



3-1-2015

# Non-Constituent Coordination: Prosody, Not Movement

Benjamin Bruening  
bruening@udel.edu

---

# Non-Constituent Coordination: Prosody, Not Movement

# Non-Constituent Coordination: Prosody, Not Movement

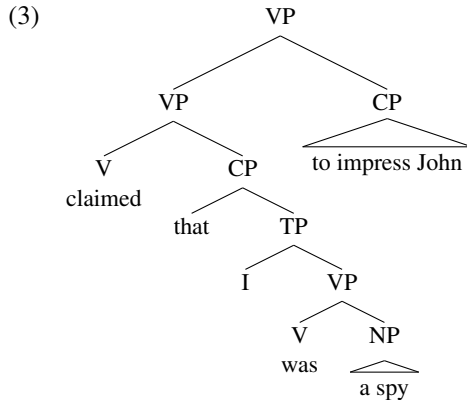
Benjamin Bruening

## 1 Non-Constituent Coordination

Non-constituent coordination has been a topic of interest from the earliest days of generative grammar, when it was just a sub-type of a general rule of Conjunction Reduction (e.g. Ross, 1967). This type of coordination began to take on particular significance in Sag (1976), Hudson (1976, 1982), Sag et al. (1985), and especially Dowty (1988). The examples below illustrate the phenomenon:

- (1) Mary caught a fish on Monday with a fly rod and on Tuesday with a spear. Dowty (1988)
- (2) I claimed that I was a spy to impress John and an astronaut to impress Bill. (Sailor and Thoms 2013)

In (2), for instance, what appears to be coordinated is *a spy to impress John* and *an astronaut to impress Bill*. However, the NP in each conjunct does not form a constituent with the non-finite rationale clause. The NP is the object of the embedded verb, while the rationale clause modifies the matrix VP:



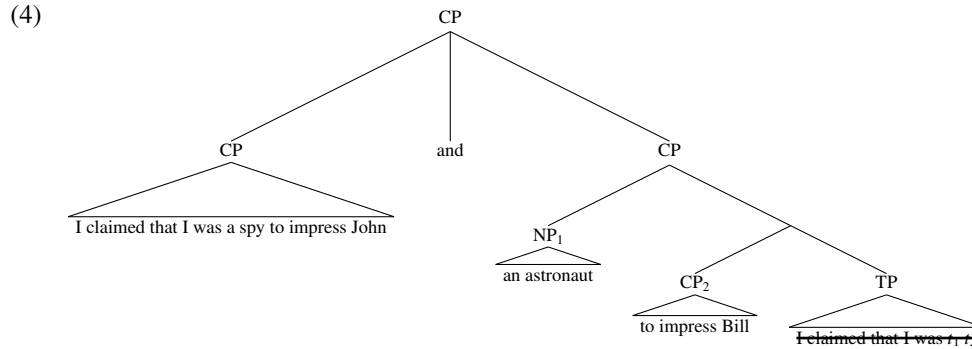
Such instances of coordination are obviously problematic for the common hypothesis that coordination can only target constituents.

Current approaches to non-constituent coordination all assume that they actually involve coordination of larger categories plus ellipsis.<sup>1</sup> There are basically two analyses within this general ellipsis approach. The first, one with a long history, involves left-edge ellipsis of a linear string. This analysis says that apparent instances of non-constituent coordination are actually coordination of larger categories, say the larger VP in (2), but a process of left-edge ellipsis can delete a linear string starting from the left edge of a non-initial conjunct, provided it is identical to a corresponding string in the first conjunct. So in (2), the string *claimed that I was* is deleted in the second conjunct. Wilder (1997), Beavers and Sag (2004), Hofmeister (2010) are recent proponents of this type of analysis.

Note that the left-edge ellipsis analysis gets rid of coordination of non-constituents, but introduces another process that can target non-constituents, namely, left-edge ellipsis. An alternative analysis that does without non-constituent processes altogether has been proposed recently, by Frazier et al. (2012) and Sailor and Thoms (2013). In this alternative, the constituents that are pronounced in the second conjunct, in this case *an astronaut* and *to impress Bill*, undergo movement to the edge of the second conjunct, which again is larger, either VP or CP. The constituent out of which the two XPs moved is then elided. So, in (2), CP might be coordinated, but both the NP *an astronaut*

<sup>1</sup>I do not address the categorial grammar approach to non-constituent coordination here, as in Dowty (1988) and Steedman (1989); see Beavers and Sag (2004) for some arguments against that account. In section 2 I present some arguments in favor of an ellipsis approach.

and the rationale clause *to impress Bill* independently move to the edge of this constituent, while the remainder is elided as a constituent:



The movement analysis is initially attractive in permitting only constituents to undergo syntactic processes like coordination and ellipsis. However, as I show here, it runs into insurmountable problems. I propose instead a variant of the left-edge ellipsis analysis, but with ellipsis targeting a *prosodic* constituent. Thus, my analysis does without operations that target non-constituents, but prosodic as well as syntactic constituency is relevant to ellipsis.

I spell out this proposal in the next section (section 2), where I also justify the ellipsis approach in general. Section 3 compares the prosodic proposal to the movement proposal. As the data in this section will show, non-constituent coordination does not pattern with movement, whereas the prosodic analysis correctly accounts for all of the data. Section 4 discusses some further issues.

## 2 Proposal

### 2.1 Ellipsis

As mentioned above, current approaches to non-constituent coordination assume that larger categories are coordinated, with ellipsis of all but the remnants in the second conjunct. However, no one that I am aware of has attempted to justify this ellipsis approach to non-constituent coordination. I believe that it can be justified. Consider example (5), based on an example in Hofmeister (2010). This sentence has the meaning that Micah made one of two claims; it does not mean that he claimed to be one of two things:

- (5) Either Micah claimed he was an astronaut to impress Bill or a spy to impress Bob.

(This reading is forced by the location of *either*; see Hofmeister 2010.) If the sentence involves coordination of VPs (at least), this reading is expected; without this high coordination plus ellipsis, it is difficult to see how this interpretation could obtain.

Consider also the following examples. Instances of non-constituent coordination in subject position can take plural agreement and floating quantifiers that require plurals (6a–b). They can also be the subject of the predicate *were different events* (6b). In contrast, simple NP coordination within a subject does not permit this (6c–d):

- (6) a. Bill catching a fish on Monday with a fly rod and on Tuesday with a spear were both surprising.  
 b. Micah claiming he was an astronaut to impress Bill and a spy to impress Bob were different events.  
 c. \* Bill and Micah catching the rabbit were both surprising.  
 d. \* You giving Bill and Micah that book were both surprising.

I conclude that non-constituent coordination does indeed involve coordination of larger categories plus ellipsis. So example (6a) is identical to the following, except that ellipsis has applied:

- (7) Bill catching a fish on Monday with a fly rod and catching a fish on Tuesday with a spear were both surprising.

Indeed, the two behave identically as far as agreement and floating quantifiers are concerned.

## 2.2 Proposal: Deletion of Prosodic Constituents

Having established that ellipsis is involved in non-constituent coordination, we turn now to what exactly is elided. I propose that prosody is involved in the ellipsis process. Consider the following example, repeated from (1) above:

- (8) Mary caught a fish on Monday with a fly rod and on Tuesday with a spear. Dowty (1988)

This sentence has to be pronounced with heavy stress on *Monday* in the first conjunct and *Tuesday* in the second conjunct. On first reading the sentence, it is easy to stress *a fish*, but this leads to a garden path effect and requires going back to re-parse the sentence. I take this to show that prosody plays a crucial role in enabling non-constituent coordination.

I propose that ellipsis always works as follows:

- (9) Ellipsis targets a {syntactic/prosodic} unit XP and deletes all but the head of XP, where the head of XP is the most prominent {syntactic/prosodic} sub-constituent of XP.  
 (10) The most prominent syntactic sub-constituent of XP is Spec-X if X projects a specifier, otherwise it is X.

To give a simple syntactic example, sluicing targets CP, and deletes all but the most prominent syntactic sub-constituent of CP, which is Spec-CP:

- (11) A: Jim has eaten something poisonous! B: [<sub>CP</sub> What [~~C has Jim eaten~~ ]?]

Typical accounts of sluicing (e.g. Merchant, 2001) analyze it as ellipsis of TP, but then they struggle to explain why elements in C are not stranded along with the wh-phrase in Spec-CP (like the inverted auxiliary in this example).

As another syntactic example, VP ellipsis targets an AuxP, and deletes all but the most prominent sub-constituent of AuxP, which in this case is the head Aux since Auxs do not project specifiers:

- (12) Jim ate worms, and Jan [<sub>AuxP</sub> did [~~VP eat worms~~ ] ] too.

Note that in ellipsis targeting syntactic categories, the remainder that is actually elided will always be a constituent: everything but Spec-XP is a constituent ( $\bar{X}$ ), and everything but X is a constituent (complement of X). This will not always be the case when prosodic categories are targeted. Moreover, ellipsis operating on syntactic categories will generally strand material on the left and delete material on the right, since in English the most prominent sub-constituents of syntactic categories are on the left. Once again this will be different when prosodic categories are targeted: heads of prosodic categories are on the right in English, meaning that what is stranded will be on the right, and what is deleted will be on the left. Nevertheless, the proposal outlined above treats them in a uniform fashion.

Turning now to prosodic ellipsis, I propose that in coordination ellipsis targets a prosodic phrase rather than a syntactic one. Specifically, it targets the first prosodic phrase in the second conjunct, and deletes all but the head of that prosodic phrase. I assume VP coordination in all the examples under consideration here, and further assume that the prosodic unit involved is intermediate between the phonological word and the intonational phrase; this corresponds to the major phrase, phonological phrase, or intermediate phrase, depending on one's prosodic theory (see, for instance, Beckman and Pierrehumbert 1986; Nespor and Vogel 1986; Selkirk 1986, 2011; Pierrehumbert and Beckman 1988). I will call the relevant unit the phonological phrase and mark it with " $\phi$ " in the representations, but this will not be crucial.

In example (1), the two coordinated VPs are phrased as follows (with the stress that is necessary now indicated):

- (13) a. Mary caught a fish on MONday with a fly rod and on TUESday with a spear.  
 b. ( $\phi$  caught a fish (on MONday)) (with a fly rod)  
 and  
 ( $\phi$  ~~caught a fish~~ (on TUESday)) (with a spear)

In the first conjunct, *caught a fish on Monday* forms a phonological phrase, while the string *with a fly rod* is parsed as a separate prosodic unit (probably also a phonological phrase). The head of the first phonological phrase is the string *on Monday*, which forms a prosodic unit immediately below phonological phrase on the prosodic hierarchy (prosodic word, in most theories). In theories of prosody, each prosodic level consists of one or more units of the next level down, one of which serves as the head.

Phrasing matches in the second conjunct, such that *caught a fish on Tuesday* forms a phonological phrase with head *on Tuesday*. As stated above, ellipsis targets the phonological phrase in the second conjunct and deletes all but the head of that phonological phrase. In this example, it deletes all but *on Tuesday*. Since it targeted the first phonological phrase, subsequent phrases, here *with a spear*, are unaffected.

Another example, also from Dowty, shows quite clearly that what is deleted is not a syntactic unit at all. Here deletion crosses an NP boundary, deleting part of the NP along with the V but not all of it:

- (14) a. John read a book about Nixon on Monday and (about) REAgan on Tuesday. (Dowty, 1988, (48))  
 b. ( $\phi$  read a book about (NIXon)) (on Monday)  
 and  
 ( $\phi$  ~~read a book about~~ (REAgan)) (on Tuesday).

In this example, the head of the first phonological phrase is *Reagan*. (Note that *about* can be parsed either with the head or with the preceding material, giving optionality of deletion; I show it here with preceding material.)

In the representations above, I simply left the coordinator *and* unparsed in the prosodic representation. The fact is that it seems to be grouped together with the remnants in the second conjunct. I see two possible ways of accounting for this. The first is to posit recursive  $\phi$ -phrases as in Selkirk (2011):

- (15) ( $\phi$  claimed that I was (a SPY)) (to impress John)  
 ( $\phi$  and ( $\phi$  ~~claimed that I was~~ (an Astronaut))) (to impress Bill)

Ellipsis must target the inner  $\phi$ -phrase, matching it to an identical  $\phi$ -phrase in the first conjunct.

The second possibility is that *and* is indeed unparsed initially, but gets incorporated into the remaining prosodic unit in the second conjunct following ellipsis. I will not attempt to decide between these two possibilities here, and will simply leave *and* unparsed in the representations.

### 3 Movement Versus Prosody

I turn now to a comparison of the proposal here with the movement theory. Both analyses posit ellipsis. The prosodic theory says that ellipsis operates on a prosodic unit, with no syntactic movement of anything. The movement theory says that the remnants in the second conjunct undergo A-bar movement. Ellipsis targets the syntactic constituent that they moved out of. The movement theory therefore predicts that non-constituent coordination will show properties of movement, while the prosodic theory predicts that it will not. As I show here, the prosodic theory is supported.

#### 3.1 Movement Islands

I begin with islands to syntactic movement. Syntactic movement is unable to affect sub-parts of compound nouns, but they are fine as remnants in non-constituent coordination:

- (16) a. Brandi eats tuna salad SANDwiches with mustard and WRAPS with mayonnaise.  
 b. \* Wraps<sub>1</sub>, Brandi eats [tuna salad *t*<sub>1</sub>] with mustard.

The movement theory would require movement of *wraps* out of [*tuna salad wraps*] to derive (16a), but this is impossible, as (16b) shows. In contrast, the prosodic theory simply needs to parse the VP into a  $\phi$ -phrase whose head is *wraps*:

- (17) ( $\phi$  eats tuna salad (WRAPS))

Since *wraps* is contrastively focused (and contrasted with *sandwiches*), it receives the main stress and is clearly the head of the prosodic unit.

Turning to noun phrases, Sailor and Thoms (2013) claim that the possibility of non-constituent coordination perfectly tracks the availability of extraction from NPs. However, it is relatively easy to find counterexamples, where extraction is not permitted but non-constituent coordination is. Consider the following examples, where possessed NPs generally do not permit extraction:

- (18) a. Jaimie sorted his pictures of Venice on Friday and Rome on Saturday.  
 b. \* Rome, Jaimie sorted his pictures of on Saturday.  
 (19) a. Willie will dust his collection of trains on Thursday and Fabergé eggs on Friday.  
 b. \* Fabergé eggs, Willie will dust his collection of on Friday.

The predictions of the movement analysis are not upheld. Nor are they upheld with relative clauses inside NPs, which are strong islands to extraction but permit non-constituent coordination:

- (20) a. I disproved theories held by Wittgenstein last year and Einstein this year.  
 b. \* Einstein, I disproved theories held by this year.

Sailor and Thoms (2013) claim that non-constituent coordination is not possible across a relative clause boundary, citing the following example:

- (21) (Sailor and Thoms, 2013, (14–15))  
 a. \* What language did you meet the guy that knows?  
 b. I taught the guy that knows Icelandic how to dance and the guy that knows Faroese how to sing.  
 c. \* I taught the guy that knows Icelandic how to dance and Faroese how to sing.

Their example, with a full relative clause, does seem degraded compared to my example with a reduced relative clause. I suspect that the reason is prosody: full relative clauses are parsed preferentially into two  $\phi$ -phrases, while reduced relative clauses are not:

- (22) (taught (the guy))(that knows (Icelandic))...  
 (23) (disproved theories held by (Wittgenstein))...

Ellipsis then produces (21b) and cannot produce (21c), as desired, because it can only target the first  $\phi$ -phrase. In any case, reduced relative clauses are islands to movement just like full relative clauses, so the fact that they permit non-constituent coordination is problematic for the movement analysis.

Prepositional phrases that have been shifted to the right are also inviolable islands to extraction:

- (24) a. \* What did they depend last summer on?  
 b. \* What did they put the knives yesterday in?

The movement analysis therefore predicts that shifted PPs will not be able to participate in non-constituent coordination. This is false:

- (25) a. They depended last summer on their wits for food and their quickness for protection.  
 b. They put the knives yesterday in intricately worked leather sheathes to protect them and carved wooden boxes to protect us.

In all of these cases, the availability of non-constituent coordination does not correlate with the availability of extraction. Elements that cannot be extracted can still be remnants in non-constituent coordination. This is predicted by the prosodic account, but not by the movement account.

### 3.2 Immovable Categories

Additionally, certain categories are known to be immovable, regardless of the surrounding context (in the previous subsection, the surrounding context rendered something immovable). TPs are one such category. They can never move, stranding CP material (26a). Sailor and Thoms (2013) claim that they can also never be a remnant in non-constituent coordination (26c):

- (26) (Sailor and Thoms, 2013, (20–21))
- a. \* He knows Icelandic, I'm not sure whether.
  - b. The witness will testify to whether John knew Icelandic tomorrow and whether he knew Faroese next week.
  - c. \* The witness will testify to whether John knew Icelandic tomorrow and he knew Faroese next week.

However, once again it is possible to come up with counterexamples. Non-finite TPs seem to be relatively good in non-constituent coordination, despite being just as immovable as finite TPs:

- (27) a. Eve is praying for John to win with her fingers crossed and Bill to lose with a muttered hail Mary.  
 b. Eve prayed for John to win last night and Bill to lose this morning.  
 c. \* John to win, Eve is praying for.
- (28) a. We'll decide whether or not to study Icelandic on Thursday and to take ballroom dance on Friday.  
 b. \* To take ballroom dance, we'll decide whether or not.

Note that in Sailor and Thom's example (26c), the second conjunct should have been parsed as follows:

- (29) ( $\phi$  testify to whether he knew (Faroese))(next week)

Since *he knew* is part of the non-head, it should have been included in ellipsis. If it is, the sentence is grammatical:

- (30) The witness will testify to whether John knew Icelandic tomorrow and Faroese next week.

In the good examples of TP as a remnant (27a–b and 28a), the contrastive, stressed material, which forms the head of the phonological phrase, begins the TP. This is exactly what the prosodic theory predicts is necessary in order to strand TP, in contrast with the movement theory.

### 3.3 CPs

Additional evidence against the movement theory comes from CPs as complement clauses. In English, verbs that do not permit NP objects in addition to CPs do not allow their complement CPs to move (Alrenga 2005, Takahashi 2010). The movement theory therefore predicts that such CPs will not make good remnants in non-constituent coordination. This is false, however:

- (31) a. \* That the moon was made of cheese, Billy insisted.  
 b. Billy insisted that the earth was flat on Tuesday and that the moon was made of cheese on Wednesday.
- (32) a. \* That we had crossed the equator, Sandy reasoned.  
 b. Sandy reasoned that it would rain by studying the clouds and that we had crossed the equator by studying the stars.

As can be seen from the above examples, a CP that cannot undergo extraction can still be a remnant in non-constituent coordination.



### 3.4 Preposition Stranding

Frazier, Potter, and Yoshida (2012) and Sailor and Thoms (2013) argue that the ability to elide a preposition in non-constituent coordination, stranding its complement NP, perfectly correlates with the ability to strand prepositions in movement. That is, languages like English which permit preposition stranding permit deletion of prepositions in non-constituent coordination, but languages like Italian which do not permit preposition stranding also do not permit deletion of prepositions in non-constituent coordination. Both of these works argue that this implicates movement: if the language can move just the NP, stranding the P, then the P can be included in the category that is elided. If the entire PP has to move, then the P can never be elided.

A problem for the movement analysis arises with non-initial remnants in non-constituent coordination, however. As pointed out by Dowty (1988), only the preposition of the *first* remnant can be deleted:

- (33) a. Mary caught a fish with a spear and a rabbit with a snare.  
 b. \* Mary caught a fish with a spear and a rabbit a snare.
- (34) a. Mary read a book about Nixon at the airport and Reagan at the train station.  
 b. \* Mary read a book about Nixon at the airport and Reagan the train station.

In the movement theory, the two remnants in the second conjunct undergo independent instances of movement. Since nothing in the grammar of English prevents each of these instances of movement from stranding a preposition, the preposition of the second remnant should be deletable. Note that preposition stranding is perfectly grammatical from the position of the second remnant in the above examples:

- (35) a. What did she catch a rabbit with?  
 b. Which train station did she read that book at?

It is therefore completely mysterious on the movement analysis why deletion can only target the preposition of the leftmost remnant. In contrast, in the prosodic theory, this follows because deletion only targets the *first*  $\phi$ -phrase:

- (36) ( $\phi$  ~~caught~~ (a rabbit))(with a snare)

There is simply no way to delete *with*.

The success of the prosodic theory in explaining this restriction, and the failure of the movement theory, strongly supports the prosodic theory over the movement theory.

There is then a question about the cross-linguistic correlation described by Frazier et al. (2012) and Sailor and Thoms (2013). If it does not follow from movement, what does it follow from? Well, it seems to be the case that non-P-stranding languages generally do not permit NPs that are complements of Ps to be separated from their selecting P. It does not seem to matter whether this separation happens because of movement, or ellipsis, or something else; any such separation will not be allowed.

### 3.5 Particles

Sailor and Thoms (2013) argue that the particles of English verb-particle constructions cannot be moved, and they also cannot be remnants in non-constituent coordination:

- (37) (Sailor and Thoms, 2013, (22–23))  
 a. \* Up, I blew the inflatable chair.  
 b. John blew out the candle and blew up the inflatable chair.  
 c. \* John blew out the candle and up the inflatable chair.

However, they only consider pre-object particles. Post-object particles can be remnants in non-constituent coordination:

- (38) a. \* Off, I turned the lights.  
 b. I turned the TV on in the study and off in the living room.
- (39) a. \* Up, I blew the inflatable chair.  
 b. John blew the candle out and the inflatable chair up.  
 c. John blew the candle out at midnight and the inflatable chair up at dawn.

This is exactly as predicted by the prosodic theory, because particles generally cannot be stressed in pre-object position, but can be in post-object position:

- (40) a. \* John (only) blew OUT the candle.  
 b. \* I (only) turned ON the TV.
- (41) a. John (only) blew the candle OUT (not away).  
 b. I (only) turned the TV ON (not off).

Since the head of a phonological phrase must be stressed, particles can only be the head of a phonological phrase when they are in post-object position.

### 3.6 Binding

Finally, the behavior of the remnants in non-constituent coordination for binding purposes is not what would be expected if they had moved. For many speakers of English, moving a constituent that contains an R-expression ameliorates a Condition C violation:

- (42) a. \* She<sub>1</sub> will talk to friends on Samantha<sub>1</sub>'s birthday.  
 b. On Samantha<sub>1</sub>'s birthday, she<sub>1</sub> will talk to friends.

If the movement theory of non-constituent coordination were correct, then, we would expect the same effect in non-constituent coordination. This is not what we find:

- (43) a. \* She<sub>1</sub> will talk to friends on Tuesday and relatives on Samantha<sub>1</sub>'s birthday.  
 b. \* I sent her<sub>1</sub> to friends on Tuesday and relatives on Samantha<sub>1</sub>'s birthday.

(These sentences are of course grammatical on a different indexing.)

The prosodic theory predicts this, since nothing moves. The elided pronoun in (43b) still binds the R-expression, in violation of Condition C:

- (44) ( $\phi$  ~~sent her<sub>1</sub> to~~ (relatives))(on Samantha<sub>1</sub>'s birthday)

### 3.7 Summary

In this section, we have seen that none of the predictions of the movement theory are upheld. In numerous ways, non-constituent coordination does not behave as it should if the remnants had moved. In contrast, the prosodic theory explains all of the facts.

At the beginning of the paper, I mentioned that there was another alternative ellipsis theory, left-edge ellipsis. This theory is almost identical to the proposal here, except that it has ellipsis target a linear string rather than a prosodic unit. There are two ways in which the prosodic theory is superior to this alternative as well: First, it explains why there is a connection between prosody and the availability of non-constituent coordination. The linear analysis does not explain why the two conjuncts have to be pronounced in the way that they do, such that the first remnant in the second conjunct bears stress. Second, the linear analysis requires that deletion be able to target a linear string in addition to syntactic constituents. The prosodic theory has the conceptual advantage of a uniform view of ellipsis: it always targets constituents. These constituents may be syntactic ones, or prosodic ones.

The prosodic theory is therefore superior to all current alternatives, both the movement theory and the left-edge ellipsis theory.

## 4 Further Issues

### 4.1 Why Prosodic Constituents in Coordination?

I turn now to some further issues. The first is why deletion targets prosodic constituents just in coordination. In sluicing, VP ellipsis, and other familiar cases of ellipsis, the relevant units seem to be syntactic. It appears that it is only in coordination that prosodic units are targeted. There are therefore two questions: (1) Why do sluicing, VP ellipsis, etc., never target prosodic constituents? (2) Why does coordinate ellipsis target a prosodic constituent and not a syntactic one?

At the moment I do not have complete answers to these questions. I believe the answer may be found in the nature of coordination, which behaves unusually in a number of respects. Perhaps conjuncts are not syntactically integrated, and are only put together at a prosodic level of representation. This is only speculation at this point, however.

Furthermore, it is not clear to me that other ellipsis processes do not target prosodic units. It appears that some other processes that have been analyzed as movement plus ellipsis might be better analyzed as ellipsis of a prosodic constituent. For instance, fragment answers, which Merchant (2004) analyzes as movement plus ellipsis, pattern with non-constituent coordination in ways that suggest that movement is not involved. Fragment answers can be elements from within compounds, reduced relative clauses, and rightward-shifted PPs. They can also be CP complements of verbs that are immovable:

- (45) a. Does Brandi eat tuna salad SANDwiches with mustard? No, WRAPS.  
 b. Did she disprove theories held by WITTgenstein last year? No, EINstein.  
 c. Did they depend last summer on their WITS? No, their boldness.  
 d. Did Billy insist that the earth was flat? No, that the moon was made of cheese.

It is therefore worth exploring whether deletion of a prosodic constituent is more widespread than we thought. (But note that fragment answers, unlike non-constituent coordination, deletes material *after* the prosodic head as well as material before it.)

### 4.2 The Level of Coordination

Throughout this paper, I have been assuming that the constituents that are coordinated are VPs. Frazier et al. (2012) argue that coordination can be much larger, at least CP. They argue for this on the basis of the ability of certain adverbs to appear at the beginning of the second conjunct:

- (46) George will certainly be calling his mother on Monday and **probably** his father on Tuesday.

They assume that such adverbs appear high in clauses, to the left of TP. However, their examples all involve what Collins (1988) called *conjunction adverbs*, adverbs that seem to be licensed specifically in conjunctions:

- (47) Perhaps John, maybe Mary, and certainly Bill went to the store.

In this example, there is no reason to think that anything other than NPs have been conjoined. The adverbs seem to be made possible by coordination.

In the absence of any evidence for higher coordination, then, I continue to assume that coordination is generally at the VP level. This seems to be consistent with higher negation or question operators, which operate on the entire conjunction:

- (48) a. No one claimed that he was a spy to impress John and an astronaut to impress Bill.  
 b. No one claimed that he was a spy to impress John and no one claimed that he was an astronaut to impress Bill.  
 c. No one claimed that he was a spy to impress John and claimed that he was an astronaut to impress Bill.

The sentences in (48a–b) mean different things; if coordination could involve CP in (48a), it should be able to mean the same thing as (48b), but this is not the case. Rather, it means what VP coordination in (48c) does (where it is possible that someone claimed he was a spy or an astronaut, but no one did both).

## 5 Conclusion

This paper has argued for a uniform view of ellipsis where it always targets a category and deletes *all but* the head of that category. This view makes sense of the wide divergence between ellipsis processes like sluicing and what we see in coordination by viewing the former as targeting a syntactic category, while the latter targets a prosodic category. It also permits a simple account of non-constituent coordination that does not appeal to processes that can apply to non-constituents, or to movement, which was shown to be problematic.

## References

- Alrenga, Peter. 2005. A sentential subject asymmetry in English and its implications for complement selection. *Syntax* 8:175–207.
- Beavers, John, and Ivan A. Sag. 2004. Coordinate ellipsis and apparent non-constituent coordination. In *Proceedings of the 11th International Conference on HPSG*, ed. Stefan Müller, 48–69. Stanford, CA: CSLI Publications.
- Beckman, Mary, and Janet Pierrehumbert. 1986. Intonational structure in English and Japanese. *Phonology Yearbook* 3:255–309.
- Collins, Chris. 1988. Conjunction adverbs. Ms., MIT.
- Dowty, David. 1988. Type raising, functional composition, and non-constituent conjunction. In *Categorial Grammars and Natural Language Structures*, ed. Richard T. Oehrle, Emmon Bach, and Deirdre Wheeler, 153–197. Dordrecht: Reidel.
- Frazier, Michael, David Potter, and Masaya Yoshida. 2012. Pseudo noun phrase coordination. In *Proceedings of the 30th West Coast Conference on Formal Linguistics*, ed. Nathan Arnett and Ryan Bennett, 142–152. Somerville, MA: Cascadilla Proceedings Project.
- Hofmeister, Philip. 2010. A linearization account of *either...or* constructions. *Natural Language and Linguistic Theory* 28:275–314.
- Hudson, Richard. 1976. Conjunction reduction, gapping, and right node raising. *Language* 52:535–562.
- Hudson, Richard. 1982. Incomplete conjuncts. *Linguistic Inquiry* 13:547–550.
- Merchant, Jason. 2001. *The Syntax of Silence: Sluicing, Islands, and the Theory of Ellipsis*. Oxford: Oxford University Press.
- Merchant, Jason. 2004. Fragments and ellipsis. *Linguistics and Philosophy* 27:661–738.
- Nespor, Marina, and Irene Vogel. 1986. *Prosodic Phonology*. Dordrecht: Foris.
- Pierrehumbert, Janet B., and Mary E. Beckman. 1988. *Japanese Tone Structure*. Cambridge, MA: MIT Press.
- Ross, John Robert. 1967. Constraints on Variables in Syntax. Doctoral dissertation, Massachusetts Institute of Technology.
- Sag, Ivan. 1976. Deletion and Logical Form. Doctoral dissertation, Massachusetts Institute of Technology. Distributed by MIT Working Papers in Linguistics, Cambridge, Mass.
- Sag, Ivan A., Gerald Gazdar, Thomas Wasow, and Steven Weisler. 1985. Coordination and how to distinguish categories. *Natural Language and Linguistic Theory* 3:117–171.
- Sailor, Craig, and Gary Thoms. 2013. On the non-existence of non-constituent coordination and non-constituent ellipsis. In *Proceedings of the 31st West Coast Conference on Formal Linguistics*. Somerville, MA: Cascadilla Proceedings Project.
- Selkirk, Elisabeth. 1986. On derived domains in sentence phonology. *Phonology Yearbook* 3:371–405.
- Selkirk, Elisabeth. 2011. The syntax-phonology interface. In *The Handbook of Phonological Theory*, ed. John Goldsmith, Jason Riggle, and Alan C.L. Yu, 435–484. Oxford: Blackwell, second edition.
- Steedman, Mark. 1989. Constituency and coordination in combinatory grammar. In *Alternative Conceptions of Phrase Structure*, ed. Mark R. Baltin and Anthony S. Kroch, 201–231. Chicago: The University of Chicago Press.
- Takahashi, Shoichi. 2010. The hidden side of clausal complements. *Natural Language and Linguistic Theory* 28:343–380.
- Wilder, Chris. 1997. Some properties of ellipsis in coordination. In *Studies on Universal Grammar and Typological Variation*, ed. Artemis Alexiadou and Tracy Alan Hall, 59–107. Amsterdam: John Benjamins.