

CPs Move Rightward, Not Leftward

Benjamin Bruening, University of Delaware (bruening@udel.edu)

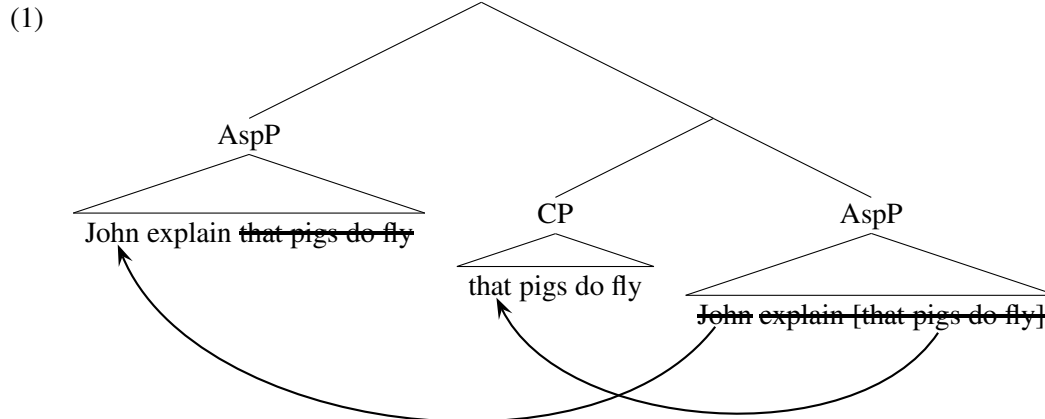
draft, September 29, 2016; comments welcome

Abstract

Moulton (2015) proposes that CP complements appear rightmost in many languages by a two-step leftward movement process: first the CP moves leftward, and then a remnant Asp(ect)P carries all other material to the left of that moved position. According to Moulton, the syntactic evidence for such a derivation dovetails with the semantics he proposes for CPs, which forces such a complex derivation in order to resolve type mismatches. I show here that this analysis faces insurmountable problems. In contrast, a simple rightward movement analysis explains all the facts. Importantly, if binding is computed on the basis of precede-and-command rather than c-command (Bruening 2014), the rightward movement analysis accounts for all binding facts. The remnant movement analysis fails to account for binding, since apparent rightward movement does not pattern with clear cases of remnant movement like partial VP fronting. This result indicates that apparent rightward movement is actual rightward movement, and is not remnant movement as many recent analyses propose. I also show that the motivation for Moulton's proposed semantics does not go through, and CPs should be treated as either propositions or individuals, as in traditional accounts. The motivation for movement of CPs is not the semantics, but is most likely to be prosody and/or processing considerations.

1 Introduction

In many languages, including English, CP arguments and adjuncts prefer to occupy peripheral positions. Complement clauses, in particular, prefer to appear as far to the right as possible, following all other clausemate material (e.g., Stowell 1981). Moulton (2015) proposes that this positioning is due, not to rightward movement, but to CP complements moving leftward. In this proposal, a subsequent step of remnant movement of Asp(ect)P results in the CP appearing on the right. In the following derivation, first CP moves out of AspP, and then the remnant AspP moves to a higher position, leaving the CP rightmost in the clause (Moulton 2015, 310, (16)):



Moulton proposes essentially the same derivation for heavy NP shift, following a 1995 unpublished manuscript by Marcel den Dikken.

Moulton's empirical argument for this derivation in English involves preposition stranding. I re-examine the data and show that Moulton's proposed derivation is incompatible with new facts that I introduce regarding this phenomenon. It also fails to explain some of the facts that were taken to motivate it. I propose instead that there are two different derivations when CPs appear to have shifted rightward. First, if the only other element in the VP is a

PP, that PP shifts leftward, while the CP never moves. Second, if there is other material, the CP moves to the right, with nothing else moving. These two possible derivations explain the pattern of preposition stranding that we find in English. This is the topic of section 2.

I also take a closer look at binding facts, which Moulton (2015) claims are problematic for a rightward movement approach. I show that, once we recognize that the structural relation involved in binding is not c-command but precede-and-command (Bruening 2014), the facts are exactly as predicted by the rightward movement account. The remnant movement account in fact runs into trouble with binding, since the proposed remnant movement does not pattern with clear cases of remnant movement like partial VP fronting. This is shown in section 3. Section 4 addresses extraction and order in OV languages, and shows that they do not argue for remnant movement, either.

Moulton's (2015) primary argument for remnant movement involves a proposed semantics for CP complements that is supposed to explain their distribution with respect to nouns and verbs. This semantics requires remnant movement, as CPs cannot combine with verbs in situ. I show in section 5 that this semantic analysis is compatible with rightward movement, and hence does not argue in favor of remnant movement. However, I also show that the arguments for treating CPs in the way that Moulton does do not go through, and in fact CPs should be viewed as propositions or as individuals, as in traditional accounts. This means that when CPs move, they do not do so for semantic reasons. I suggest that the motivation for CP movement is prosody and processing, as many have suggested in the past.

Finally, part of Moulton's (2015) semantic analysis blocks CP movement past AspP. This is supposed to explain why CPs as subjects or as topics are either related to null operators (Alrenga 2005, Moulton 2013) or are NPs rather than CPs (Davies and Dubinsky 2009, Takahashi 2010). I show that CPs can move quite high in English as long as they are on the right. This is incompatible with Moulton's proposal, as well as some others (e.g., Takahashi 2010), and considerably complicates the picture regarding CP movement.

The conclusion from all of this is that a rightward movement analysis fares much better than the remnant movement analysis in accounting for all of the facts of CP complements of verbs. This result is an indication that remnant movement analyses of other apparent rightward movement phenomena are probably also on the wrong track. More generally, constituents can be high and on the right, in direct conflict with antisymmetry approaches to syntax (Kayne 1994).

2 Preposition Stranding and the Rightward Alternative

Moulton's (2015) empirical argument for remnant movement in English involves preposition stranding. I first show the facts that motivated Moulton's analysis, and then present problems and propose an alternative.

2.1 P-Stranding and the Remnant Account

The primary datum in need of explanation is the fact that shifting a CP complement rightward across a PP makes extracting from that PP impossible (Kuno 1973, 381; Stowell 1981; Wexler and Culicover 1980):

- (2) (Stowell 1981, 208, (177))
 - a. * Who did you say to that I would buy the guitar?
 - b. * Who will Andrews disclose to that he is married?

Shifting of CPs patterns with heavy NP shift, which has the same effect:

- (3) (Stowell 1981, 211, (185))
 - a. * Jim, I said to a few words about his workmanship.
 - b. * Who will he disclose to his marriage with Jane?

Moulton (2015) proposes that this follows from the remnant movement account. Both CPs and heavy NPs move leftward, followed by remnant movement of AspP. The PP is located inside the AspP, and so cannot be extracted from, since (some) moved phrases are islands to extraction (Wexler and Culicover 1980). We know that a PP inside a fronted constituent like a VP cannot be extracted from, for instance:

- (4) a. She said that [_{VP} talk to him] though we might, it will make no difference.
 b. * Who did she say that [_{VP} talk to *t*] though we might, it will make no difference?

So, Moulton (2015) accounts for the P-stranding effect as following from a constraint that bans extracting from a moved constituent (see Corver 2006 for discussion of such *freezing effects*). In this case, AspP has moved, and so a PP within it cannot be extracted from. (We will see below that not all moved phrases are islands to extraction, since the CP that moves first can be extracted from. What Moulton suggests is that AspP has undergone A-bar movement, and so constituents within it cannot themselves undergo A-bar movement. In contrast, when the CP moves, it undergoes A-movement, and so is not an island to A-bar extraction. See section 4.1.)

2.2 Some Problems

An immediate problem arises from data noted by Moulton (2015) and taken to support the remnant movement analysis. This is that extraction from the PP seems to be acceptable if it follows the CP, especially if the P is stressed (I use my own examples, since Moulton's are not very good, in my judgment):

- (5) a. A: I already said that I would!
 b. B: OK, but who did you say that you would TO? (Depending on who it was, we might be able to get you out of it.)
 c. * B: OK, but who did you say to that you would?

Drummond (2009) presents the following example as grammatical without any special prominence, which I agree with:

- (6) Who did you suggest that John should leave to? (Drummond 2009, (13a))

According to Moulton (2015, 323–324), the PPs here have extraposed, and PPs that have extraposed can be extracted from. Moulton gives some data from German to support this contention, but we know that shifting a PP to the right in English blocks extraction (e.g., Wexler and Culicover 1980):¹

- (7) a. * Who did you speak on Thursday to?
 b. * What did they depend last summer on?
 c. * What did they put the knives yesterday in?

In fact, extracting from an extraposed PP is an instance of the very freezing effect that Moulton uses to explain the ungrammaticality of extraction from the PP when it precedes the CP (see Corver 2006). In section 2.3, I will show that moving a PP out of its base position, in any direction, blocks movement of the complement of the P in English.

If PPs that extrapose cannot actually be extracted from, then examples like (5b) are problematic for Moulton's remnant movement analysis. There is no way in that analysis for the PP to occur on the right without having moved, since AspP carries everything but the CP to the left when it moves.

This is the first problem. The second problem is that adding more material after the PP but before the CP greatly improves extraction from the PP:

- (8) a. Who did she say to on Tuesday that she would leave on Thursday?
 b. That's the person that you need to make clear to before you can leave that you truly feel remorse about your actions.
 c. That's the guy that she shouted to down the stairs that she was in love with him.
 d. Who did she hint to in a very subtle way that she wanted to dance?
 e. Which official does he need to disclose to in writing that he is married?

This is also true of heavy NP shift:

¹The German facts are also not clear, because such examples have been argued not to be P-stranding at all (e.g., Abels 2012).

- (9) a. It's that official that you should disclose to in writing all your financial dealings with this company.
 b. How many people is he going to reveal to in his big announcement at noon his intent to resign within the month?
 c. That's the person that you need to make clear to before you can leave your resolve to make amends with everyone you have hurt.

The problem for the remnant movement analysis is that all this extra material should just move with the remnant AspP, and P-stranding should still be ungrammatical. In the remnant movement analysis, the amount of material in the AspP should make no difference to extraction from a PP within it. Said extraction would still violate the ban on moving out of a moved constituent.

A third problem is that the order PP-CP is possible even when VP fronting has taken place, stranding both the PP and the CP:

- (10) a. Complain though he will to anyone who will listen that he has been treated most unfairly, it will make no difference.
 b. Hint though she might to all her superiors that she deserves a raise for all her hard work, it will make no difference.

In Moulton's analysis, the PP usually gets to the left of the CP by being moved along with the AspP remnant. But then moving the verb minus the PP to a higher position should not be possible. Either the verb would have to move out of AspP, or the PP would have to move out and the remnant then move further. Either derivation would violate the ban on moving out of a constituent that has undergone movement already.

Now, Moulton does allow (footnote 19) the PP and the CP to both move out of AspP, in either order. Permitting this would permit the examples in (10), provided that the remnant is permitted to move after both the PP and the CP have moved out of it. The issue that this causes is that it loses the account of the blocking of P-stranding in (2). Recall that moving the PP permits the complement of the P to extract in Moulton's account, as in (5b). If this extraction can place the PP to the left of the CP, as is necessary for the VP fronting examples in (10), then the examples in (2) should also have such a derivation available to them. But then extraction of the complement of the P should be grammatical, contrary to fact.

2.3 A Simpler Alternative

The analysis that I propose takes as a starting point the following generalization about English: When a PP can be extracted from, stranding the P, that PP has not moved. Moving a PP in any direction, rightward or leftward, blocks P-stranding (Postal 1972; Koster 1978, 573; Wexler and Culicover 1980; see also Corver 2006). Since this is an important generalization both for evaluating the analysis of Moulton (2015) and for motivating my own analysis, I take some time to establish it here.

First, when a PP is displaced rightward from its canonical position, stranding is blocked. Some examples were shown above in (7), and more appear below:

- (11) a. * What did she jump yesterday over?
 b. * What are you looking with a microscope for?
 c. * What person was she debating at the podium with?

Leftward movement of a PP also blocks P-stranding:

- (12) a. * Whose heads do you think that over we should put a sack?
 (cf. I think that over their heads we should put a sack.)
 b. * Which bridge did he say that under is living a troll?
 (cf. He said that under that bridge is living a troll.)
 c. * What weapon did the sorcerer say that with we can slay the dragon?
 (cf. The sorcerer said that with this weapon we can slay the dragon.)

- d. * Who did she say that next to she saw a gun?
(cf. She said that next to the man she saw a gun.)

There are a few apparent counterexamples to this generalization, but they are not actual counterexamples. For instance, Keir Moulton points out (personal communication) that certain cases of multiple PPs seem to permit extraction on either order:

- (13) a. What bus did you ride to Cambridge on?
b. What city did you ride on the bus to?

It appears that in this case, the two PPs are both arguments of the verb and are not inherently ordered. They can then be merged in either order, so that no movement has taken place. We do not see this malleability with other verbs and PPs:

- (14) a. What girl did you sing to on the bus?
b. * What girl did you sing on the bus to?
c. What bus did you sing to a girl on?
d. * What bus did you sing on to a girl?

Moreover, even with the same verb and PP as in (13), if what the PP appears to the right of is clearly an adjunct, P-stranding is not possible:

- (15) a. * What bus do you ride on Tuesdays on?
b. * What city did you ride last week to?

The examples in (13) are therefore not counterexamples to the P-stranding generalization, which is quite robust in English.

One other apparent counterexample involves the preposition *about*. Drummond (2009, (20c)) gives the following example as only marginally degraded:²

- (16) ? Who did John talk to Bill yesterday about?

About PPs seem to be able to adjoin high to begin with, outside of other adjuncts. Observe the following contrast, where a different PP is much worse:

- (17) a. ? What is Sarah shouting in her room about?
b. * Who is Sarah shouting in her room at?

If *about* PPs with verbs of speaking can adjoin high to start with, they do not move when they appear to the right of low adverbs, and so the P can be stranded. The P cannot be stranded when the *about* PP is to the right of a high adjunct, one that adjoins outside of VP and probably as high as TP (on these types of adjuncts, see Reinhart 1981 and Bruening 2014, as well as section 5.4):

- (18) a. * What did Sarah shout without taking a breath about?
(cf. What did Sarah shout about without taking a breath?)
b. * What did so many people shout that they couldn't be heard about?
(cf. What did so many people shout about that they couldn't be heard?)
c. * What does Samantha not talk to friends with her mother around about?
(cf. What does Samantha not talk to friends about with her mother around?)

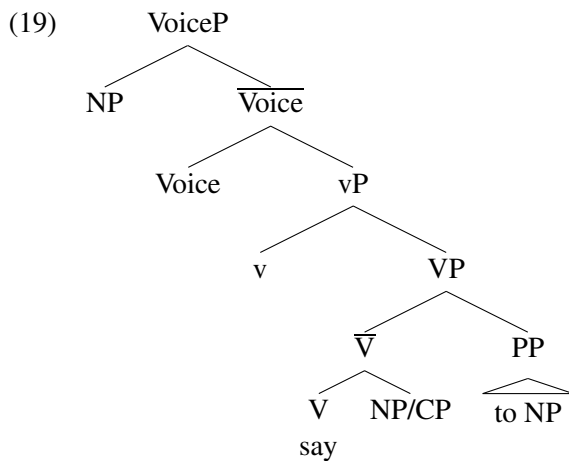
²Hornstein and Weinberg (1981, 59, (19b)) present an almost identical example as ungrammatical. I have gotten mixed judgments from native speakers.

These apparent counterexamples are not actual counterexamples, then. Rather, they indicate that certain PPs have some flexibility in their initial ordering.³ I conclude that there is a robust generalization concerning P-stranding in English: it is possible only when the PP occupies the position it is first merged in, and cannot take place if the PP has moved. This means that, when a P can be stranded, the PP could not have moved but must be in its base position. Conversely, when a PP whose complement can in principle be extracted cannot in some context, this restriction might be due to the PP having moved, either by itself or as part of a larger phrase.

I now propose that there are two different derivations for placing a CP or a heavy NP to the right:

1. If all that is to the right of the CP or the heavy NP is a PP, that PP moves leftward. The P cannot be stranded.
2. If there is more material present, then the CP or the heavy NP has to move. It moves rightward. The PP never moves anywhere, and so the P can be stranded.

The first derivation works as follows. First, I assume that verbs that take NP/CP and PP arguments have the following structure:⁴



The external argument is projected by Voice (Kratzer 1996), while the internal arguments are projected as shown. The verb moves through v to Voice. Binding facts do not rely on c-command, but precede-and-command (Bruening 2014):

- (20) a. Binding: A binds B iff A and B are coindexed and A precedes and phase-commands B. (Bruening 2014, 344, (5))

³Some speakers also judge certain low manner adverbials to be able to come between a verb and a stranded P:

- (i) a. ? Who is Sarah shouting so loudly at?
- b. ? What bus do you ride only reluctantly on?
- c. ? That's the barrier that she jumped nimbly over.

It appears that some PPs are able to merge outside of these low adjuncts, as was suggested in the text for *about*.

⁴Moulton (2015, note 17) states that gerunds in English disallow many movement operations and so reflect the base order of complements. According to Stowell (1981), a CP complement must follow a PP complement inside a gerund:

- (i) (Stowell 1981, 109, (12))
 - a. Did [Sally's mentioning to the doctor that there will be a problem] surprise you?
 - b. * Did [Sally's mentioning that there will be a problem to the doctor] surprise you?

This would seem to indicate that CPs start to the right of PPs, a rather surprising conclusion. However, I disagree with this judgment, and find (ib) somewhat awkward, but not ungrammatical. If the CP is shorter while the PP is longer, this order seems absolutely fine:

- (ii) That Sally was pregnant didn't surprise me, but [her mentioning that she was to one of her co-workers] did.

Gerunds do not appear to differ from finite clauses in this regard, and I see no reason to think that PPs start to the right of CPs.

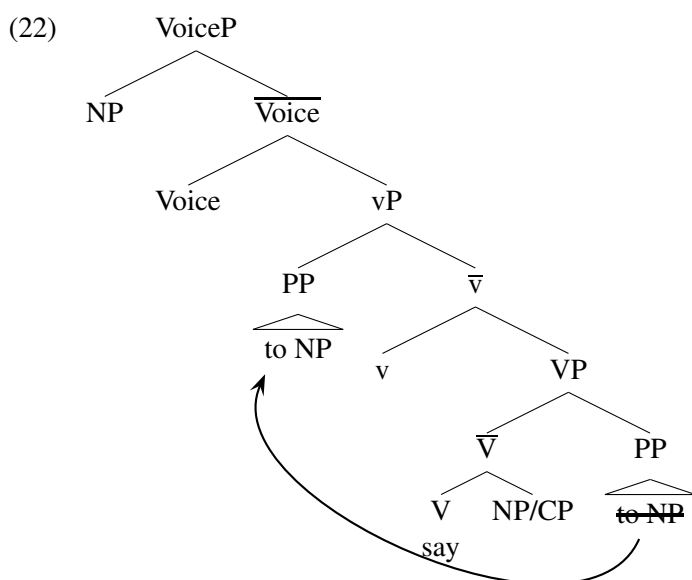
- b. Phase-Command: X phase-commands Y iff there is no ZP, ZP a phasal node, such that ZP dominates X but does not dominate Y. (Bruening 2014, 343, (2))
- c. Phasal Nodes: CP, VoiceP, NP (modified from Bruening 2014, 343, (3))

This has the result that the NP or CP binds into the PP and not vice versa, even though the PP is structurally higher. NP/CP and PP phase-command each other, but NP/CP precedes PP. See section 3.

If nothing moves, the P of the PP can be stranded. This explains the grammaticality of (5b), repeated here as (21b), while maintaining that rightward shifted PPs do not permit P-stranding:

- (21) a. A: I already said that I would!
- b. B: OK, but who did you say that you would TO? (Depending on who it was, we might be able to get you out of it.)

The PP can also move to the left. I propose that this is movement to Spec-vP:

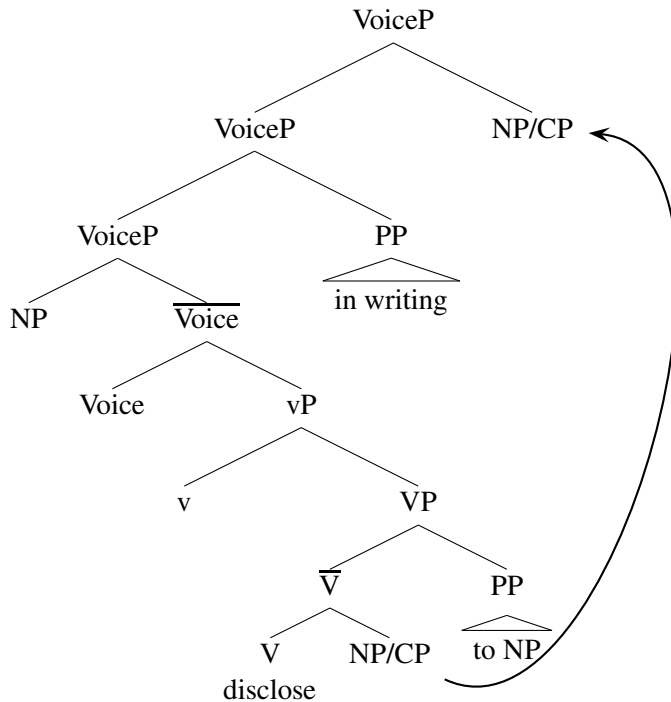


This movement is dispreferred if the NP argument is not heavy, but is overwhelmingly preferred if the argument is a CP. The verb moves through v to Voice, giving the correct order. Since the PP has moved, the P cannot be stranded. This results in the P-stranding effect that motivated Moulton's remnant movement analysis:

- (23) a. * Who did you say to that I would buy the guitar? (Stowell 1981, 208, (177))
- b. * Who will he disclose to his marriage with Jane? (Stowell 1981, 211, (185))

The second possible derivation involves rightward movement. If there is more material to the right of the CP or heavy NP besides a single PP, then moving the PP to the left will not help to achieve the goal of putting the heavy NP or CP as far to the right as possible (see section 5.5). The grammar then does not bother with moving the PP, but instead moves the CP or the heavy NP to the right. This movement can cross a number of different types of adjuncts and so must carry the moving NP or CP fairly high in the tree. I therefore propose that rightward movement is limited to movement to phasal nodes, in this case VoiceP:

(24)



I will assume that only the *highest* VoiceP counts as the phasal node for the computation of phase-command. This means that the NP inside PP precedes-and-commands the extraposed NP/CP, as would any other argument inside the VoiceP (see section 3).

The position of the second adjunct is not that important; it could be adjoined to VoiceP, as I have shown it above, or it could be adjoined to vP or to VP. What is important here is that, since the PP argument has not moved anywhere, the P can be stranded:

- (25) a. Which official should he disclose to in writing that he is married?
 b. It's that official that you should disclose to in writing all your financial dealings with this company.

Finally, *both* the PP and the CP can be shifted rightward, followed by remnant VoiceP movement:

- (26) Complain though he will to anyone who will listen that he has been treated most unfairly...

This fact was problematic for the remnant movement account, but follows as a simple case of stranding in VP fronting on the current account.

We do need to rule out the rightward CP movement derivation when there is only one PP to the right of the CP. If this derivation were a possibility, P-stranding should be possible, and examples like those in (23) would be grammatical. I propose that this follows as a simple economy calculation, where economy is calculated at the phase level (i.e., VoiceP): the movement of the PP to vP is shorter than the movement of the CP to VoiceP. The PP crosses only two nodes in (22), VP and \bar{v} , while the CP moving to VoiceP in (22) instead would cross VP, vP, \bar{Voice} , and VoiceP (four nodes). Therefore, movement of the PP must be chosen. In contrast, where there is a PP and another adjunct, one step of movement (of the CP) is preferred over two steps of movement (of the PP and the other adjunct). With this economy comparison in place, we successfully account for all of the facts of P-stranding.

We can also account for another fact mentioned by Moulton (2015), although this fact does not favor either analysis. This is that extraposition from NP across a PP does not block stranding of the P of that PP (Drummond 2009):

- (27) a. Who did you give the impression to that you were happy?
 b. Who did you give the book to that Mary wanted?

We can see from the word order that the PP has not moved leftward, since it follows the NP. The extraposed material has instead moved to the right. Since the PP has not moved, the P can be stranded.

This alternative analysis therefore accounts for all of the facts that are problematic for the remnant movement analysis, as well as the facts that were taken to motivate it and all related facts. It does so with a minimum number of movements in every case.⁵

I now turn to binding facts, and show that they are incompatible with the remnant movement account, while they are exactly as expected in a rightward movement account with precede-and-command.

3 Binding

According to Moulton (2015), the fact that datives bind into extraposed CPs in German is incompatible with rightward movement of the CP:

(28) (Bayer 1995, 56, (17a–b))

- a. ... weil der Direktor [jeder Putzfrau]₁ persönlich mitteilte [dass sie₁ entlassen sei].
 because the director each cleaning.lady personally told that she fired was
 ‘... because the director told each cleaning lady₁ personally that she₁ was fired.’
- b. * ... weil der Direktor ihr₁ persönlich mitteilte [dass [die Putzfrau]₁ entlassen sei].
 because the director her personally told that the cleaning.lady fired was
 ‘... because the director told her₁ personally that the cleaning lady₁ was fired.’

The dative NP can be a quantifier binding a pronoun in the extraposed CP, and if it is a pronoun, it gives rise to a Condition C effect when coindexed with an NP within the CP.

The argument here appears to be that, if the CP had moved rightward, it would necessarily be outside the command domain of the dative NP. That is not true in the current account.⁶ Condition C depends on the structural relation of precede-and-command, not c-command (Bruening 2014), as explained above. The CP can have moved to a position on the right that is higher than the position of the dative, and still be in its command domain, so long as they are dominated by the same phasal node. Here is one possible analysis of the German sentences above, where the dative NP is projected by an Appl(icative) head (Marantz 1993), the CP adjoins to VoiceP, and the verb moves through Appl to Voice:

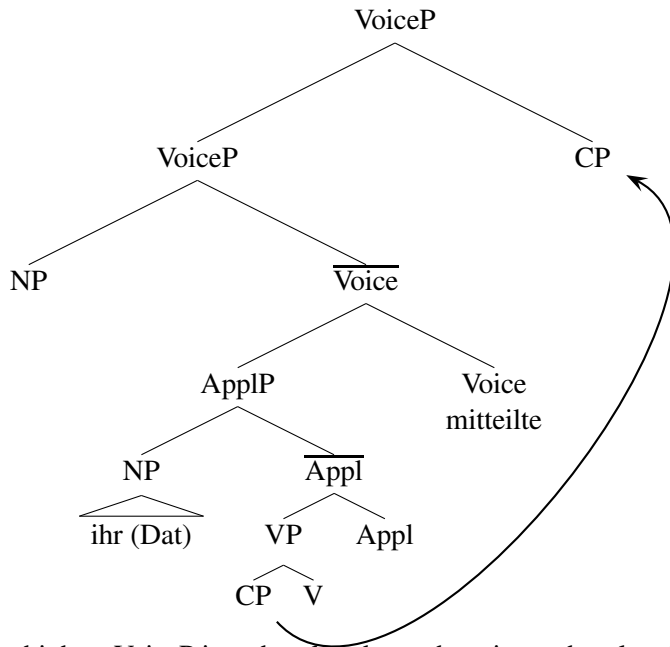
⁵Moulton (2015) notes that extraction from an NP complement to a PP in the presence of a CP to the right is much better than simply stranding the P:

- (i) ? Who did you say to the brother of that you would buy the guitar? (Moulton 2015, 324, (73))

The P-stranding generalization that the account in the text builds on simply has nothing to say about this example. The PP *to the brother of whom* has undergone movement in the current account, but the P of that PP is not stranded. Apparently, moved PPs are not islands to extraction in general, they just block movement of the entire complement of the P (i.e., P-stranding).

⁶There is also a logical issue with this argument: the CP moves in the remnant movement account, too. Moulton says that it reconstructs for the purposes of binding. Any rightward movement analysis could say the same thing. I do not pursue this, however, because the facts in the text here and in section 5.4 indicate that binding is computed on the basis of post-movement structural relations (i.e., there is no reconstruction).

(29)



Only the highest VoiceP is a phasal node, so there is no phasal node that dominates the dative and does not dominate the CP. The dative therefore phase-commands the CP and also precedes it, giving rise to a Condition C violation. (In the actual example, the dative precedes an adverb; this means it has probably moved higher than its base position and probably outside the VoiceP, and from that position most definitely phase-commands the shifted CP.)

As for quantificational binding, quantifiers can bind pronouns as variables that they do not c-command or even phase-command, as Barker (2012) and Bruening (2014) show. The binding data are therefore not problematic for a rightward movement analysis.

Moreover, it is possible to show that binding facts are as predicted by the current account, but are problematic for a remnant movement analysis. Observe first that a pronominal object that has apparently not moved at all still gives rise to a Condition C violation when it is coindexed with an NP inside a PP or CP that has moved rightward:

- (30) a. * I convinced her₁ very easily of my good intentions toward Melinda₁'s family.
 b. * We discussed it₁ yesterday with the inventor of the Segway₁.
- (31) a. * I convinced her₁ very easily that I was well disposed toward Melinda₁'s family.
 b. * I told her₁ on Tuesday that Melinda₁'s family was broke.

Movement upward and to the right is consistent with these Condition C violations, since Condition C depends on precede-and-command and not c-command. Again, see the tree in (24) and the discussion there.

In a remnant movement account, the PP or CP would have to first move leftward, and then a remnant phrase (AspP again) would move further to the left. The question is whether a pronoun inside that moved phrase should still bind into the CP or PP. To answer that, we can look at partial VP fronting as a likely comparison case. We can strand a CP or PP that contains an R-expression, while moving the remnant VP with a pronoun coindexed with that R-expression. This coindexation is banned when nothing has moved, but becomes acceptable in partial VP fronting (Lechner 2003, Landau 2007, 148):

- (32) a. * He hinted to her₁ that he wants Melinda₁'s apartment when she moves.
 b. Hint to her₁ though he might that he wants Melinda₁'s apartment when she moves, she still won't give it to him.
 c. ... and hint to her₁ he must that he wants Melinda₁'s apartment when she moves, or she will never give it to him.
- (33) a. * I convinced her₁ of my good intentions toward Melinda₁'s family.
 b. ... but convince her₁ I must of my good intentions toward Melinda₁'s family.

- (34) a. *John promised to give the books to her₁ on Mary₁'s birthday.
 b. John promised to give the books to her next year, and give the books to her₁ he did on Mary₁'s birthday. (Lechner 2003, (31))

That is, remnant VP movement bleeds Condition C: a pronoun in the fronted VP no longer binds into stranded material (PP or CP).⁷

The remnant movement analysis treats apparent rightward movement of CPs and PPs as almost identical to these cases of partial VP fronting. It is therefore mysterious why a Condition C effect would arise with apparent rightward movement but not with stranding plus VP fronting as in (32b), (33b), (34b). In contrast, the rightward movement analysis gets the facts exactly right, assuming precede-and-command. I assume that in stranding, the PP or CP has to move out of the VoiceP in order for the remnant VoiceP to move; there is then a phasal node, VoiceP, that dominates the pronoun but does not dominate the CP or PP.

The binding facts then are not problematic for a rightward movement analysis. In fact, they are exactly as would be predicted, if binding is precede-and-command. Binding is actually problematic for the remnant movement analysis, since clear cases of remnant movement do not behave in the same way as rightward movement.

4 Extraction and Order in OV Languages

In this section I address two other facts that Moulton (2015) claimed were problematic for both in-situ analyses of CPs and rightward movement analyses. These are extraction and surface word order in OV languages like German. I show that neither favors the remnant movement analysis.

4.1 Extraction

A fact that, according to Moulton (2015), is incompatible with a rightward movement analysis of CPs is that they are permeable to extraction. For instance, in English, a CP that has moved rightward across both an argument PP and an adjunct PP can still be extracted from:

- (35) Which politicians do you need to disclose to the agency in writing that you have had financial dealings with?

This is the situation which, in the current analysis, is derived by rightward movement of the CP, not leftward movement of the PP(s).

Of course, this extraction is not, on the face of it, compatible with Moulton's remnant movement analysis, either. In that analysis, the CP moves leftward, followed by remnant movement. Moulton has to simply stipulate that a CP moved to the left can still be extracted from, while the remnant AspP cannot. This loses the generality of the constraint against moving out of a constituent that has itself undergone movement. Only some moved phrases become islands to extraction. Even worse, an NP that has undergone heavy shift *is* an island to extraction:

- (36) * Which politicians do you need to disclose to the agency in writing all your financial dealings with?

Recall that heavy NP shift has the same derivation as rightward CP movement for Moulton. Again, it has to simply be stipulated that CPs can be extracted from but NPs cannot.

Moulton (2015, 334) does suggest, following Abels (2008), that extraction out of a moved constituent is related to the A- vs. A-bar status of the movements involved. A constituent that has undergone A-movement is an island to A-movement out of it but not A-bar movement, while a constituent that has undergone A-bar movement is an island to A-bar movement but not A-movement. This means, then, that movement of a CP is A-movement, since it permits

⁷Pesetsky (1995) claimed that an element inside a fronted VP could still bind into a stranded phrase, but his only example involved an exempt anaphor. Exempt anaphors do not require binding (Pollard and Sag 1992). See Janke and Neeleman (2012) and Bruening (2014) for discussion. Phillips (2003) and Lechner (2003) added examples of quantificational binding, but quantifiers can bind pronouns that they do not c-command or even phase-command (Barker 2012, Bruening 2014; see also Moulton 2013 on binding into apparently moved CPs).

A-bar movement as in (35), but movement of a heavy NP is A-bar movement, since it does not (36). Similarly, since rightward movement of a PP for Moulton permits A-bar extraction, that movement must be A-movement.

Unfortunately, there are numerous reasons to doubt this picture. Rightward movement of a PP blocks A-movement as well as A-bar movement (Chomsky 1981, 123, Hornstein and Weinberg 1981, 65):

- (37) a. This bridge is frequently jumped off of.
 b. *This bridge is jumped quite often off of.
 (cf. People jump quite often off of this bridge.)

So does heavy NP shift:

- (38) a. He was made a terrifying example of more than once.
 b. *He was made more than once a terrifying example of.
 (cf. They made more than once a terrifying example of him.)

Since finite CPs do not permit A-movement out of them at all, we cannot test whether rightward CP movement would block A-movement. However, rightward movement of a non-finite clause does not block A-movement in ECM and raising constructions:

- (39) a. James seemed to everyone on Saturday to be even fatter than he was on Friday.
 b. The prosecutor proved the defendant beyond a shadow of doubt to have been at the scene of the crime.

I see no reason to think that rightward movement of a non-finite clause would be any different from rightward movement of a finite clause (both are clause-bound, for instance), so it is doubtful that moving a finite CP would block A-movement as predicted.

I conclude that we do not yet have a good understanding of when a moved phrase becomes an island to extraction. Evidently, moving a CP to the right does nothing to prevent extraction, while moving an NP to the right does. For the moment, all we can do is stipulate this difference. The remnant movement analysis also has to stipulate this difference, though, so extraction does not decide between that analysis and the current one. (Note that the crucial generalization for the current account is the P-stranding generalization: moving a PP prevents stranding the P of that PP. This is not part of a larger account of freezing effects, since moving a PP does not block extraction of a sub-part of the complement of the P (example (i) of note 5).)

4.2 Order in OV Languages

Moulton (2015) also cites word order in OV languages as an argument against alternatives to remnant movement. In some OV languages like German, finite CP complements have to appear rightmost, following all higher auxiliaries and even higher infinitive-embedding verbs:

- (40) (Büring and Hartmann 1997, 74, (35))
 a. ... weil er behaupten **muss** [_{CP} dass er Hemingway geschlagen hat].
 because he claim must that he Hemingway beaten has
 ‘... because he must claim that he has beaten Hemingway.’
 b. ... weil er behaupten können **wollte** [_{CP} dass er Hemingway geschlagen hat].
 because he claim can wanted that he Hemingway beaten has
 ‘... because he wanted to be able to claim that he has beaten Hemingway.’

However, this positioning is only problematic for an in-situ analysis of CP complements. There is no problem here for a rightward movement analysis: the CP can simply move further than the most local VoiceP (CP, for instance). In fact, this positioning is problematic for Moulton’s remnant movement analysis, since in that analysis, the CP should only move as far as AspP. There is no reason for it to move further, above modals and higher

infinitive-embedding verbs, and as we will see in section 5, moving higher is supposed to be impossible. Moulton has to say (p.335) that there is a PF constraint against interrupting the verbal cluster in German, and so further PF movement dislocates the CP further from its position above AspP. As PF movement, this movement has no effect on the semantics, and so it is allowed.

In the current account, there may well be a reason that a CP would have to move even further to the right than just the most local VoiceP. See section 5.5. At worst, the current account can add the same stipulation about the verbal cluster that Moulton makes. So, either the facts here are neutral, or they favor the current account.

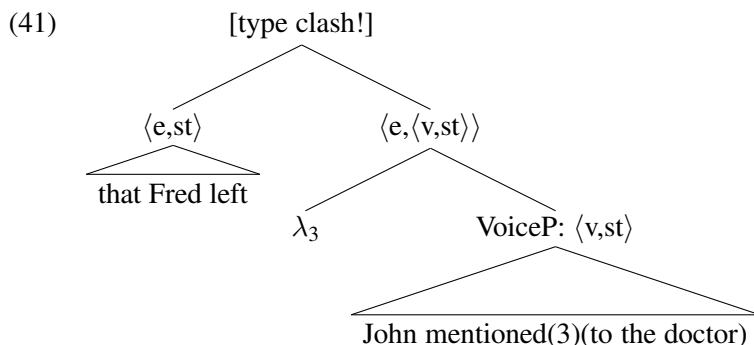
5 On the Semantics of CPs

Moulton’s main claim to success is his contention that the syntactic evidence that he takes to motivate a remnant movement analysis converges with the semantic analysis that he proposes. In this section, I first explain the proposed semantics. I then show that this semantics can be maintained in its entirety in a rightward movement analysis, if that is viewed as desirable. However, I then give some reasons to doubt that semantic analysis, and to think that the traditional analysis of CPs as denoting propositions is probably correct. Furthermore, one aspect of Moulton’s analysis—preventing CPs from moving beyond AspP—is clearly incorrect. CPs can move quite high, if they are on the right. I also present some data from Hartmann (2013) which indicate that the motivation for CP movement is not the semantics, but prosody (in German).

5.1 Moulton’s Semantics

Moulton (2015) proposes (following Kratzer 2006) that CP arguments are not propositions (sets of possible worlds, type $\langle s,t \rangle$), but predicates of propositional content, type $\langle e, \langle s,t \rangle \rangle$. Nouns like *idea*, *rumor*, *fact*, and so on are also type $\langle e, \langle s,t \rangle \rangle$. Finite CPs can therefore combine directly with these nouns by Predicate Modification (basically, conjunction). This explains the ability of finite CPs to combine with nouns that do not (according to Moulton) accept arguments, for instance *idea*. Moulton then proposes that verbs that take CP arguments are of the same type, except that they also take an event argument (they are type $\langle e, \langle v, st \rangle \rangle$)⁸. This prevents them from combining with a CP by predicate modification the way a noun can. It also prevents the verb from combining with the CP as an argument (by Function Application).

Moulton proposes that this type mismatch is resolved by movement. First, the CP moves, leaving a trace of type e . This saturates the individual argument of the verb. However, moving the CP creates the same type mismatch in the moved position (based on Moulton 2015, 319, (52)):

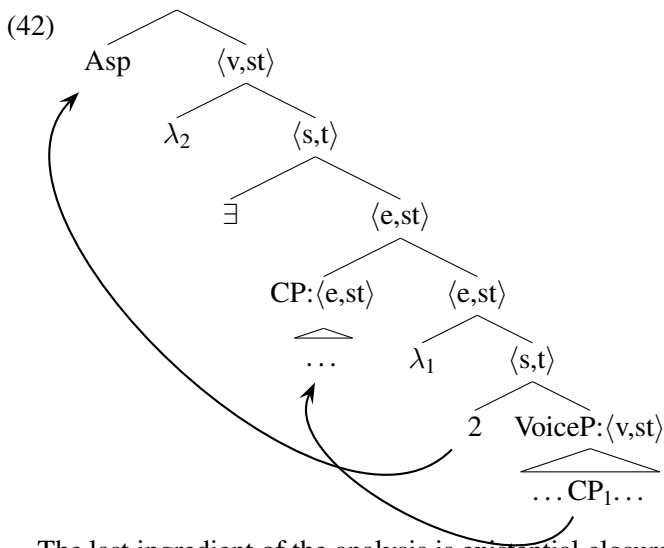


This is because the VoiceP (vP, for Moulton) still has an open event argument, and movement abstracts over that, creating a predicate with an individual argument.

The remnant movement of AspP that Moulton proposes is motivated by the need to fix this mismatch. According to Moulton (p.327), movement of large phrases is interpreted by putting everything but the *head* of the phrase back in its original position. So, movement of AspP puts everything back except for the head Asp. The Asp head is a quantifier over events. As such, its trace is an event, type v . This saturates the event variable of the VoiceP, so

⁸Moulton (2015) makes event arguments type “ l ”; I have replaced this with the more common “ v .”

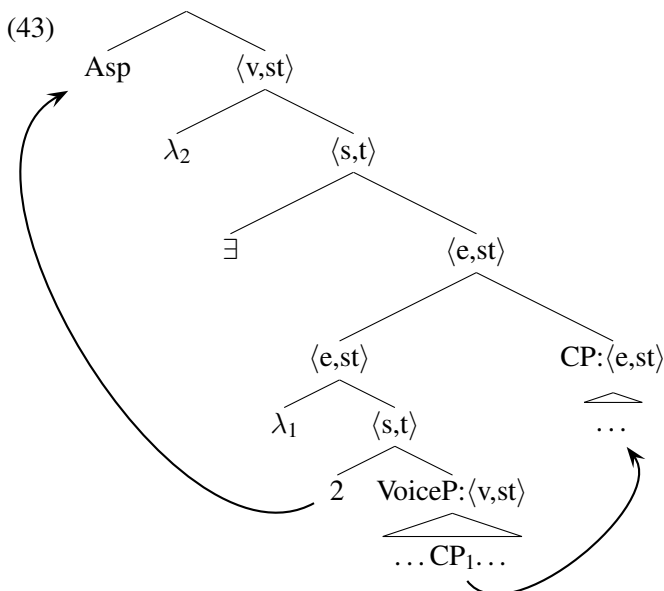
that at the node where the CP adjoins (higher than Asp), the type is $\langle e, st \rangle$, and the CP and its sister can combine by predicate modification, since they are the same type (Moulton 2015, 328, (88)):



The last ingredient of the analysis is existential closure (“ \exists ” in the tree above), which binds the open individual argument. According to Moulton, existential closure prevents a CP from moving further. The CP must stay within the domain of the existential operator or another type clash will result (see Moulton 2015, 331, (93)). This is why CPs as subjects or topics do not move directly, but must be related to null operators of type NP (see Alrenga 2005, Moulton 2013; in other analyses, moving CPs are actually NPs: Davies and Dubinsky 2009, Takahashi 2010).

5.2 Maintaining the Analysis with Rightward Movement

One thing to note about this analysis is that remnant AspP movement plays no role. The only part that matters is movement of the head Asp. This means that we can reject the remnant movement analysis, and recast Moulton’s semantic analysis with rightward movement. All we need is for the CP to move to the right, while the Asp head undergoes head movement to a higher position:



So, if we wish to maintain Moulton’s semantic analysis, we can do so while positing rightward movement of the CP. This means that rightward movement is compatible with Moulton’s semantic proposals, and those proposals do not favor of a remnant movement analysis.

5.3 Some Reasons to Doubt the Proposed Semantics

While we can maintain Moulton's semantic analysis, I believe there are some reasons to doubt key parts of the motivation for that analysis. In particular, the arguments that CPs are of type $\langle e, st \rangle$ do not go through.

First, Moulton's primary argument for treating CPs as predicates of propositional content rather than propositions comes from sentences like the following (Moulton 2015, 317, (17)):

- (44) a. The idea is that Bob is a fraud.
b. The myth is that diamonds are rare.
c. The fact is that the earth is round.

Following Potts (2002), Moulton claims that these are equative sentences, which means that the NP subject and the CP predicate have to be the same semantic type (following Heycock and Kroch 1999). However, it cannot be correct to equate ideas and stories with propositions, because stories can be long and boring, ideas can be new and exciting, and myths can be Greek, but propositions can be none of these things (Moulton credits this argument to Angelika Kratzer). These are not things that can apply to propositions conceived of as sets of possible worlds. This means, correctly I believe, that nouns like *idea* and *story* cannot be propositions, and it is probably right to treat them as Moulton does. Moulton then argues that since the CPs in the sentences above have to be the same semantic type as the NPs, they too could not be propositions (sets of possible worlds). Moulton states that this justifies treating them as type $\langle e, st \rangle$.

There is a major logical problem, here, however, pointed out to me by Satoshi Tomioka. The problem is that the NP subject has a definite determiner and must be type *e*, not $\langle e, st \rangle$ (like equative subjects generally, which are usually definite descriptions or proper names). If the CP has to be the same type, then it must be type *e*, too. In fact this was the analysis in Potts (2002): a type-shifting operator shifts a proposition into an individual of type *e*.

By Moulton's own reasoning, then, the type of the CP in equative sentences must be *e*, not $\langle e, st \rangle$, and CPs must be able to be type *e*. But then there is no problem combining them with a verb of type $\langle e, vst \rangle$ (by Function Application), and there is no motivation for movement of the CP.

Furthermore, if we follow Moulton's (and Kratzer's) reasoning, we ought to be led to the conclusion that CPs *are* propositions. As stated above, in this reasoning propositions cannot be old or new or boring or Greek. This seems to be right, because CPs cannot have these adjectives predicated of them without a noun:

- (45) a. *(The idea) that the world is round is old.
b. *(The rumor) that James is into sado-masochism is mean.
c. *(The myth) that the sun is a chariot is Greek.

CPs cannot be old, mean, or Greek, but they should be able to, if they are the same semantic type as *idea*, *rumor*, or *myth*. This contrast indicates that CPs are not the same type as those nouns, and they are in fact propositions.

The predicates that can be predicated most easily of CPs are ones that can arguably predicate of propositions (sets of possible worlds):

- (46) a. That the world is round is well-known.
b. That Bob defrauded the bank is unproven.
c. That James is into sado-masochism is surprising.

Sets of possible worlds can be more or less familiar (*unknown* to *known*), they can be unproven, and their closeness to the real world (or identity thereto) can be surprising.

Following Moulton's and Kratzer's reasoning, then, we arrive at the exact opposite conclusion: in fact, CPs *are* propositions (sets of possible worlds). It is also possible that they can type-shift to type *e* in certain syntactic positions, as Potts (2002) claimed (following Chierchia 1984).

Moulton also runs into a contradiction with the CP pro-forms *so* and *as*. According to Moulton, these cannot combine with nouns like *idea*, because they are not the same type as nouns ($\langle e, st \rangle$). Instead, they are type *e*. This contradicts Moulton's treatment of these "equative" sentences, because *so* and *as* can grammatically replace the CP within them:

- (47) a. Nouns aren't actually verbs, as the idea here seems to be.
 b. So the idea here seems to be.
- (48) a. I find it curious that I am scheduled to be in the issue with Ingrid Bergman on the cover (or so the rumor is). (Sarah Jio, *Goodnight June: A Novel*)
 b. PS1 and PS2 they will run locally via emulation on the PS4 or so the rumor is.
<http://www.extremetech.com/gaming/182105-nintendo-is-making-a-new-cheap-console-specific>

Potts (2002) claimed that *as* was not grammatical in an equative, but he only gave one example, where the sentence was inverted:

- (49) *Joan hates parties, as (they told us) was the problem. (Potts 2002, 72, (48b))

I have been able to find several attested examples:

- (50) a. Looking from this point of view at the RG65 class as an umbrella for mass-produced small sailing yachts, as the idea seems to be in Germany, . . .
<http://www.rcgroups.com/forums/showthread.php?t=699140>
 b. It was too grand for mere retail, and too big a project to pair with an expanded Guildhall for the council, as the idea seemed to be. <http://clipofmilvain.blogspot.com>

This is not a problem if the CP is type *e*, as we would expect if it has to match a definite description as subject. It *is* a problem for thinking that the constituent after the copula is type $\langle e, st \rangle$, as Moulton states. According to Moulton *so* and *as* cannot be that type.

All of this points to the conclusion that in equative sentences, CPs can be type *e*, as Potts (2002) claimed. We also have reason for thinking that CPs are propositions in other contexts, type $\langle s, t \rangle$. I would like to suggest that what turns a proposition into an individual is a null N (although this is not particularly important for the point of this paper). Evidence for a null N head comes from the fact that extraction is blocked out of the CP in an equative sentence, just as it is blocked from noun complements:

- (51) a. Is the idea that Bob will simply take the money?
 b. *How much money is the idea that Bob will simply take?
- (52) a. Is the idea you're pushing the idea that nouns are in actuality verbs?
 b. *What grammatical category is the idea you're pushing the idea that nouns are in actuality?

If the CP after the verb *be* in (44) were simply a CP serving as complement to a V, extraction out of it should be possible.

In this subsection, I have re-evaluated Moulton's argument for treating CPs as type $\langle e, st \rangle$, and have concluded that in fact they are not that type. They are propositions, as in traditional analyses. They can also be turned into individuals in certain contexts, and this type shift might be implemented by a null N. If CPs are either propositions or individuals, then there is no problem with combining them with verbs in situ. Verbs can take propositions as arguments, and they can take individuals as arguments (depending on the verb). There is no semantic motivation for the movement of a CP.⁹

5.4 Existential Closure and Long Movement of CPs

Finally, there is an issue with the existential closure part of Moulton's analysis. As described above, existential closure has to take place immediately above the adjunction site for the CP, turning type $\langle e, st \rangle$ into type $\langle s, t \rangle$ (see Moulton 2015, 329, (89)). According to Moulton, this explains why CPs cannot move further. If they were to adjoin

⁹Moulton also claims that nouns derived from verbs never take CPs as arguments. I question his evidence for this assertion, and disagree with his judgments regarding such nominalizations (in particular, his examples (35) through (39), p316). I suggest that more empirical work is needed (corpus and survey work) before we can conclude that nouns do not take CPs as arguments.

above the existential quantifier, there would be a type mismatch again. Apparent CPs as subjects (in Spec-TP) or as topics are actually related to null operators that are NPs (Alrenga 2005, Moulton 2013; in another analysis, they are NPs: Davies and Dubinsky 2009 and Takahashi 2010). NPs have a different type, and therefore combine in a very different way from CPs.

The problem with this is that CPs can be shown to be able to move quite high in English, if they are on the right. A CP can strand in sluicing, for instance, which is usually taken to involve ellipsis of TP (e.g., Merchant 2001):

- (53) Who did you tell that you would, and who, that you wouldn't?

This is true even with verbs like *complain* that do not take NP arguments:

- (54) a. Who complained that the porridge was too hot, and who that it was too cold?
 b. Who complained *(about) the porridge?

English also has a class of adjuncts that appear high on the right (Reinhart 1981). These are high enough that they can strand in sluicing (Bruening 2014):

- (55) A: Someone will say that.
 B: Who, with their mother hanging around?

A CP can appear to the right of one of these high adjuncts, and this is true even with verbs that do not take NP complements and only permit CP complements:

- (56) Marissa wouldn't say to her fiance with her mother hanging around that she loved him.
 (57) a. No one would boast with their mother hanging around that they had been tormenting the neighborhood children.
 b. *No one would boast their torments.

I conclude from this that finite CPs can actually move quite high when they appear on the right. Given my conjecture that rightward movement only targets phases, they must be moving as high as CP. No matter where they are moving to, they are certainly higher than the domain of existential closure at AspP in Moulton's analysis. At the same time, they are CPs, not NPs. It therefore cannot be true that existential closure prevents movement of CPs beyond the domain of existential closure.

Moulton could say about English what he says about German: that this movement is PF movement, with no effect on the semantics. However, movement above a high adjunct bleeds Condition C:

- (58) a. Marissa wouldn't say to him₁ with her mother hanging around that she loves her fiance₁.
 b. *Marissa wouldn't say to him₁ that she loves her fiance₁.
 (59) a. Would Ms. Jones disclose to him₁ with the auditors breathing down her neck that she has a conflict of interest regarding her new client₁?
 b. *Would Ms. Jones disclose to him₁ that she has a conflict of interest regarding her new client₁?
 (60) a. I won't tell her₁ with her children listening that Melinda₁'s family has lost everything.
 b. *I won't tell her₁ that Melinda₁'s family has lost everything.

This follows in the rightward movement account: the pronoun is inside VoiceP, while the CP has moved to CP. There is therefore a phasal node, VoiceP, which dominates the pronoun but does not dominate the CP, and the pronoun does not precede-and-command the R-expression inside the CP.

Now, unless one is prepared to relegate Condition C to PF, this indicates that movement of the CP takes place in the syntax. Most work in Minimalism locates Condition C at LF; see Chomsky (1993), Fox (1999, 2002), Safir (1999). Importantly, we can see from the above that there is no reconstruction for Condition C. Condition C is computed on the basis of the output structure. (Culicover and Rochemont 1990 note the same thing regarding extraposition of CP relatives from NP: it bleeds Condition C.)

Note that this considerably complicates the picture regarding movement of CPs. Previous work found that CPs as subjects or as topics on the left must be related to thematic positions that permit NPs (e.g., Alrenga 2005, Takahashi 2010 and references there). Now we see that CPs *can* move as CPs, but only to the right. This finding is incompatible with some proposals regarding CPs besides that of Moulton (2015). For instance, Takahashi (2010) proposes that CPs must be NPs when they move because only NPs can undergo Fox's (2002) Trace Conversion Rule, and the only way to interpret a trace (or lower copy of a moved element) is by that rule. This cannot be correct, because we have now seen that CPs can move to the right as CPs. There must be some way to interpret their trace. Wholesale reconstruction cannot be correct, because, as we just saw, rightward movement bleeds Condition C. (Moulton's Category-Neutral Trace Conversion rule will do the job; see his (79), page 326.)

5.5 Semantics Versus Prosody and Processing

If CPs do not move for semantic reasons, why do they move to peripheral positions in so many different languages? One common suggestion is that the reason has to do with processing or prosody or both (e.g., Yngve 1960, 1961; Bever 1970; Kimball 1973; Frazier and Fodor 1978; Dryer 1980; Delahunty 1983; Erdmann 1988; Frazier and Rayner 1988; Hawkins 1990, 1194; Wasow 1997; Davies and Dubinsky 2009; Hartmann 2013). I do not have a proposal to offer, but merely suggest that this is the best avenue for future research to explore. I will also cite some evidence from German that is incompatible with Moulton's analysis of CPs in that language, and points instead to the driving force being prosody.

The evidence comes from Hartmann (2013), who argues that CP placement in German is the result of prosodic phrasing. According to Hartmann, an object CP necessarily creates a prosodic boundary at its right edge. If it were in situ, right before the verb, the verb would not be able to be parsed prosodically, because non-focused X⁰ categories cannot form proper phonological phrases. Moving the CP to the right fixes this problem: the verb can be incorporated into a prosodic phrase with preceding material.

This account predicts, in contrast with Moulton's, that a CP can stay in situ if the verb is focused. According to Hartmann, this is correct:

(61) (Hartmann 2013, 464, (53))

A: Hat Birgit, dass sie das Rauchen aufgeben will, verWIRKlicht?
 has Birgit that she the smoking give.up wants realized
 'Did Birgit realize her plan to give up smoking?'

B: Nein, leider hat sie, dass sie das Rauchen aufgeben will, verGESSen.
 no, unfortunately has she that she the smoking give.up wants forgotten
 'No, unfortunately she forgot that she wants to give up smoking.'

According to Moulton, CP objects in German necessarily move overtly, followed by remnant AspP movement. This is incompatible with the CP staying in situ when the verb is focused.

Hartmann also shows that a CP object can scramble to the midfield across an adverb:

(62) Peter hat, [CP dass Berlin nie langweilig wird] nicht geglaubt.
 Peter has that Berlin never boring becomes not believed
 'Peter didn't believe that Berlin will never become boring.' (Hartmann 2013, 442, (5))

This is permitted, because now the adverb and the verb can be phrased together. The verb is not forced to form a prosodic phrase by itself.

If this is correct, it lends support to the view that CPs prefer to appear at the right edge for prosodic reasons (and possibly parsing reasons as well). The available evidence does not support the view that CPs move rightward for semantic reasons.

6 Conclusion

This paper has shown that the remnant movement analysis that Moulton (2015) proposes for CP complements runs into insurmountable problems. An alternative involving rightward movement is much simpler and gets all of the facts right. Binding facts, in particular, do not follow from the remnant movement analysis, but are exactly as predicted by the rightward movement account, if binding relies on precede-and-command rather than c-command (Bruening 2014). This is an important result, since binding facts have often been taken to motivate complex remnant movement analyses. This motivation was based on the mistaken assumption that c-command was the relevant structural relation for binding. The results of this paper indicate that remnant movement analyses in general are unmotivated and elements on the right can be structurally higher than elements on the left. Thus, this paper can be seen as an argument against antisymmetry approaches to phrase structure (Kayne 1994).¹⁰

A closer look at the motivation for Moulton's (2015) semantics for CPs also showed that that motivation was lacking. In fact, CPs are best viewed as propositions, or they can be type-shifted to individuals (possibly through a null N head). The available evidence indicates that the motivation for movement of CPs is not semantic in nature, but is instead due to prosody and/or processing.

References

- Abels, Klaus (2008), "Towards a Restrictive Theory of Remnant Movement." *Linguistic Variation Yearbook* 7: 53–120.
- Abels, Klaus (2012), *Phases: An Essay on Cyclicity in Syntax*. Berlin: de Gruyter.
- Alrenga, Peter (2005), "A Sentential Subject Asymmetry in English and Its Implications for Complement Selection." *Syntax* 8: 175–207.
- Barker, Chris (2012), "Quantificational Binding Does Not Require C-Command." *Linguistic Inquiry* 43: 614–633.
- Bayer, Josef (1995), "On the Origin of Sentential Arguments in German and Bengali." In Hubert Haider, Susan Olsen, and Sten Vikner, eds., *Studies in Comparative Germanic Syntax*, Dordrecht: Kluwer, pp. 47–76.
- Bever, Thomas G. (1970), "The Cognitive Basis for Linguistic Structures." In J. R. Hayes, ed., *Cognition and the Development of Language*, New York: Wiley, pp. 279–362.
- Bruening, Benjamin (2014), "Precede-and-Command Revisited." *Language* 90: 342–388.
- Büring, Daniel, and Katharina Hartmann (1997), "Doing the Right Thing." *The Linguistic Review* 14: 1–42.
- Chierchia, Gennaro (1984), *Topics in the Syntax and Semantics of Infinitives and Gerunds*. Ph.D. thesis, University of Massachusetts, Amherst.
- Chomsky, Noam (1981), *Lectures on Government and Binding*. Dordrecht: Foris.
- Chomsky, Noam (1993), "A Minimalist Program for Linguistic Theory." In Kenneth Hale and Samuel Jay Keyser, eds., *The View from Building 20: Essays in Linguistics in Honor of Sylvain Bromberger*, Cambridge, MA: MIT Press, pp. 1–52.
- Corver, Norbert (2006), "Freezing Effects." In Martin Everaert and Henk van Riemsdijk, eds., *The Blackwell Companion to Syntax*, Oxford: Blackwell, vol. 2, pp. 383–406.
- Culicover, Peter W., and Michael S. Rochemont (1990), "Extrapolation and the Complement Principle." *Linguistic Inquiry* 21: 23–47.
- Davies, William D., and Stanley Dubinsky (2009), "On the Existence (and Distribution) of Sentential Subjects." In Donna B. Gerds, John C. Moore, and Maria Polinsky, eds., *Hypothesis A/Hypothesis B: Linguistic Explorations in Honor of David M. Perlmutter*, Cambridge, MA: MIT Press, pp. 111–128.
- Delahunty, Gerald P. (1983), "But Sentential Subjects Do Exist." *Linguistic Analysis* 12: 379–398.
- Drummond, Alex (2009), "The Unity of Extrapolation and the A/A' Distinction." In Nikki Adams, Adam Cooper, Fey Parrill, and Thomas Wier, eds., *Papers from the 45th Regional Meeting of the Chicago Linguistic Society*, Chicago: University of Chicago, vol. 2, pp. 43–56.
- Dryer, Matthew S. (1980), "The Positional Tendencies of Sentential Noun Phrases in Universal Grammar." *Canadian Journal of Linguistics* 25: 123–195.

¹⁰The paper can also be seen as an argument that linear order must be part of the syntax proper, and not just a PF phenomenon as in many current approaches, but this topic would take us too far afield.

- Erdmann, Peter (1988), "On the Principle of 'Weight' in English." In Caroline Duncan-Rose and Theo Vennemann, eds., *On Language: Rhetorica, Phonologica, Syntactica: A Festschrift for Robert P. Stockwell from his Friends and Colleagues*, London: Routledge, pp. 325–339.
- Fox, Danny (1999), "Reconstruction, Binding Theory and the Interpretation of Chains." *Linguistic Inquiry* 30: 157–196.
- Fox, Danny (2002), "Antecedent Contained Deletion and the Copy Theory of Movement." *Linguistic Inquiry* 33: 63–96.
- Frazier, Lyn, and Janet Dean Fodor (1978), "The Sausage Machine: A New Two-Stage Parsing Model." *Cognition* 6: 291–325.
- Frazier, Lyn, and K. Rayner (1988), "Parameterizing the Language Processing System: Left versus Right Branching within and across Languages." In John A. Hawkins, ed., *Explaining Language Universals*, Oxford: Blackwell, pp. 247–279.
- Hartmann, Katharina (2013), "Prosodic Constraints on Extraposition in German." In Gert Webelhuth, Manfred Sailer, and Heike Walker, eds., *Rightward Movement in a Comparative Perspective*, Amsterdam/Philadelphia: John Benjamins, pp. 439–472.
- Hawkins, John (1994), *A Performance Theory of Order and Constituency*. Cambridge: Cambridge University Press.
- Hawkins, John (1990), "A Parsing Theory of Word Order Universals." *Linguistic Inquiry* 21: 223–261.
- Heycock, Caroline, and Anthony Kroch (1999), "Pseudocleft Connectedness: Implications for the LF Interface Level." *Linguistic Inquiry* 30: 365–397.
- Hornstein, Norbert, and Amy Weinberg (1981), "Case Theory and Preposition Stranding." *Linguistic Inquiry* 12: 55–91.
- Janke, Vikki, and Ad Neeleman (2012), "Ascending and Descending VPs in English." *Linguistic Inquiry* 43: 151–190.
- Kayne, Richard (1994), *The Antisymmetry of Syntax*. Cambridge, MA: MIT Press.
- Kimball, John (1973), "Seven Principles of Surface Structure Parsing." *Cognition* 2: 15–47.
- Koster, Jan (1978), "Conditions, Empty Nodes, and Markedness." *Linguistic Inquiry* 9: 551–593.
- Kratzer, Angelika (1996), "Severing the External Argument from Its Verb." In John Rooryck and Laurie Zaring, eds., *Phrase Structure and the Lexicon*, Dordrecht: Kluwer, pp. 109–137.
- Kratzer, Angelika (2006), "Decomposing Attitude Verbs." Available at <http://semanticsarchive.net/Archive/DcwY2JkM/attitude-verbs2006.pdf>.
- Kuno, Susumo (1973), "Constraints on Internal Clauses and Sentential Subjects." *Linguistic Inquiry* 4: 363–385.
- Landau, Idan (2007), "EPP Extensions." *Linguistic Inquiry* 38: 485–523.
- Lechner, Winfried (2003), "Phrase Structure Paradoxes, Movement, and Ellipsis." In K. Schwabe and S. Winkler, eds., *The Interfaces: Deriving and Interpreting Omitted Structures*, Amsterdam: John Benjamins, pp. 187–203.
- Marantz, Alec (1993), "Implications of Asymmetries in Double Object Constructions." In Sam A. Mchombo, ed., *Theoretical Aspects of Bantu Grammar*, Stanford: CSLI Publications, pp. 113–150.
- Merchant, Jason (2001), *The Syntax of Silence: Sluicing, Islands, and the Theory of Ellipsis*. Oxford: Oxford University Press.
- Moulton, Keir (2013), "Not Moving Clauses: Connectivity in Clausal Arguments." *Syntax* 16: 250–291.
- Moulton, Keir (2015), "CPs: Copies and Compositionality." *Linguistic Inquiry* 46: 305–342.
- Pesetsky, David (1995), *Zero Syntax: Experiencers and Cascades*. Cambridge, MA: MIT Press.
- Phillips, Colin (2003), "Linear Order and Constituency." *Linguistic Inquiry* 34: 37–90.
- Pollard, Carl, and Ivan Sag (1992), "Anaphors in English and the Scope of the Binding Theory." *Linguistic Inquiry* 23: 261–303.
- Postal, Paul M. (1972), "On Some Rules That Are Not Successive Cyclic." *Linguistic Inquiry* 3: 211–222.
- Potts, Christopher (2002), "The Lexical Semantics of Parenthetical-As and Appositive-Which." *Syntax* 5: 55–88.
- Reinhart, Tanya (1981), "Definite NP Anaphora and C-Command Domains." *Linguistic Inquiry* 12: 605–635.
- Safir, Ken (1999), "Vehicle Change and Reconstruction in *AI*-Chains." *Linguistic Inquiry* 30: 587–620.
- Stowell, Tim (1981), *Origins of Phrase Structure*. Ph.D. thesis, Massachusetts Institute of Technology.
- Takahashi, Shoichi (2010), "The Hidden Side of Clausal Complements." *Natural Language and Linguistic Theory* 28: 343–380.
- Wasow, Thomas (1997), "Remarks on Grammatical Weight." *Language Variation and Change* 9: 81–105.

- Wexler, Kenneth, and Peter W. Culicover (1980), *Formal Principles of Language Acquisition*. Cambridge, MA: MIT Press.
- Yngve, Victor H. (1960), "A Model and an Hypothesis for Language Structure." *Proceedings of the American Philosophical Society* 104: 444–466.
- Yngve, Victor H. (1961), "The Depth Hypothesis." In R. Jakobsen, ed., *Structure of Language and its Mathematical Aspects*, Providence, RI: American Mathematical Society, pp. 131–138.