

## SUPERIORITY AND SCOPE FREEZING

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David Lebeaux (cited in Larson 1990:603) observes that English double object constructions (DOCs) show “scope freezing” between the two objects. Quantified indirect and direct object arguments must be interpreted in their surface order (1a). Schneider-Zioga (1988) makes a similar observation about quantified arguments in the *with*-variant of *spray-load* constructions (1b); they also exhibit scope freezing.

- (1) a. John taught [**two persons**] [**every language**].  
           $2 > \forall; * \forall > 2$   
      b. John loaded [**two trucks**] with [**every box**].  
           $2 > \forall; * \forall > 2$

As noted in Larson 1990, scope freezing does not involve absolute low scope for the outer quantifier; instead, it involves fixation of the *relative* scopes of the quantifier-quantifier pair. This is clear in DOCs showing antecedent-contained deletion (ACD) in the outer quantified object.

- (2) a. John gave someone [**everything that you did** [<sub>VP</sub> e]].  
      b. John wants to give someone [**everything that you do** [<sub>VP</sub> e]].

On standard views of ACD (Sag 1976, May 1985, Larson and May 1990), reconstruction of the elliptical VP requires the quantified nominal containing it to receive scope at least as wide as the VP serving as its reconstruction source. For (2a), this entails that *everything you did* [<sub>VP</sub> e] must receive scope at least as wide as VP (3a). Given the two possible interpretations of (2b), two scopes must be available for *everything you did* [<sub>VP</sub> e]: an embedded-S scope interpretation in view of (3bi), and a matrix-S scope interpretation in view of (3bii).

- (3) a. ‘John gave someone everything that you gave him.’  
      b. i. ‘John wants to give someone everything that you **give him**.’  
        ii. ‘John wants to give someone everything that you **want to give him**.’

Importantly, again as noted in Larson 1990, *someone* must in all cases be understood with scope over the theme, whatever the latter’s scope. (2a) must have an LF structure approximately as in (4a). And (2b) must have LFs approximately as in (4bi–ii) (where the relevant VPs are indicated in boldface).

- (4) a. [someone]<sub>i</sub> [everything that you did [<sub>VP</sub> e]]<sub>j</sub> John  
          [**VP gave** **t<sub>i</sub> t<sub>j</sub>**]

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- b. i. John wants  $[[\text{someone}]_i [\text{everything that you did } [\text{VP } e]_j \text{ PRO to } [\text{VP give } t_i t_j]]]$   
 ii.  $[\text{someone}]_i [\text{everything that you did } [\text{VP } e]_j [\text{John } [\text{VP wants PRO to give } t_i t_j]]]$

Thus, whether *everything you did*  $[\text{VP } e]$  scopes in the lower or in the higher clause, *someone* must scope higher, preserving their relative “frozen” order.

### 1 Scope Freezing as Superiority

Bruening (2001) proposes that the scope constraint observed in (1) and (2) be assimilated to Superiority. In a sentence like (5) with multiple *wh*-phrases, movement must target the higher (5a) rather than the lower (5b) argument. Standard domain tests provide independent evidence for the height asymmetry (6a–b).<sup>1</sup>

- (5) a. **Who** \_\_\_ saw **what**?  
 b. \***What** did **who** see \_\_\_ ?
- (6) a. **No one** saw **anything**.  
 b. \***Anyone** saw **nothing**.

By a variety of domain tests, Barss and Lasnik (1986) demonstrate conclusively that in DOCs the goal object is asymmetrically higher than the theme (7a–b). We therefore expect DOCs to exhibit Superiority, which Barss and Lasnik do in fact note (8a–b).<sup>2</sup>

- (7) a. John gave [**no one**] [**anything**].  
 b. \*John gave [**anyone**] [**nothing**].
- (8) a. **Who** did John give \_\_\_ **what**?  
 b. \***What** did John give **who** \_\_\_ ?

In the Minimalist Program (Chomsky 1995), Superiority effects issue from the general account of movement. A head  $\alpha$  bearing an edge feature ( $\epsilon$ ) and a feature  $[\phi]$  capable of undergoing agreement probes its c-command domain for a  $[\phi]$ -bearing  $\beta$  (9a). On detecting  $\beta$ ,  $\alpha$  agrees with it on  $[\phi]$ , activates its edge feature, and raises  $\beta$  to its

<sup>1</sup> Below, for brevity, we use negative-polarity-item licensing as representative of the battery of diagnostics cited by Barss and Lasnik (1986) to test domain asymmetries, including also anaphor licensing, *each N . . . the other*, quantifier binding, and so on.

<sup>2</sup> Parallel points hold for *with*-variants of the *spray-load* construction. Barss-Lasnik diagnostics show the “container” to be situated higher than the *with*-object (ia–b), and the construction exhibits the corresponding expected *Wh*-Superiority pattern (iia–c). Correlatively, *with*-variants of the *spray-load* construction exhibit scope freezing (1b).

- (i) a. John loaded [**no truck**]  $[\text{PP with } [\text{any boxes}]]$ .  
 b. \*John loaded [**any truck**]  $[\text{PP with } [\text{no boxes}]]$ .
- (ii) a. **What** did John load \_\_\_  $[\text{PP with } [\text{what}]]$ ?  
 b. \***What** did John load [**what**]  $[\text{PP with } \_\_\_ ]$ ?  
 c. \***With what** did John load [**what**] \_\_\_ ?

specifier position (9b). Crucially, the probe-goal relation respects Minimality;  $\alpha$  cannot probe  $\gamma$  “past” an intervening  $\beta$  that is a  $[\phi]$ -bearer (9c).

- (9) a.  $[_{\alpha P} \quad \alpha \quad \dots \quad [ \dots \beta \dots ]]$   
 $[\epsilon, \phi] \rightarrow \text{probes} \rightarrow [\phi]$   
 b.  $[_{\alpha P} \beta \quad \alpha \quad \dots \quad [ \dots \beta \dots ]]$   
 $\uparrow$   
 c.  $[_{\alpha P} \quad \alpha \quad \dots \quad [ \dots \beta \dots [ \dots \gamma \dots ] ]]$   
 $[\phi] \rightarrow \text{probes} \rightarrow [\phi] \rightarrow X \rightarrow [\phi]$

In the specific case of *wh*-movement, an interrogative feature  $[Q]$  on C probes its domain, targeting the closest *wh*-phrase *who* in (10a) and raising it (10b). The remaining *wh*-phrase *what* raises subsequently at LF, “tucking in” beneath *who*, thus preserving the original *who*-*what* order (Richards 1997).

- (10) a.  $[_{CP} C \quad [ \mathbf{who} \text{ [saw } \mathbf{what} ] ]]$   
 $[Q] \rightarrow \text{probes} \rightarrow [Q] \quad [Q]$   
 b.  $[_{CP} \mathbf{who} C [ \mathbf{who} \text{ [saw } \mathbf{what} ] ]]$   
 $\uparrow$   
 c.  $[_{CP} \mathbf{who} \mathbf{what} C [ \mathbf{who} \text{ [saw } \mathbf{what} ] ]]$   
 $\uparrow$

Bruening (2001) extends this picture to quantifiers. He assumes that the highest light verb *v* in a DOC bears a scope feature  $[P]$  that probes its domain, targeting the closest quantifier (*two persons* in (11a)) and raising it (as in (11b)). The remaining quantifier (here, *every language*) subsequently raises, tucking in beneath and preserving the original scope order (11c).

- (11) a.  $[_{vP} v \text{ taught } [ \dots \mathbf{two persons} \dots [ \dots \mathbf{every language} \dots ] ]]$   
 $[P] \rightarrow \text{probes} \rightarrow [P] \quad [P]$   
 b.  $[_{vP} \mathbf{two persons} v \text{ taught } [ \dots \mathbf{two persons} \dots [ \dots \mathbf{every language} \dots ] ]]$   
 $\uparrow$   
 c.  $[_{vP} \mathbf{two persons} \mathbf{every language} v \text{ taught } [ \dots \mathbf{two persons} \dots [ \dots \mathbf{every language} \dots ] ]]$   
 $\uparrow$

On this view, scope freezing reduces to quantifier Superiority.

Bruening’s (2001) analysis assumes a nonderivational structure for DOCs based on proposals in Marantz 1993. However, nothing in his account hinges on this assumption.<sup>3</sup> Under the general analysis of movement given in (9), a  $[Q]$  C will target a *wh*-subject, whether the latter is an underlying subject as in (5a) or a subject derived, for example, by passive (12a) or raising (13a). Movement of a lower *wh*-

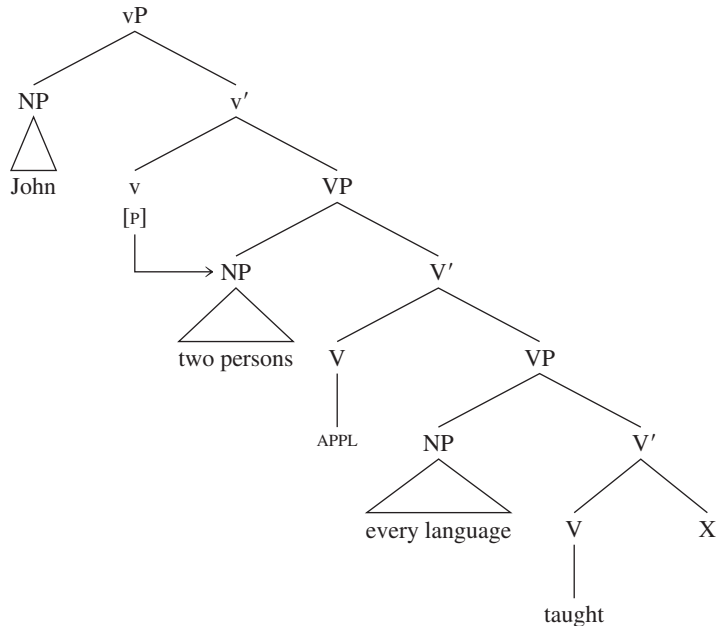
<sup>3</sup> See Marantz 2013:166 for apparent confusion on this point.

phrase over the derived subject would violate Minimality (12b–c)/ (13b–c).<sup>4</sup>

- (12) a. **What** \_\_\_ was seen by **who**?  
 b. \***Who** was **what** seen by \_\_\_ ?  
 c. \***By whom** was **what** seen \_\_\_ ?
- (13) a. **Who** \_\_\_ seems to **who** to be sick?  
 b. \***Who** does **who** seem to \_\_\_ to be sick?  
 c. \***To whom** does **who** seem \_\_\_ to be sick?

For the same reasons, a [P] feature on the highest v will target the quantified goal argument *two persons* under a nonderivational analysis of DOCs like Marantz's 1993 (see (14a)), and under Larson's (2014) "applicative shift" analysis of DOCs (see (14b)), which takes the surface goal position to be derived. In either case, the goal is the highest object argument in the structure and the one closest to v bearing [P].<sup>5</sup>

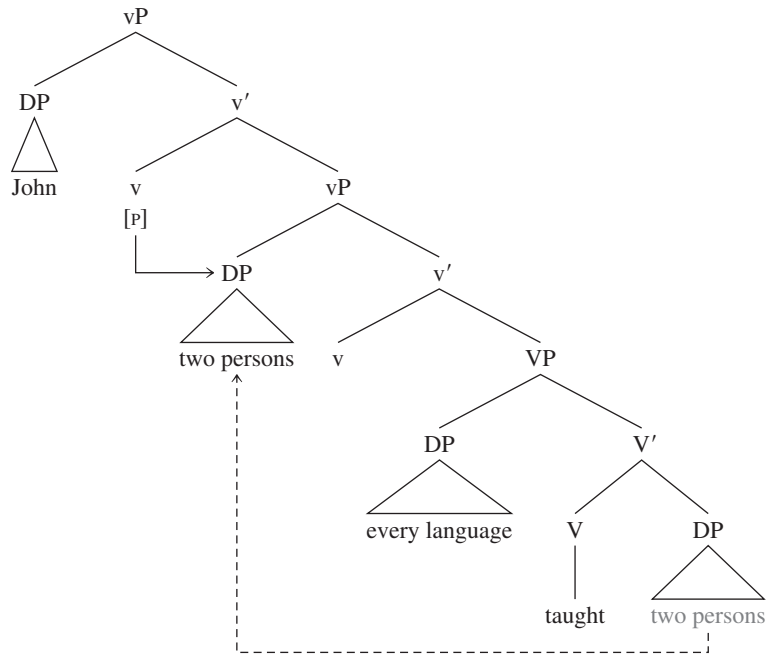
(14) a. *Marantz 1993*



<sup>4</sup> Chris Collins (pers. comm.) notes that there is probably an extra source of unacceptability in (13b) given that *?Who does John seem to to be sick?* is already somewhat degraded.

<sup>5</sup> Parallel points again hold for *with*-variants of the *spray-load* construction. Bruening (2001) adopts a nonderivational view of the latter, whereas Larson (2014) proposes that the position of the postverbal "container" argument is derived by raising. The Superiority account predicts scope freezing in either case.

b. *Larson 2014*



## 2 Problems with Oblique Datives

Bruening's (2001) Superiority analysis yields an attractive account of scope freezing in DOCs, whether analyzed as derived or underived. But it encounters immediate problems with PP datives (PPDs). As discussed in Larson 1988, PPDs exhibit the same pattern of "Barss-Lasnik facts" as DOCs, but in this case implying that the theme occupies a higher position than the goal. Compare (7) and (15). Furthermore, and consistent with this result, the two objects exhibit *Wh*-Superiority (16a–c), an observation going back to Kuno and Robinson 1972 and echoed in Larson 1988, Aoun and Li 1993, and Falk 2012, among others.

- (15) a. John gave [nothing] [PP to anyone].  
 b. \*John gave [anything] [PP to no one].
- (16) a. **What** did John give \_\_\_ [PP to **who**]?  
 b. \***Who** did John give **what** [PP to \_\_\_]?  
 c. \***To whom** did John give **what** \_\_\_?

Under these circumstances, we clearly expect Superiority (i.e., scope freezing) with PPD quantifiers, parallel to Superiority with PPD *wh*-phrases. But, as noted by Lebeaux, this expectation is not fulfilled. Quantified objects in PPDs are scopally ambiguous (cf. (1a) and (17)).

- (17) John taught [two languages] [PP to [every person]].  
 $2 > \forall; \forall > 2$

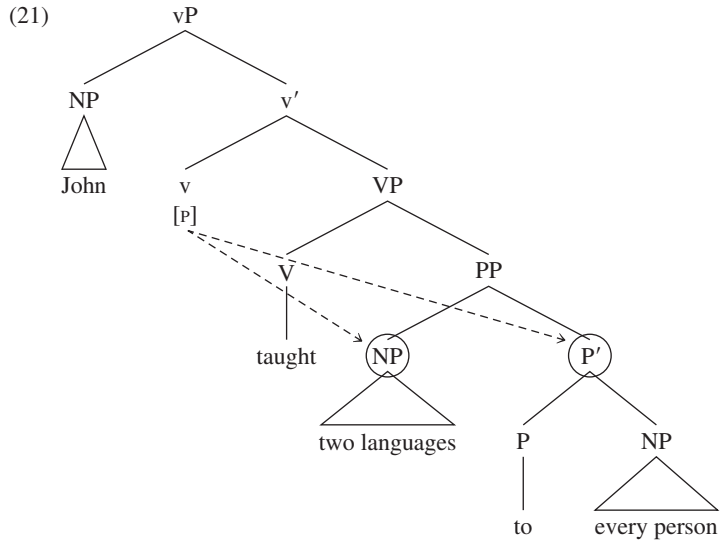
Similar unexpected results hold for locative variants of the *spray-load* construction. Barss-Lasnik tests show the theme to be situated higher than the location/container (18a–b), and the construction exhibits the corresponding expected *Wh-Superiority* pattern (19a–c). Nonetheless, like a PPD, the locative variant of the *spray-load* construction exhibits quantifier scope ambiguity (20), contra expectations under Bruening’s (2001) account.

- (18) a. John loaded [**nothing**] [<sub>PP</sub> onto **any truck**].  
 b. \*John loaded [**anything**] [<sub>PP</sub> onto **no truck**].
- (19) a. **What** did John load \_\_\_ [<sub>PP</sub> onto **what**]?  
 b. \***What** did John load [**what**] [<sub>PP</sub> onto \_\_\_ ]?  
 c. \***Onto what** did John load [**what**] \_\_\_ ?
- (20) John loaded [**two boxes**] [<sub>PP</sub> onto **every truck**].

$2 > \forall; \forall > 2$

### 2.1 Complement Symmetry and Equidistance

To accommodate the results in (17) and (20) and preserve the Superiority account of scope freezing, Bruening (2001) proposes a VP structure for PPDs wherein the objects occupy a PP small clause that is complement to *taught* (21). Since this structure positions the two postverbal objects asymmetrically, at different distances from v[P], Bruening makes the interesting, additional assumption that QR (Quantifier Raising) can target P' (i.e., covertly pied-pipe the preposition), making the two indicated phrases in (21) equidistant. In this circumstance, Bruening suggests, either scope becomes available.



Note that if NP and P' are equidistant from v, they will be equidistant from a higher C as well. Bruening claims that *wh*-pied-piping examples like (16c) are in fact well-formed, contrary to the literature. That is, he holds that the contrast between (16b) and (16c), reported in Kuno and Robinson 1972, Larson 1988, Aoun and Li 1993, and Falk 2012, among other works, is incorrect, and that the facts are instead as follows:

- (16') b. \***Who** did John give **what** [<sub>PP</sub> to \_\_\_\_ ]?  
 c. ?**To whom** did John give **what** \_\_\_\_ ?

In the experience of the first author of this squib, whereas most speakers find a clear contrast in *Wh*-Superiority judgments with subjects and complements, *Wh*-Superiority judgments with two complements are in fact less sharp. At the same time, this author has found some patterns in speaker judgments with pairs and triples like the following:

- (22) a. *Double object construction*  
 i. **Who** did John give \_\_\_\_ **what**?  
 ii. **What** did John give **who** \_\_\_\_ ?  
 b. *PP dative*  
 i. **What** did John give \_\_\_\_ [<sub>PP</sub> to **who**]?  
 ii. **Who** did John give **what** [<sub>PP</sub> to \_\_\_\_ ]?  
 iii. **To whom** did John give **what** \_\_\_\_ ?  
 c. *Locative complement*  
 i. **What** did John load \_\_\_\_ [<sub>PP</sub> onto **what**]?  
 ii. **What** did John load **what** [<sub>PP</sub> onto \_\_\_\_ ]?  
 iii. **Onto what** did John load **what** \_\_\_\_ ?  
 d. *Spray-load construction*  
 i. **What** did John load \_\_\_\_ [<sub>PP</sub> with **what**]?  
 ii. **What** did John load **what** [<sub>PP</sub> with \_\_\_\_ ]?  
 iii. **With what** did John load **what** \_\_\_\_ ?

There are speakers who favor the (i)-variants over all alternatives, and judge all other variants as marginal. The judgments reported in most of the literature (apart from Bruening 2001) are of this type. There are also speakers who find *all* alternatives acceptable and show no preferences except stylistic ones (see Hendrick and Rochemont 1988). Thus, if they dislike preposition stranding in general, they prefer all (iii)-variants to all (ii)-variants. If they find pied-piping stilted in general, they prefer all (ii)-variants to all (iii)-variants. But we have found no speakers who judge (22aii) clearly and decisively worse than either the (ii)- or (iii)-variants of (22b–d). Nor have we found speakers who judge (22biii), (22ciiii), and (22diii) differently—specifically, none finding (22diii) significantly worse than the other pair, as Bruening's proposal predicts. If pied-piping is acceptable in some, it is acceptable in all.

Furthermore, and more subtly, we have found no speakers showing a correlation between pied-piping and inverse scope judgments. Under Bruening's assumption that the acceptability of overt *wh*-pied-

pip-ing correlates with the availability of covert pied-piping, we predict that the acceptability of the former will track the accessibility of inverse scope. As PP pied-piping improves/declines in acceptability, inverse scope among object arguments should improve/degrade in accessibility. The first author finds no such correlation in his own idiolect. None of the (iii)-variants are acceptable, but inverse quantifier scope is freely available. The two phenomena do not correlate.<sup>6</sup>

## 2.2 ACD with PPs

There is an alternative way to test Bruening's (2001) predicted correlation between pied-piping and inverse scope availability. Larson (1987) discusses a class of examples, observed originally by Jespersen (1927), involving a "missing P."<sup>7</sup>

- (23) a. We parted in the same cordial fashion that we had met.  
(cf. *We parted in the same cordial fashion that we had met in.*)
- b. By 2020, I will have lived in every city that John has lived.  
(cf. *By 2020, I will have lived in every city that John has lived in.*)
- c. Max left on the very same occasion that Bill arrived.  
(cf. *Max left on the very same occasion that Bill arrived on.*)

Larson (1987) proposes that these examples involve PP-ellipsis, a process observed independently in examples like (24a–c).<sup>8</sup>

- (24) a. John put \$10 [<sub>PP</sub> in the collection plate] and Mary put \$20 [<sub>PP</sub>  $\emptyset$ ].
- b. John gives his money [<sub>PP</sub> to MIT], but Mary gives her time [<sub>PP</sub>  $\emptyset$ ].
- c. John got a bicycle [<sub>PP</sub> for his birthday], but Mary got a surfboard [<sub>PP</sub>  $\emptyset$ ].

Specifically, assume that (23b) begins with an elliptical PP in the relative clause (25a), parallel to the elliptical VP in a standard ACD example like (26a). The quantified object raises, stranding the preposition (25b); compare (26b) with a stranded V. With [<sub>PP</sub>  $\emptyset$ ] disentangled

<sup>6</sup> As an anonymous *LI* reviewer notes, research from Nishigauchi 1986 and Choe 1987 to Kotek and Erlewine 2016 casts doubt on the idea that overt movement and covert movement have the same conditions on pied-piping in the first place; hence, it is doubtful that Bruening's (2001) general premise is sustainable.

<sup>7</sup> For many speakers, the acceptability of examples like (23a–c) improves if one pauses slightly between the V and the P, presumably signaling the PP constituent to follow.

<sup>8</sup> Note the possibility of a "sloppy identity" reading in (24c) ('for Bill's birthday'), signaling the presence of a covert PP.



from its reconstruction source, its content can be reconstructed unproblematically from the matrix sentence (25c); again, compare (26c).

- (25) a. I will have lived [<sub>PP</sub> in [<sub>NP</sub> every city that John has lived [<sub>PP</sub>  $\emptyset$ ]].  
 b. QR  
 [<sub>NP</sub> every city that John has lived [<sub>PP</sub>  $\emptyset$ ]]<sub>i</sub> [I will have lived [<sub>PP</sub> in  $e_i$ ]]  
 ↑  
 c. Reconstruct PP  
 [<sub>NP</sub> every city that John has lived [<sub>PP</sub> in  $e_i$ ]]<sub>i</sub> [I will have lived [<sub>PP</sub> in  $e_i$ ]]  
 ↑
- (26) a. I will have [<sub>VP</sub> lived in [<sub>NP</sub> every city that John has [<sub>VP</sub>  $\emptyset$ ]].  
 b. QR  
 [<sub>NP</sub> every city that John has [<sub>VP</sub>  $\emptyset$ ]]<sub>i</sub> [I will have [<sub>VP</sub> lived in  $e_i$ ]]  
 ↑  
 c. Reconstruct VP  
 [<sub>NP</sub> every city that John has [<sub>VP</sub> lived in  $e_i$ ]]<sub>i</sub> [I will have [<sub>VP</sub> lived in  $e_i$ ]]  
 ↑

In view of the parallelism between (25) and (26), the process yielding (23a–c) is labeled “antecedent-contained PP-deletion” in Larson 1987. Note that a crucial feature of PP ACD is that QR must strand the preposition (25b) and not pied-pipe it, parallel to the stranding of V in VP ACD. Without stranding, there will be no [<sub>PP</sub> P  $e$ ] in the main clause to serve as a reconstruction source for the elliptical PP in the relative clause.

Now consider examples (27a–b), which are parallel to those in (23). For (27a), we choose a verb (*donate*) without a double object variant to ensure the presence of an elliptical PP requiring a reconstructed *to*-preposition. Both examples appear to be acceptable. Both are understood with a “missing P” in the relative clause. Finally, both are naturally understood with the outer object (*every charity . . . , every wall . . .*) taking scope over the inner object (*a book, a heart*)—that is, inverse scope.

- (27) a. Max will donate a book  
 [<sub>PP</sub> to [<sub>NP</sub> every charity that you donate an article of clothing [<sub>PP</sub>  $\emptyset$ ]]].  $\forall > \exists$   
 (cf. *Max will donate a book to every charity that you donate an article of clothing to.*)
- b. Alice sprayed a heart  
 [<sub>PP</sub> onto [<sub>NP</sub> every wall that you sprayed a fist [<sub>PP</sub>  $\emptyset$ ]]].  $\forall > \exists$   
 (cf. *Alice sprayed a heart onto every wall that you sprayed a fist onto.*)

Observe now that the derivations of (27a–b) must involve both raising of the quantified object at LF and stranding of the preposition: only if P is stranded at LF can PP reconstruct appropriately in the relative clause.

- (28) a. *QR*  
 [<sub>NP</sub> every charity that you donate an article of clothing [<sub>PP</sub>  $\emptyset$ ]]<sub>i</sub>  
 [Max will donate a book [<sub>PP</sub> to e<sub>i</sub>]] —————↑
- b. *Reconstruct PP*  
 [<sub>NP</sub> every charity that you donate an article of clothing [<sub>PP</sub> to e<sub>i</sub>]]<sub>i</sub>  
 [Max will donate a book [<sub>PP</sub> to e<sub>i</sub>]] —————↑
- (29) a. *QR*  
 [<sub>NP</sub> every wall that you sprayed a fist [<sub>PP</sub>  $\emptyset$ ]]<sub>i</sub>  
 [Alice sprayed a heart [<sub>PP</sub> onto e<sub>i</sub>]] —↑
- b. *Reconstruct PP*  
 [<sub>NP</sub> every wall that you sprayed a fist [<sub>PP</sub> onto e<sub>i</sub>]]<sub>i</sub>  
 [Alice sprayed a heart [<sub>PP</sub> onto e<sub>i</sub>]] —————↑


ACD-in-PP examples thus show that, contra Bruening 2001, the possibility of inverse scope between objects in PPD constructions cannot crucially depend on pied-piping. In order to supply an appropriate PP reconstruction source, QR must be able to raise the low object alone, giving it scope over the higher object while leaving the preposition in situ.

An anonymous *LI* reviewer suggests an alternative derivation for (25a) that involves preposition stranding not in the original site, but in an intermediate position. On a Bruening (2001)–style analysis, this suggestion would involve adjoining PP to vP (30b), extracting the quantifier from PP (30c), and then reconstructing from the preposed site (30d).

- (30) a. [<sub>vP</sub> I v [<sub>vP</sub> live [<sub>PP</sub> in [<sub>NP</sub> every city that John has lived [<sub>PP</sub>  $\emptyset$ ]]]]]
- b. *Prepose PP*  
 [<sub>vP</sub> [<sub>PP</sub> in [<sub>NP</sub> every city that John has lived [<sub>PP</sub>  $\emptyset$ ]]]<sub>i</sub> [<sub>vP</sub> I v [<sub>vP</sub> live e<sub>i</sub>]]]
- c. *QR from PP*  
 [<sub>vP</sub> [<sub>NP</sub> every city that John has lived [<sub>PP</sub>  $\emptyset$ ]]<sub>j</sub> [<sub>vP</sub> [<sub>PP</sub> in e<sub>j</sub>]]<sub>i</sub> [<sub>vP</sub> I v [<sub>vP</sub> live e<sub>i</sub>]]]]]
- d. *Reconstruct PP*  
 [<sub>vP</sub> [<sub>NP</sub> every city that John has lived [<sub>PP</sub> in e<sub>j</sub>]]<sub>j</sub> [<sub>vP</sub> [<sub>PP</sub> in e<sub>j</sub>]]<sub>i</sub> [<sub>vP</sub> I v [<sub>vP</sub> live e<sub>i</sub>]]]]]

However, (30d) is arguably not yet a fully interpretable LF. Given the selection relation between *live* and the following locative PP, sentences with preposed PPs like (31a) will presumably require PP reconstruction for full interpretation (31b).<sup>9</sup>

<sup>9</sup> These points apply equally to adjunct PPs, which, under standard semantic analyses, denote either VP-functors, composed by function-argument application (Thomason and Stalnaker 1973), or event predicates, composed by predicate conjunction (Parsons 1990). In either case, PP will need to reconstruct for appropriate semantic interpretation.

- (31) a. [<sub>PP</sub> In Rome]<sub>i</sub> I lived e<sub>i</sub> for two years.  
 b. [<sub>PP</sub> in Rome] I lived [<sub>PP</sub> in Rome] for two years  


If so, then (30d) will require further reconstruction of its preposed PP for full interpretation.

- (32) *Reconstruct PP*  
 [<sub>VP</sub> [<sub>NP</sub> every city that John has lived [<sub>PP</sub> in e<sub>j</sub>]]<sub>j</sub> [<sub>VP</sub> I v  
 [<sub>VP</sub> live [<sub>PP</sub> in e<sub>j</sub>]]]]

Observe now that the resulting LF (32) is identical to the one postulated on the ACD analysis with stranding in the base site. More exactly, (30a–d) + (32) achieves by *two* applications of movement and *two* applications of reconstruction exactly what the ACD analysis achieves by *one* application of movement and *one* application of reconstruction. It seems plausible to exclude (30a–d) + (32) under principles of derivational economy favoring the shortest derivational route to a given LF (see Chomsky 1991, 1995, Graf 2013, Bošković and Messick 2017 for detailed discussion).

Another anonymous *LI* reviewer suggests that the copy theory of movement might provide a solution to the problem raised by (27a–b) for Bruening’s (2001) account. To our knowledge, the only developed theory of ACD consistent with the copy theory of movement is that of Fox (2002), which makes essential use of rightward movement and late merger of adjuncts (Lebeaux 1988, 2009). On Fox’s theory, an antecedent-contained VP-ellipsis sentence like (26a) (repeated below) is analyzed as in (33). The sentence begins with a bare unmodified quantifier (33a) that covertly moves rightward, yielding (33b). The relative clause containing the elliptical VP is then attached by adjunct merger (33c). After trace conversion (*every city* → *the city*), reconstruction of the ellipsis yields the fully interpretable form (33d).

- (26) a. I will have [<sub>VP</sub> lived in [<sub>NP</sub> every city that John has  
 [<sub>VP</sub> Ø]].
- (33) a. I will have [<sub>VP</sub> lived in every city]  
 b. *DP-movement*  
 I will have [<sub>VP</sub> lived in every city] every city  
 c. *Adjunct merger*  
 I will have [<sub>VP</sub> lived in every city] every city  
 [that John has [<sub>VP</sub> Ø]]  
 d. *Reconstruction*  
 I will have [<sub>VP</sub> lived in the city] every city  
 [that John has [<sub>VP</sub> lived in the city]]

This analysis can be extended directly to antecedent-contained PP-ellipsis sentences like (25a) (repeated here) as in (34).

- (25) a. I will have lived [<sub>PP</sub> in [<sub>NP</sub> every city that John has lived  
 [<sub>PP</sub> Ø]]].

- (34) a. I will have lived [<sub>PP</sub> in every city]  
 b. *DP-movement*  
 I will have lived [<sub>PP</sub> in every city] every city  
 c. *Adjunct merger*  
 I will have lived [<sub>PP</sub> in every city] every city  
 [that John has lived [<sub>PP</sub> Ø]]  
 d. *Reconstruction*  
 I will have lived [<sub>PP</sub> in the city] every city  
 [that John has lived [<sub>PP</sub> **in the city**]]

Under Fox's (2002) analysis, we might appeal to LF pied-piping of PP in cases problematic for Bruening's (2001) analysis like (27a–b) and simply interpret the in-situ copy. On this view, we could accommodate (27b) (repeated here) as in (35), where the covertly moved copy of P (*onto*) is simply left uninterpreted (35d).<sup>10</sup>

- (27) b. Alice sprayed a heart [<sub>PP</sub> onto [<sub>NP</sub> every wall that you sprayed a fist [<sub>PP</sub> Ø]]].
- (35) a. Alice sprayed a heart [<sub>PP</sub> onto every wall]  
 b. *PP-movement*  
 Alice sprayed a heart [<sub>PP</sub> onto every wall] onto every wall  
 c. *Adjunct merger*  
 Alice sprayed a heart [<sub>PP</sub> onto every wall] onto every wall [that you sprayed a fist [<sub>PP</sub> Ø]]  
 d. Alice sprayed a heart [<sub>PP</sub> onto the wall] ~~onto~~ every wall [that you sprayed a fist [<sub>PP</sub> **onto the wall**]]

The problem of (27a–b) is thus resolved.

Whatever the attractions of a derivation like (35), however, there are serious obstacles to combining Bruening's (2001) proposal with Fox's (2002) account of ACD. As just noted, Fox relies on rightward movement to reposition a quantifier outside the reconstruction source, where it can then adjoin a relative clause containing an ellipsis site. As Fox observes, this entails that in a DOC example like (36a), all elements to the right of the ellipsis site must be analyzed as having moved rightward as well. (36a) thus requires the (rather complex) derivation in (36b–f), where it is the moved copies that are pronounced.

- (36) a. John assigned someone you did [<sub>VP</sub> Ø] every test question.  
 b. John assigned someone every test question

<sup>10</sup> We are grateful to the *LI* Squibs and Discussion editors for suggesting this possible account.

- c. *DP-movement*  
John assigned someone every test question someone
- d. *DP-movement*  
John assigned [someone] [every test question]  
someone every test question
- e. John assigned [someone] [every test question]  
someone [you did [<sub>VP</sub>  $\emptyset$ ]] every test question
- f. John assigned [the person] [the test question]  
someone [you [<sub>VP</sub> assigned [the person]  
[the test question]]] every test question

Note that under successive rightward movement, the further rightward a phrase occurs, the higher its structural position. This entails that on the derivation in (36b–d), the outer universal quantifier (*every test question*) has ended up higher than the inner existential quantifier (*someone*). This is a problematic result for Bruening’s account, since it entails that *v* will attract the outer quantifier first, assigning it wider scope, contrary to the facts of (36a). Indeed, Bruening (2010) makes use of rightward movement in accounting for the apparent wide scope of the outer quantifier in examples like (37a), as revealed by judgments like (37b).

- (37) a. This lighting would give — [a headache] to [anyone with a normal constitution].  
b. ??This lighting gives [every kind of headache] [to a different (type of) person].

We conclude that appealing to copy theory, at least within the framework proposed by Fox (2002), does not rescue Bruening’s (2001) account from the problems for LF pied-piping raised by ACD examples like (27a–b).

### 3 More Problems with Object Complement Scope

Analyzing ambiguous scope of V complements in terms of structural symmetry in their relation to a higher  $v[P]$  seems unpromising for oblique datives and locatives—that is, for constructions involving an object QP and an oblique QP (38a). The strategy fares no better, it seems, for other object complement structures, including double PPs (38b) and DP – CP (38c).

- (38) a. V QP [<sub>PP</sub> . . . QP]  
b. V [<sub>PP</sub> . . . QP] [<sub>PP</sub> . . . QP]  
c. V QP [<sub>CP</sub> . . . QP . . . ]

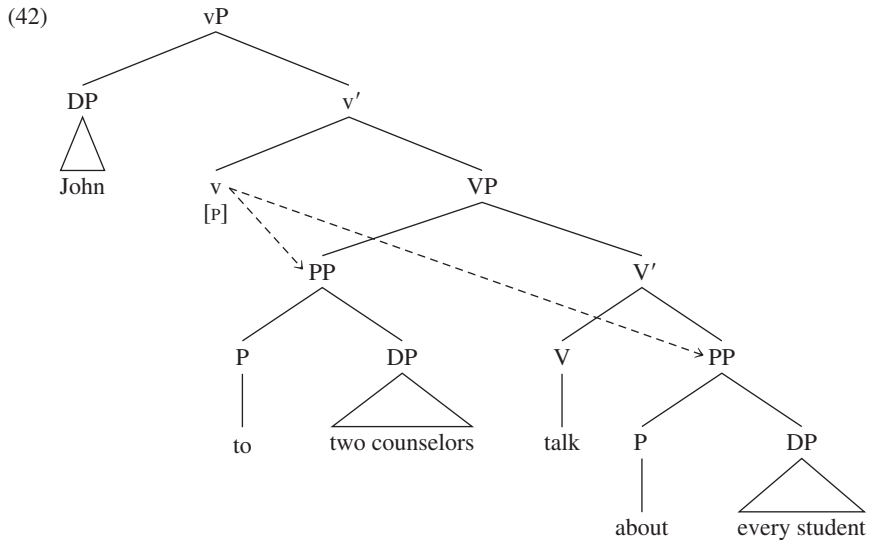
#### 3.1 Double PP Constructions

Larson (1990) discusses double PP constructions like (39a), which readily allow inverse scope with quantified objects (39b). Standard Barss-Lasnik tests indicate that the *to*-object has the *about*-object in its domain, but not vice versa (40a–b). The *about*-PP must therefore

be a low complement, not a high adjunct. Superiority effects conform to this result; the *to*-PP behaves as the superior complement (41a–d).<sup>11</sup>

- (39) a. John talked [<sub>PP</sub> to  $\alpha$ ] [<sub>PP</sub> about  $\beta$ ].  
 b. Given his job, John must talk regularly [<sub>PP</sub> to **two counselors**] [<sub>PP</sub> about **every student**].  $2 > \forall, \forall > 2$
- (40) a. John talked [<sub>PP</sub> to **no one**] [<sub>PP</sub> about **anything**].  
 b. \*John talked [<sub>PP</sub> to **anyone**] [<sub>PP</sub> about **nothing**].
- (41) a. **Who** did John talk [<sub>PP</sub> to \_\_\_] [<sub>PP</sub> about **what**]?  
 b. ??**To whom** did John talk \_\_\_ about **what**?  
 c. \***What** did you talk [<sub>PP</sub> to **who**] [<sub>PP</sub> about \_\_\_]?  
 d. \***About what** did you talk [<sub>PP</sub> to **who**] \_\_\_?

In Larson 2014, these constructions receive the structure in (42), where the *to*-PP and its contained DP object are closer to *v* than the *about*-PP.



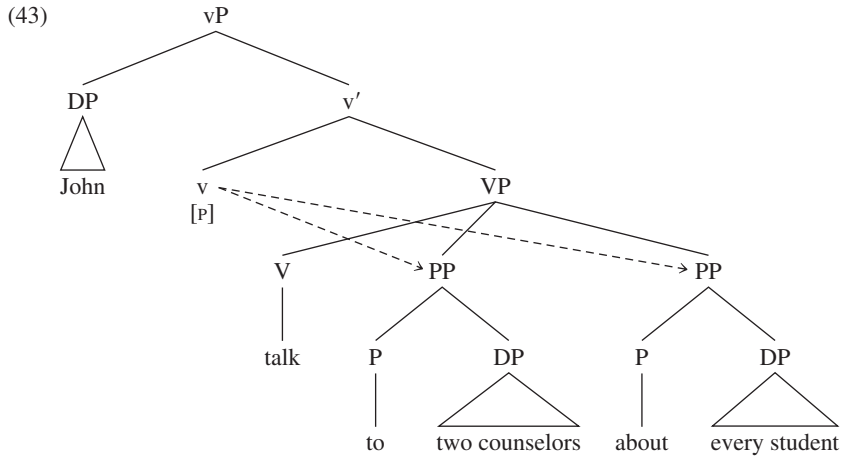
<sup>11</sup> Stranding (41a) seems more acceptable than pied-piping (41b) here, for reasons we do not understand. Examples like (i) discussed by Baltin and Postal (1996) suggest this cannot be attributed to incorporation of the *to*-preposition.

- (i) John talks frequently [to Bill] [about the weather].

Interestingly, the double PPs in the reverse order do not exhibit the same domain relations.

- (ii) a. ??John talked [<sub>PP</sub> about **nothing**] [<sub>PP</sub> to **anyone**].  
 b. \*John talked [<sub>PP</sub> about **anything**] [<sub>PP</sub> to **no one**].
- (iii) a. ??**What** did John talk [<sub>PP</sub> about \_\_\_] [<sub>PP</sub> to **who**]?  
 b. \***About what** did John talk \_\_\_ [<sub>PP</sub> to **who**]?  
 c. \***Who** did John talk [<sub>PP</sub> about **what**] [<sub>PP</sub> to \_\_\_]?  
 d. ??**To whom** did John talk \_\_\_ [<sub>PP</sub> about **what**]? (= (41b))

Absent an appeal to  $V'$  pied-piping, an equidistance account would seem to require a flattened, ternary-branching VP along the lines shown in (43). And, as a direct consequence, it would also require appeal to the linear order of the PPs and/or their objects in accounting for the contrast in (40a–b).



These consequences seem undesirable.

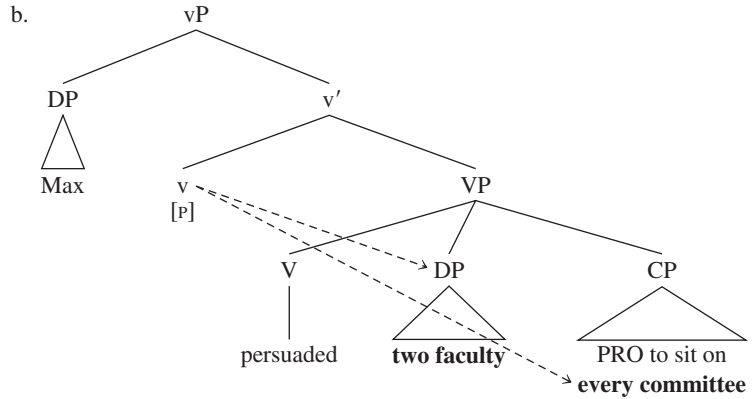
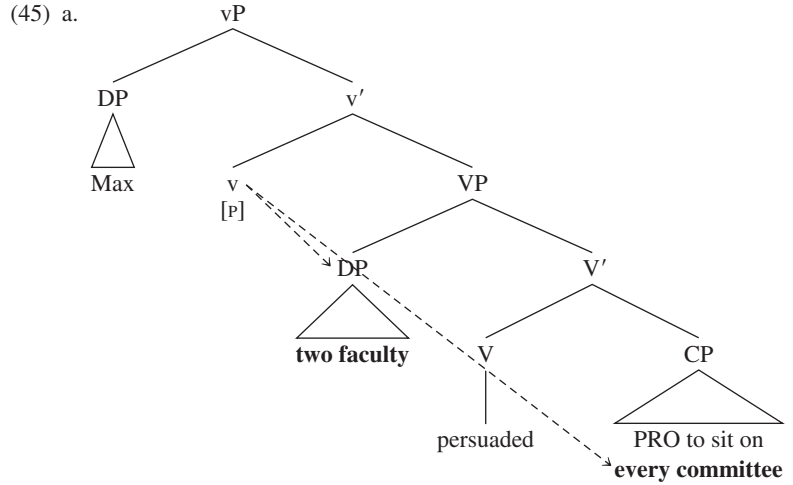
### 3.2 Object Control Constructions

Object control constructions like (44a–c) appear to raise even sharper problems.

- (44) a. The bylaws require [**some student**] [<sub>CP</sub> PRO to be present at [**every meeting**]].  $\exists > \forall; \forall > \exists$
- b. Alice urged [**a different student**] [<sub>CP</sub> PRO to send John [**every notice**]].  $\exists > \forall; \forall > \exists$
- c. Max persuaded [**two faculty**] [<sub>CP</sub> PRO to sit on [**every committee**]].  $2 > \forall; \forall > 2$

Contrary to what is sometimes suggested in the literature (Hornstein 1995), quantifier scope out of infinitives is not confined to complements of restructuring verbs (*want, begin, used to, have to, etc.*). Quantified objects of object control verbs seem to readily allow quantified complement clause objects to scope over them.

Again, it is unclear what structural view of (44c), for example, would allow  $v[P]$  to be regarded as equidistant from *two faculty* and *every committee*, allowing their scopes to permute. (45a) offers no pied-piping target comparable to (21). Furthermore, “flattening” the VP structure to a [<sub>VP</sub> V DP CP] configuration would not help, given that the second QP remains embedded within CP (45b).



Note further that judgments regarding scope and *Wh*-Superiority diverge decisively in this case. Whereas crossing the lower quantifier over the higher one is clearly possible, crossing the lower *wh* over the higher one is clearly impossible.<sup>12</sup>

- (46) a. **Who** did Max persuade \_\_\_ [<sub>CP</sub> PRO to sit on [**which committee**]]?  
 b. \***Which committee** did Max persuade **who** [<sub>CP</sub> PRO to sit on \_\_\_ ]?

<sup>12</sup> Note that even if we were to adopt a raising analysis of object control (Hornstein 1999), so that *two faculty* originated in the position of *PRO*, *two faculty* and *every committee* would still have the status of subject and object with respect to *Wh*-Superiority.



It is tempting to try to appeal here to the raising theory of control (Hornstein 1999), wherein the object controller originates in the embedded clause, parallel to the raising analysis of relative clauses (Vergnaud 1974, Brame 1976, Kayne 1994). The reading where *every committee* scopes over *two faculty* in (47a) might then be analyzed in terms of interpretation in the lower source position, parallel to the suggested source of the  $\forall > 2$  scope interpretation in (47b).

- (47) a. Max persuaded [**two faculty**] [<sub>CP</sub> two faculty to sit on [**every committee**]].  
 b. Max met [**two faculty**] [<sub>CP</sub> that two faculty sit on [**every committee**]].

Note, however, that appeal to reconstruction for the  $\forall > 2$  scope interpretation of (47a) predicts this interpretation to be associated exclusively with a *de dicto* reading of the quantifiers since both will lie within the scope of *persuade*. This prediction is false, however. (47a) plainly can be understood as in (48) with both quantifiers *de re*.

- (48) For every committee *x*, for two faculty *y*, Max persuaded *y* to sit on *x*.

Hence, the challenge posed by object control constructions like (44a–c) remains.<sup>13</sup>

#### 4 Conclusion

Superiority appears to yield a straightforward account of scope freezing in English DOCs. But it does so at the cost of requiring special (and dubious) assumptions for many other cases in English where scopes permute, including subject-object,<sup>14</sup> direct object–PP object, objects of double PPs, and quantified objects in object control structures. We thus trade a simple analysis of scope freezing in one construction (DOCs) for complex analyses of scope ambiguity in many other constructions across the grammar. Given the debatable merits of this exchange, one might consider an alternative view. Rather than taking DOCs and scope freezing as the core case for English, with ambiguity in other constructions as something to be explained away,

<sup>13</sup> In fact, it is unclear how Bruening (2001) would accommodate inverse scope in (47b). Scope of *every committee* over *two faculty* in the relative clause requires the embedded *v* to attract the universal and *two faculty* to lower beneath it. But as an object of the higher clause, *two faculty* should bear a [*P*] feature that is checked by the matrix *v*, and hence should raise to the matrix *vP*. This problem is inherited by any attempt to extend a raising account of control to the scope facts of (44).

<sup>14</sup> For the special case of subject scope, which is not assigned scope through the [*P*] mechanism, see Bruening 2001.

we might take scope ambiguity as the core case, with scope freezing in DOCs as the fact needing specific explanation. Such a view would trace scope freezing to something other than Superiority.

Scope freezing in DOCs was originally pointed out to Larson (1990) by David Lebeaux (pers. comm.) in the context of the movement theory of DOCs proposed in Larson 1988, which analogizes dative movement to passivization. Lebeaux observed that just as passives involving a quantified subject and direct object strongly favor surface scope,<sup>15</sup> so shifted datives (i.e., DOCs) involving quantified direct and indirect objects also strongly favor surface scope. Lebeaux's observation suggests a potential view wherein scope freezing in English DOCs (and certain *spray-load* constructions) issues directly from their character as derived structures, comparable to passives, and wherein crossing quantifiers overtly in the syntax has the effect of fixing scope. We leave pursuit of this intriguing suggestion for another occasion, however.<sup>16</sup>

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<sup>15</sup> As pointed out to us by Benjamin Bruening (pers. comm.), this observation goes back to the earliest era of generative grammar, with Chomsky (1957: 101) noting that (ia) may be true while (ib) is false “under the normal interpretation of these sentences—e.g., if one person in the room knows only French and German, and another only Spanish and Italian.”

- (i) a. Everyone in the room knows at least two languages.  
 b. At least two languages are known by everyone in the room.

$$2 > \forall; ??\forall > 2$$

<sup>16</sup> See Hornstein 1995 for extensive defense of the A-movement nature of QR. For problems with this view, see Kennedy 1997. See also recent discussions of movement-induced scope freezing in Miyagawa 2006, Antonyuk-Yudina 2009, Bobaljik and Wurmbrand 2012, and Antonyuk 2015.

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