening's account suffers from two descriptive problems.

3.2.1 Systematic Gap in Predicted Ambiguity

Bruening points out examples where the second object in double object constructions and *with* phrase in the *spray-load* alternation have scope over the subject. However, quite curiously, he does not give any examples in which the first object takes scope over the subject. Such cases are predicted to be possible if the second object is not quantificational or if more than two vPs are involved. Consider the following examples.

- (17) a. Some professors gave every student the entrance examination problems.
- b. Some professor provided every student with the entrance examination problems.
- (18) a. Some waiter refused to fill every glass with the potent drink.
- b. Some worker refused to spray every table with the toxic paint.
- (19) a. Somebody wrote everybody a nasty letter. some>* <every
Tonoike (2003)
- b. Somebody wrote a nasty letter to everybody some><every
Tonoike (2003)

These examples are predicted to show scope ambiguity in Bruening's account, because nothing prevents QR from applying to the first object and the subject can freely reconstruct. But (17a-b), (18a-b) and (19a) do not show scope ambiguity. Bruening's account has no way of dealing with this fact. Notice that (19b), where the universal quantifier is in the sentence-final position, is ambiguous, the point we will come back to later.

3.2.2 Additional Cases of Frozen Scope

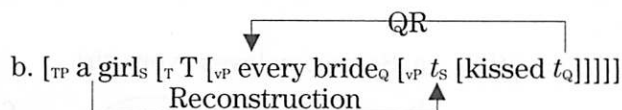
Another problematic fact for Bruening's account is that frozen scope is not limited to the two types of constructions he discusses. It is also observed in two additional types of constructions, namely, possessive constructions with *have* and predication constructions with *be*. Consider the following examples.

- (20) a. Somebody has everything. some>(*)<every
b. Somebody is everything to John. some>* <every

(20a) can mean that there is somebody who owns everything, but it is extremely difficult to interpret it to mean that for each of the things in question, there is somebody who owns it. The same is true of (20b). It can mean something like there is somebody who is everything to John in a figurative sense, i.e., his daughter is everything to him. Or it can have a more literal meaning like "a certain person plays the roles of all the important persons in life, such as parent, teacher, mentor, friend, rival, etc. But it is extremely difficult to interpret the sentence to involve more than one person beside John.

Under Bruening's analysis, the subject reconstructs to the vP internal subject position and QR must raise a non-subject QP to vP as illustrated below.

- (21) a. A girl kissed every bride. a><every (Bruening (51))



Nothing prevents the same processes from applying to (20a-b). Therefore, Bruening's account incorrectly predicts that (20a-b) are ambiguous exactly in the same way as (21a) is.

Thus, it is clear that Bruening's account cannot be maintained, and we need to find some other way to account for the fact that scope is frozen

not only in examples like (2a), (3a), (4a), and (5a) but also in examples like (20a-b).

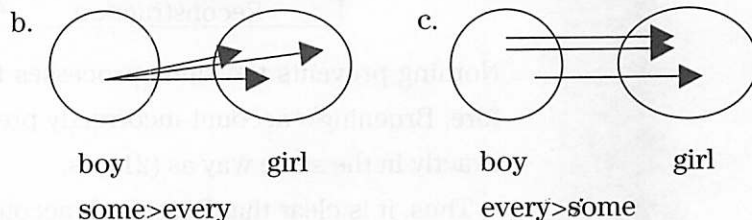
4 A Solution: Predication

In this section we offer an alternative semantic account based on the predication relationship that is shared by all the relevant examples. But before doing so, let us get the lack of scope ambiguity in (17a-b), (18a-b) and (19a) out of the way. Tonoike (2003) proposed an account of scope ambiguity by (Rightward) Overt QR that adjoins a quantified expression to the right of vP (or v*P). The process of Overt QR is assumed to be string-vacuous so that it can apply only to the sentence-final element. In all the five examples in question, the second quantified expressions are in sentence-medial position. Therefore, Overt QR cannot have applied to them, hence lack of scope ambiguity. (19b) is different, however. There, the quantified expression is in the sentence-final position, hence Overt QR is applicable, and the sentence is ambiguous. The frozen scope phenomena of (2a), (3a), (4a), and (5a), remain problematic for the Overt QR Analysis because QP_2 is a sentence-final element in these examples and hence should be able to undergo Overt QR and take scope over QP_1 .

4.1 Scope Interaction and Predication

Generally speaking, scope interaction requires two sets of entities. For instance, the example in (22a), which shows scope ambiguity, involves a set of boys and a set of girls as shown in (22b-c).

- (22) a. Some boy loves every girl.



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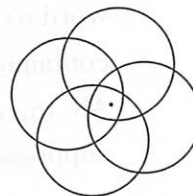
girl

Predication, on the other hand, involves only one set and holds between the set and its member(s). (23a), for instance, says that there is some individual that is a member of the set of things/persons that are smart. (23b) says that there is some individual that is a member of the set defined as the intersection of "everything".

- (23) a. Somebody is smart. b. Somebody is everything (to John)



smart



everything

In other words, the following descriptive generalization obtains.

- (24) Descriptive Generalization (to be revised later)

The c-command relationship between the subject and the predicate cannot be changed by Overt QR. (That is, Overt QR cannot apply to a predicate.)

This accounts for the frozen scope in (20a). That leaves (20b) and the frozen scope examples of (2a), (3a), (4a) and (5a). We propose that they all involve predication relationship and hence are immune to scope reversal even though the c-command relationship between QP_1 and QP_2 may be reversed by Overt QR.

4.2 Possessional Predication

It is necessary at this point to be clear about how predication is to be captured. Basically following Bowers (1993), we assume that there is a functional category Predication that mediates the subject and the predicate and that every sentence with a subject and a predicate contains Predication Phrase of the following schematic structure.

- (25)
- ```

 PrP
 / \
(subject) DP Pr'
 / \
 Pr XP (predicate),
 where XP is either NP, AP or PP.1

```

Pr(edication) expresses a membership of the subject DP in the set denoted by the predicate XP. Since one instance of Pr(edication) is the word *as* in (26b) below, we assume that (26a) as well as any sentence containing *John* as the subject and *crazy* as the predicate also contains AS, the covert version of *as*. (Subject Raising part of the derivation is suppressed for simplicity.)

- (26) a. [<sub>IP</sub> They consider [<sub>PrP</sub> John [<sub>Pr</sub> [<sub>Pr</sub> AS][<sub>AP</sub> crazy]]]]  
 b. [<sub>IP</sub> They regard [<sub>PrP</sub> John [<sub>Pr</sub> [<sub>Pr</sub> as][<sub>AP</sub> crazy]]]]

(20b) is then analyzed to have the following underlying structure.

- (27) [<sub>IP</sub> is [<sub>PrP</sub> somebody [<sub>Pr</sub> [<sub>Pr</sub> AS][<sub>QP</sub> everything to John]]]]

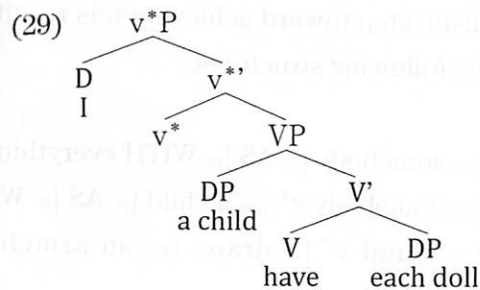
Now what remains to be done is to show that the three cases of frozen scope, namely (20a), (2a) and (4a), repeated below as (28), all involve Predication.

- (28) a. Somebody has everything  
 b. I gave a child each doll.  
 c. Maud draped a (different) armchair with every sheet.

There are two things to be noted about the triplet. A first is that (28b) can

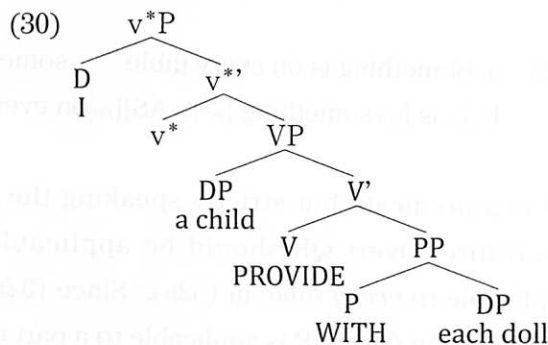
<sup>1</sup> Bowers' (1993) original version includes VP. We differ from Bowers in this respect. We believe that the functional category that selects VP is *v/v\**, and *v\*/v* and Pr differ in their semantic contents. But this point does not affect the outcome of the following argument.

be and has been analyzed as a causative construction containing *have*. Under the current framework of minimalism, it will be analyzed as having the underlying  $v^*P$  structure in (29).



In (29) the light verb  $v^*$  is a causative verb and when the embedded V *have* raises to  $v^*$ , the verbal complex gets spelled out as a verb *give/gave*.

The second is that the verb *give* in (28b) can be and has also been analyzed as involving *with*, similar to the verb *provide* as pointed out by Hale and Keyser (1993). Under that analysis (28b) will have the following  $v^*P$  structure.



In the derivation from (30), *WITH* raises to *PROVIDE*, and *PROVIDE* raises to  $v^*$ , and the verbal complex  $v^*$ -*PROVIDE*-*WITH* gets spelled out as *give/gave*. Under this view, the common element between (28b) and (28c) is obvious. Both share *with/WITH*.

If (28a) is also analyzed to involve *with/WITH*, then all the three cases of frozen scope can be said to share *with/WITH*. And if the minimum structure containing *with/WITH* is Predication Phrase, all pieces of the puzzle will fall into place.

A simplistic step toward achieving this result is to assume that (28a-c) contain the following structures.

- (31) a. [<sub>PrP</sub> somebody [<sub>Pr</sub> AS [<sub>PP</sub> WITH everything]]]  
 b. [<sub>vP</sub> somebody v\* [<sub>PrP</sub> a child [<sub>Pr</sub> AS [<sub>PP</sub> WITH each doll]]]]  
 c. [<sub>vP</sub> Maud v\* [<sub>VP</sub> drape [<sub>PrP</sub> an armchair [<sub>Pr</sub> AS [<sub>PP</sub> with every sheet]]]]]

All the three cases involve Predication with a *with/WITH* phrase as the predicate. This comes pretty close to accounting for the frozen scope cases. Unfortunately, however, there is a problem.

The structures in (31) incorrectly predict that they would be ambiguous: QPs, *everything*, *each doll* and *every sheet* are part of the predicates, hence (31) should be no different from PrP contained in (32a), which shows scope ambiguity.

- (32) a. Something is on every table      some > < every  
 b. [<sub>IP</sub> is [<sub>PrP</sub> something [<sub>Pr</sub> AS [<sub>PP</sub> on every table]]]]

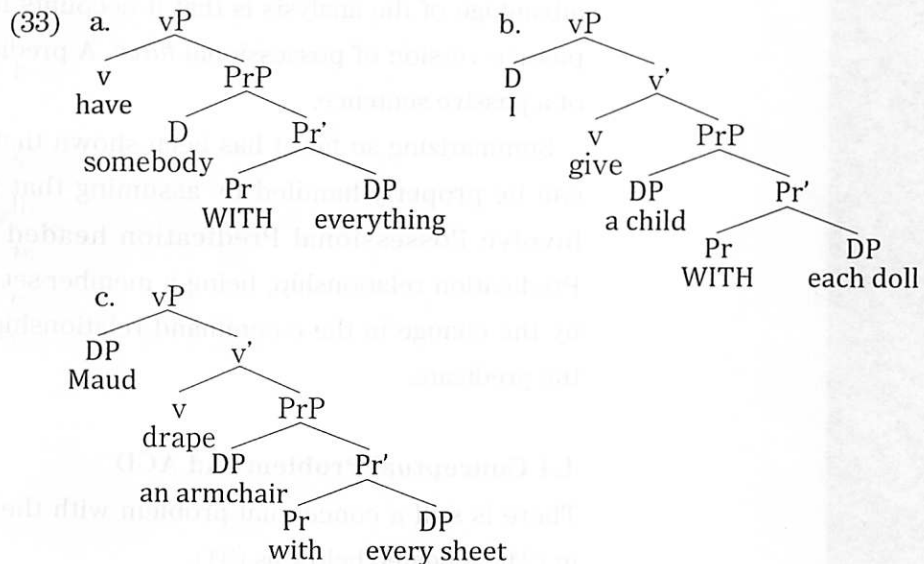
PP is a predicate but strictly speaking the QP contained in it is not. Therefore, Overt QR should be applicable to the QPs just as it is applicable to *every table* in (32a).<sup>2</sup> Since (32a) is ambiguous, it must be assumed that Over QR is applicable to a part of a predicate.

2 This problem can be avoided by stipulating that Overt QR applies to PP in this case, but that is nothing but a stipulation, and should be avoided for the same reason that we rejected Bruening's account of frozen scope with a stipulation that it is the PP rather than the DP that undergoes QR.



### 4.3 A Solution: *With/WITH* as Predication

A solution to this problem has been proposed by Taguchi (2005). He points out that such a problem does not arise if *with/WITH* itself is analyzed as an instance of Predication, Predication that denotes possession. Under the proposed view, *with/WITH* is a function that maps its complement to a set of its possessors, and (28a-c) now contain the following substructures.



The verbs *have* and *give* select PrP with the head *WITH*, while the verb *drape* (along with all the other verbs in *spray/load* alternation) selects PrP with the head *with*.<sup>3</sup> Since the two QPs are the specifier and the complement of Pr, hence the subject and the predicate, they are in a member-set relationship and therefore is unaffected by the application of Overt QR, thus accounting for frozen scope.

One immediate advantage of this proposed analysis is that it solves the

<sup>3</sup> The structures in (33) may very well be quite a bit more complicated and abstract in such a way that *have* is a spell-out of *be-WITH* and *give* is a spell-out of *v\*-be-WITH*, for instance, but for the purposes of the present paper they have all the necessary properties.



Case problem of the direct object in the double object construction. Since the beginning of the GB theory, what Case is assigned to the direct object by what element has been a puzzle. Since there does not seem to be any good candidate Case assigner, it has been assumed that the direct object has an "inherent" Case, a solution totally *ad hoc* in hindsight. Given the analysis in (33b) the direct object can now receive Case from *WITH*. The same is true of the object of *have*: it receives Case from *WITH*, just as *every sheet* in (33c) receives Case from *with*. Another advantage of the analysis is that it accounts for the fact that there is no passive version of possessional *have*. A predicate cannot be the subject of a passive sentence.

Summarizing so far, it has been shown that frozen scope phenomena can be properly handled by assuming that the relevant examples all involve Possessional Predication headed by *with/WITH*, and that Predication relationship, being a member-set relationship, is unaffected by the change in the c-command relationship between the subject and the predicate.

#### 4.4 Conceptual Problem and ACD

There is still a conceptual problem with the descriptive generalization in (24), repeated below as (34).

##### (34) Descriptive Generalization (to be revised later)

The c-command relationship between the subject and the predicate cannot be changed by Overt QR. (That is, Overt QR cannot apply to a predicate.)

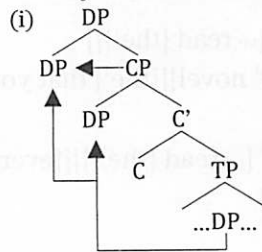
The problem is how to implement the idea that Overt QR cannot apply to a predicate. In the current minimalist framework, there does not seem to be a good mechanism to prevent an operation from applying to a predicate. Furthermore, the ACD cases show that the two QPs in frozen scope take scope over a c-commanding element. Bruening's account is

Tonoike (2003) proposes that ACD does involve raising of some sort, namely, extraction and adjunction by Overt QR. Let us here review the derivation of a simple case of ACD, *I read every book that you did*. It starts with what later becomes a relative clause in (35a) and goes through the following steps. Here we adopt the following assumptions and notational convention: Any syntactic object X, including lexical items, comprises its phonetic shape represented as /X/, and its semantic content represented as {X}, while X contains both. Furthermore, it is assumed that all DPs contain a definite determiner, whether it is overt as *the* or covert as *{the}*. (A hyphen at the beginning of each line indicates that what follows is an independent syntactic object.)

- (35) a. -that you did [<sub>VP</sub> read every<sup>1</sup> {the<sup>1</sup>} novel] Sideward Movement—>  
 b. -that you did [<sub>VP</sub> {read the<sup>1</sup>}] Wh-Movement—>  
 -[<sub>VP</sub> read every<sup>1</sup> {the<sup>1</sup>} novel] Merger of *I* and *v*\*—>  
 c. -[{the<sup>1</sup>} that you did [<sub>VP</sub> {read the<sup>1</sup>}]] Overt QR (Extraction)—>  
 -[<sub>vP</sub> I v\* [<sub>VP</sub> read every<sup>1</sup> {the<sup>1</sup>} novel]]  
 d. -[{the<sup>1</sup>} that you did [<sub>VP</sub> {read the<sup>1</sup>}]] CP Adjunction—>  
 -[<sub>vP</sub> I v\* [<sub>VP</sub> read {the<sup>1</sup>}]]  
 -[every<sup>1</sup> novel]  
 e. -[<sub>VP</sub> I v\* [<sub>VP</sub> read {the<sup>1</sup>}]]  
 -[[every<sup>1</sup> novel]][{the<sup>1</sup>} that you did [<sub>VP</sub> {read the<sup>1</sup>}]] Overt QR (Adjunction)—>  
 f. -[<sub>vP</sub> I v\* [<sub>VP</sub> read {the<sup>1</sup>}]][[every<sup>1</sup> novel]][{the<sup>1</sup>} that you did [<sub>VP</sub> {read the<sup>1</sup>}]]

Each quantified DP contains a definite determiner that functions as a variable bound by the quantifier. This is indicated by the pair *every* and *{the}* in (35a), with the superscripts added (only for expository purposes) to indicate the association. First, Sideward Movement applies to VP. This is a VP version of pronominalization: It leaves a null copy of the VP *{read the'}*, consisting of the verb and the object variable *{the}*. As a result there are two syntactic objects in (35b). *Wh*-Movement part of relativization applies to the variable *{the}* left in VP and moves it to SpecCP.<sup>4</sup> The light verb *v\** and the subject *I* are merged with the copied VP, giving *v\**P. This gives the two syntactic objects in (35c). Overt QR can apply to *every' {the'}* *novel*, extracting *every' novel* out of the *v\**P, leaving the variable *{the'}* behind. As a result, the derivation has three syntactic objects for a brief moment, as shown in (35d). The relative clause has been waiting to adjoin to the antecedent DP but has not had any chance to do so up until now. This is because the Extension Condition of Chomsky (2001) prohibits adjunction onto the antecedent DP because it is contained in the matrix clause. In (35d), thanks to the application of Overt QR, the antecedent DP becomes an independent syntactic object, so that the relative clause can now adjoin to it (CP Adjunction). The QP extracted by Overt QR, which now has the relative CP adjoined to it, must be adjoined to *v\**P. This is the adjunction part of Overt QR. When it is done, we get (35f). The rest of the derivation needs no discussion. Things could have proceeded differently, but the derivation would have

- 4 Here it is assumed, following Tonoike (2008), that relativization involves three steps: Extraction of the DP to be relativized to Spec of the relative CP (aka *Wh*-Movement), Extraction of the DP from the relative CP by Sideward Movement, and Adjunction of the relative CP to the extracted DP, as illustrated below.





crashed because a relative clause would have been left unattached. This accounts for the reason why ACD always involves widening of the scope of the relativized QP: in order for a relative clause to be adjoined to the QP, the latter has to become an independent syntactic object even for a brief moment. Overt QR provides such an opportunity.

Now let us examine how Bruening's ACD examples are handled under the proposed treatment of ACD. Let us consider the most complex case, (12c), repeated below as (36).

- (36) Ozzy refused to fill a glass with every drink that Monty did [<sub>VP</sub> Δ ]  
a glass>every drink>refuse

What has to be accounted for is the scopal relationship among the three elements indicated above. Under the proposed treatment of ACD, the derivation starts with (37a).<sup>5</sup>

- (37) a. -that [Monty<sup>i</sup> did [<sub>VP</sub> {the<sup>i</sup>} v\* [<sub>VP</sub> refuse to fill a glass with every<sup>i</sup> {the<sup>i</sup>} drink]]]  
Sideward Movement—>
- b. -[that [Monty<sup>i</sup> did [<sub>VP</sub> {the<sup>i</sup>} v\* [<sub>VP</sub> {refuse to fill a glass with the<sup>i</sup>}]]]]  
-[<sub>VP</sub> refused to fill a glass with every<sup>i</sup> {the<sup>i</sup>} drink]  
WH-Movement of {the<sup>i</sup>}, Merger of v\* and Ozzy—>
- c. -[{{the<sup>i</sup>} that [Monty<sup>i</sup> did [<sub>VP</sub> {the<sup>i</sup>} v\* [<sub>VP</sub> {refuse to fill a glass with the<sup>i</sup>}]]]]]  
-[<sub>VP</sub> Ozzy v\* [<sub>VP</sub> refused to fill a glass with every<sup>i</sup> {the<sup>i</sup>} drink]]  
Overt QR (Extraction)—>
- d. -[{{the<sup>i</sup>} that [Monty<sup>i</sup> did [<sub>VP</sub> {the<sup>i</sup>} v\* [<sub>VP</sub> {refuse to fill a glass with the<sup>i</sup>}]]]]]  
-[<sub>VP</sub> Ozzy v\* [<sub>VP</sub> refused to fill a glass with {the<sup>i</sup>}]]  
-[every<sup>i</sup> drink]

<sup>5</sup> The control structure is omitted for simplicity except that PRO is represented by the null determiner {the<sup>i</sup>}=PRO left behind.

CP Adjunction—&gt;

e. -[[every<sup>j</sup> drink][[the<sup>j</sup>] that [Monty<sup>j</sup> did [<sub>VP</sub> {the<sup>j</sup>} v [<sub>VP</sub> {refuse to fill a glass with the<sup>j</sup>}]]]]]]

-[<sub>VP</sub> Ozzy v [<sub>VP</sub> refused to fill a glass with {the<sup>j</sup>}]]

Overt QR (Adjunction)—&gt;

f. -[[<sub>VP</sub> Ozzy v [<sub>VP</sub> refused to fill a glass with {the<sup>j</sup>}]]][[every<sup>j</sup> drink] [[the<sup>j</sup>] that [Monty<sup>j</sup> did [<sub>VP</sub> {the<sup>j</sup>} v [<sub>VP</sub> {refuse to fill a glass with the<sup>j</sup>}]]]]]]

The derivation in (37) is exactly parallel to that in (35). Sideward Movement (i.e., VP pronominalization) applies to VP in (37a), resulting in two independent syntactic objects in (37b). The light verb  $v^*$  and the subject *Ozzy* are merged with the VP, while *Wh*-Movement applies in the relative clause, giving (37c). The extraction part of Overt QR applies to the QP, giving three syntactic objects in (37d). The relative clause gets adjoined to the QP, giving (37e), and the relativized QP gets adjoined to  $v^*P$  by the adjunction part of Overt QR. As a result, the second QP (i.e., *every drink that Monty did {refuse to fill a glass with}*) is adjoined to  $v^*P$ , taking scope over the verb *refuse*. However, the first QP, *a glass* remains c-commanded by *refuse*. Thus, the above account covers only one third of the scope relationships among the two QPs, *a glass* and *every drink* and the verb *refuse*, namely *every*>*refuse*. The remaining two thirds, *a glass*>*refuse* and *a glass*>*every*, are left unaccounted for.

Instead of going back to Bruening's covert QR account, we propose the following solution to the problem. First, the *a glass*>*every* reading is not really a scope relationship. The two are in a subject-predicate relationship, hence in a member-set relationship. This member-set relationship is defined by Pr and is not supported by c-command, but it also "feels like" a scope relationship. The scope relationship between *refuse* and *every* is a real scope relationship supported by c-command. Since the *every* phrase is adjoined to  $v^*P$  containing *refuse*, the former asymmetrically c-commands, and hence takes scope over, the latter. As a



Adjunction—>

<sub>VP</sub> {refuse to fill

Adjunction)—>

||[[every<sup>d</sup> drink]

fill a glass with

35). Sideward

7a), resulting in

verb  $v^*$  and the

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the latter. As a

result we have the following two relationships, (38a) and (38b), holding among the relevant elements.

- (38) a. a glass > every (from  $a \text{ glass} \supset \text{every}$ , where  $\supset$  denotes membership)  
 b. every > refuse  
 c. a glass > refuse

By transitivity, we obtain (38c).

Thus, the descriptive generalization in (24) should be replaced by the following statement.

- (39) Descriptive Generalization

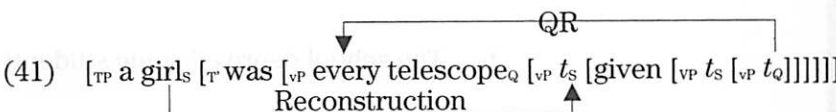
The predication relationship between the subject and the predicate is a member-set relationship and is not supported by c-command, and is unaffected by the change in the c-command relationship brought about by the application of such operations as Overt QR.

#### 4.5 Passivization

There is yet one more thing to take care of. Frozen scope can be resolved (thawed) by passivization as shown by the following examples from Bruening (his 53 and 54).

- (40) a. A (different) girl was given every telescope a > <every  
 b. A (different) armchair was draped with each sheet. a > <each

Bruening's account is by reconstruction and QR, illustrated below.

- (41) 

The covert QR adjoins the object to  $vP$  while reconstruction puts the

subject back to the original position. This option is not available in the proposed account.

As an alternative we propose that (40a-b) have the following schematic structure.

- (42)  $[_{TP} \text{SUBJ}_S [_{T'} T [_{vP} t_S \text{ was } [_{vP} t_S [_{v'} v [_{PrP} t_S [_{Pr'} \text{Pr every/each } X]]]]]] ]]$   
└─ Overt QR ─┐

Suppose that the indirect object, originating in SpecPrP, first moves to SpecvP, then to SpecTP, possibly via SpecvP headed by *was*. Suppose also that these are A-movements and semantic content can piggyback on A-movement as proposed by Tonoike (2003). This means that the trace (i.e., copy) in SpecvP can be *a (different) girl/armchair* and the existential quantifiers can take scope there. Since that position is not the subject position of the predication relationship, Overt QR now can apply to *every/each X*, and adjoin them to vP as indicated by the arrow. This gives rise to a reading in which the direct object takes scope over the indirect object.

In other words, in the passive versions, the indirect object can leave the subject position of PrP, which frees it from the member-set relationship holding between the subject and predicate within PrP, and that allows the direct object to undergo Overt QR.

### 5 Additional Cases of Frozen Scope: Deprivational Predication

Interestingly, there is yet another set of examples that show frozen scope. Consider the following examples:

- (43) a. The school spared some student(s) every extra expense  
some> \* <every  
 b. The school deprived some student(s) of every privilege  
some> \* <every

As indicated, the first QP takes scope over the second QP, but not vice versa. It is quite obvious that (43a) corresponds to the double object construction and (43b) corresponds to the *with* version of the *spray/load* alternation. The simplest way of making sense of all this is to assume that in addition to the regular Predication *as/AS*, and Possessional Predication *with/WITH*, there is a third Predication, Deprivational Predication *of/OF*.

- (44) a. The school spared [<sub>PrP</sub> some student(s) [<sub>Pr</sub> OF [<sub>QP</sub> every expense]]]  
b. The school deprived [<sub>PrP</sub> some student(s) [<sub>Pr</sub> of [<sub>QP</sub> every privilege]]]

Other verbs of the *deprive*-type include *clear*, *dispossess*, *divest*, *drain*, *empty*, *exhaust*, *free*, *rob*, *relieve*, *sap*, etc. There are not many verbs of the *spare*-type: *deny* and *forgive*. Some of the *deprive*-type verbs show alternation with the preposition *from*: *drain A of B* vs. *drain B from A*.

## 6 *Be* and *Have*

There is a slight difference between Predication by *as/AS* and Predication by *with/WITH*, which comes out as difference between *be* and *have*. Consider (20a-b), repeated below as (45).

- (45) a. Somebody is everything to John.  
          some>\* <everything  
       b. Somebody has everything.  
          some>\* <everything, some><everything

While (45a) with *be* exhibits strict frozen scope, (45b) with *have* can have scope ambiguity, though the frozen scope interpretation is a predominant interpretation. This difference calls for an explanation. We submit that the difference comes from the difference between *be* and *have*. The verb *be* is semantically vacuous and serves only as a tense-carrier. The verb



*have*, on the other hand, can be a semantically vacuous tense-carrier as well but can have a bit more semantic contribution of weak agency. We can capture this difference by assigning the underlying structures (46a) and (46b) to (45a) and (45b), respectively, and saying that the subject in (46a) goes directly to SpecTP, but the subject in (46b) can first go to SpecvP and then to SpecTP.

- (46) a. [<sub>TP</sub> T [<sub>VP</sub> is [<sub>PrP</sub> somebody AS everything to John]]]  
b. [<sub>TP</sub> T [<sub>VP</sub> has [<sub>PrP</sub> somebody WITH everything]]]

This gives the following two structures. Note the optional "trace" of *somebody* in SpecvP in (47b).

- (47) a. [<sub>TP</sub> somebody is [<sub>VP</sub> is [<sub>PrP</sub> somebody AS everything to John]]]  
b. [<sub>TP</sub> somebody T [<sub>VP</sub> (somebody) has [<sub>PrP</sub> somebody WITH everything]]]

Movement to SpecvP frees the subject from frozen scope and Overt QR can apply to the predicate to adjoin it to vP so that it has scope over the subject in its Spec, just like in the passive case.

## 7 Conclusion

It has been shown that the frozen scope phenomena are not due to the fact that covert QR obeys Superiority as claimed by Bruening, but are due to the fact that the frozen scope constructions, including those not discussed by Bruening, all involve Predication of some sort. This is so because Predication does not provide the necessary condition for scope interaction. Scope interaction requires two sets, while Predication holds within one set, namely, between a set denoted by the predicate and its member(s) denoted by the subject. It has been shown that it is necessary to expand the notion of Predication to include, in addition to *as/AS* proposed by Bowers (1993), *with/WITH* for possessional Predication,

and *of/OF* for deprivational Predication.

One important theoretical implication of the alternative proposal is that it makes it possible to eliminate the use of covert operations like covert QR assumed in Bruening's account, and maintain the overt syntax thesis that syntactic operations are all overt.

#### References

- Aoun and Li. 1993. *Syntax of scope*. Cambridge, Mass.: The MIT Press.
- Bowers, John. 1993. The syntax of predication. *Linguistic Inquiry* 24:591-656.
- Bruening, Benjamin. 2001. QR obeys Superiority: Frozen scope and ACD. *Linguistic Inquiry* 32:233-273.
- Chomsky, Noam. 2001. Derivation by phase. In Michael Kenstowicz (ed.) *Ken Hale: A life in language*. Cambridge, Mass.: The MIT Press, 1-52.
- Hale, K. and Keyser, S. J. 1993. On argument structure and the lexical expression of syntactic relations. In: Hale, K. and Keyser, S. J. (eds.) *The view from Building 20*. Cambridge, Mass.: The MIT Press, 53-109.
- Hornstein, Norbert. 1995. *Logical form. From GB to Minimalism*. Oxford: Blackwell.
- Kitahara, Hisatsugu. 1996. Raising quantifiers without quantifier raising. In Werner Abraham, Samuel Epstein, Höskuldur Thráinsson and C. Jan-Wouter Zwart (eds.) *Minimal ideas: Syntactic studies in the minimalist framework*. Amsterdam: John Benjamins, 189-198.
- May, Robert. 1977. *The grammar of quantification*. Doctoral dissertation, MIT.
- May, Robert. 1985. *Logical form*. Cambridge, Mass.: The MIT Press.
- Richards, Norvin. 1997. *What moves where when in which language?* Doctoral dissertation, MIT, Cambridge, Mass.
- Taguchi, Kazuki. 2001. *Quantifier scope interaction and rightward adjunction*. Unpublished MA thesis, Aoyama Gakuin University.
- Taguchi, Kazuki, and Shigeo Tonoike 2005. 凍結作用域と題述関係 [Frozen scope and predication] 日本言語学会大 131 回大会 (広島大学).
- Tonoike, Shigeo. 2000. *Wh-Movement, Pied-Piping and related matters* 平成 11 年度 COE 形成基礎研究費研究成果報告 (4) 211-227.
- Tonoike, Shigeo. 2003. Overt QR. *Thought Currents in English Literature* 124: The English Literary Society of Aoyama Gakuin University, 73-96.
- Tonoike, Shigeo 2005. *In-situ operator-variable construction—A proposed model of inter-planar operator-variable constructions—*. 日本英語学会第 23 回大会 (九州大学).
- Tonoike, Shigeo 2008. *The General theory of relativization*. MS. University of Hawaii and Aoyama Gakuin University.