

# Gapping is VP-ellipsis: A reply to Johnson\*

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## Abstract

Johnson (2009) argues that the gapping — e.g. *Some had ordered mussels, and others swordfish* — does not arise through VP-ellipsis because gapping has properties that VP-ellipsis does not. He proposes instead that the gap in gapping arises through ‘low coordination’ and across-the-board movement. I first show that Johnson’s across-the-board movement account fails to generate gapping in coordination structures with corrective *but* (Vicente 2010, Toosarvandani, to appear-b). I then revive a version of the ellipsis account in which VP-ellipsis applies to low-coordination structures. This correctly generates gapping in corrective *but* sentences. Once the information-structural properties of low coordinations are taken into consideration — low coordinations must have parallel focus structures — it also derives the unique properties of gapping.

## 1 Introduction

Gapping is the elliptical construction where the locus of finiteness in the clause (T and its host) goes missing — possibly, along with more — in the second and subsequent coordinates of a coordination. This leaves behind one or more remnants:<sup>1</sup>

- (1) Some had ordered mussels, and others swordfish.

In (1), T is realized on the perfect aspect auxiliary, which disappears in the second coordinate, along with everything else but the two DP remnants *others* and *swordfish*. Gapping bears a striking resemblance to pseudogapping, the elliptical construction in (2), which also strands one or more remnants, though it does not remove T.

- (2) Some had ordered mussels, and others had swordfish.

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<sup>1</sup>By this definition, gapping subsumes stripping (or bare argument ellipsis), which is nothing more than gapping that leaves behind a single remnant.

Where does the gap in gapping come from, then? Given its similarity to pseudogapping, it is tempting to assimilate gapping to VP-ellipsis as well. Over the years, however, Kyle Johnson has argued that gapping behaves differently from pseudogapping in several important ways. Building on previous work, Johnson (2009:293) identifies four properties of gapping that distinguish it from pseudogapping:<sup>3</sup>

- (3) a. \*Some had eaten mussels, because others shrimp.  
b. Some had eaten mussels, because others had shrimp. (Johnson 2009:293)

- (4) a. No woman<sub>i</sub> can join the army, and her<sub>i</sub> girlfriend the navy.  
b. \*No woman<sub>i</sub> can join the army, and/but her<sub>i</sub> girlfriend can the navy.  
(Johnson 2009:293)

- (5) a. \*Some had eaten mussels, and she claims that others shrimp.  
b. Some had eaten mussels, and she claims that others had shrimp.  
(Johnson 2009:293)

- (6) a. \*She's said Peter has eaten his peas, and Sally her green beans, so now we can have dessert.  
b. ?She's said Peter has eaten his peas, and Sally has her green beans, so now we can have dessert. (Johnson 2009:293)

<sup>3</sup>His work on gapping begins with Johnson 2004, an unpublished manuscript originally dated 1996, and continues in subsequent work (Johnson 2000, 2009). In this paper, I argue specifically against the theory of gapping advanced in Johnson 2009.

Note that these judgments are relative to an interpretation in which only the antecedent clause—and not the gapped clause—is embedded. Under the intended meaning, (6a) and (6b) entail the conjunction of the proposition that she has said that Peter has eaten his peas and the proposition that Sally has eaten her green beans.

These four properties make assimilating gapping to VP-ellipsis an imposing challenge. Instead, Johnson proposes that the gap in gapping arises through two mechanisms neither of which is deletion. First, T goes missing in the second and subsequent coordinates because it was never present there to begin with. Gapping involves what he calls ‘low coordinations’ in which multiple vPs are coordinated under a single T. Second, when additional material goes missing, it does so through across-the-board movement of VP from each coordinate to a position immediately outside the coordination. Together, Johnson argues, these two mechanisms account for the four properties of gapping above.

I argue that gapping in English is, in fact, VP-ellipsis. My argument proceeds in the following way. I start, in §2, by describing Johnson’s across-the-board movement account in more detail, showing how it gives rise to the unique properties of gapping. Then, in §3, I level a negative argument against the across-the-board movement account, charging that it undergenerates in coordination structures with corrective *but*, e.g. *Max does not eat chard but spinach* (Vicente 2010, Toosarvandani, to appear-b). While most work on gapping has focused on coordinations with *and* and *or*, corrective *but* tells us more about the proper analysis of gapping, since it requires negation to take scope just inside its first coordinate.

In §4, I advance a theory of gapping that treats it as VP-ellipsis. Originally proposed by Coppock (2001) and Lin (2002), it shares the low-coordination component of Johnson’s account. T goes missing in the same way, but additional material is removed by deletion. The ellipsis account correctly derives gapping in coordinations with corrective *but*, but it confronts a different problem. Johnson argues that, while a theory that combines low coordination with VP-ellipsis correctly derives the first three of properties of gapping above, it cannot derive the fourth property. It overgenerates gapping sentences in which the antecedent clause is embedded.

I show in §5, however, that this is not actually a problem for the ellipsis account. Gapping’s fourth property arises for reasons that are not syntactic. Low-coordination structures exhibit a unique information-structural property—vP coordinates must have parallel focus structures—which I call LOW-COORDINATE PARALLELISM. If the antecedent of VP-ellipsis in the first coordinate of a low coordination is embedded, this constraint cannot be satisfied. This also accounts for why gapping is able to destroy the environment for VP-ellipsis, as I discuss in §6, which Johnson takes to constitute another problem for the ellipsis account.

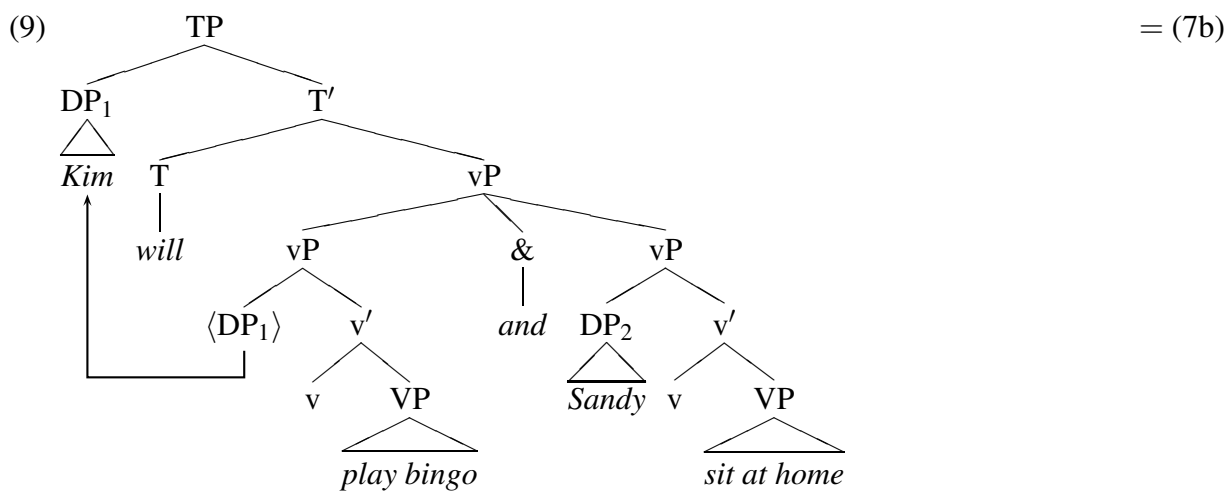
## 2 Is gapping across-the-board movement?

First some terminology. The gapping sentence in (1), repeated as (7a) below, is an example of AUXILIARY GAPPING, since T is realized on an auxiliary in the first coordinate, which goes missing in the second coordinate. The main verb also goes missing, though in other auxiliary gapping sentences it survives. In (7b), for instance, the finite auxiliary *will* goes missing even while the verb phrase *sit at home* is stranded as a remnant.

- (7) a. Some had ordered mussels, and others swordfish.  
 b. Kim will play bingo, and Sandy sit at home.
- (8) Some ate natto, and others rice.

Of course, T does not have to be realized on an auxiliary. When it instead appears on the main verb in the first coordinate, as in (8), it is the main verb itself that goes missing in the second coordinate. We can call this MAIN-VERB GAPPING.

For Johnson (2009), an auxiliary gapping sentence like (7b), which has the parse in (9), most transparently reflects the underlying structure of all gapping sentences.



T goes missing in the second coordinate because it was never there to begin with. In this ‘low-coordination’ structure (Johnson’s term), *and* coordinates two vPs under a single T head, so that T is shared, so to speak, by both coordinates. for (7b), Johnson must make two assumptions about how and where subjects can be case licensed:

1. A-movement is not sensitive to the Coordinate Structure Constraint, so that the subject of the first vP coordinate (DP<sub>1</sub>) can raise into Spec-TP.
2. Subjects can receive case in the vP-internal position where they originate, so that the subject of the second vP coordinate (DP<sub>2</sub>) can stay in Spec-vP.

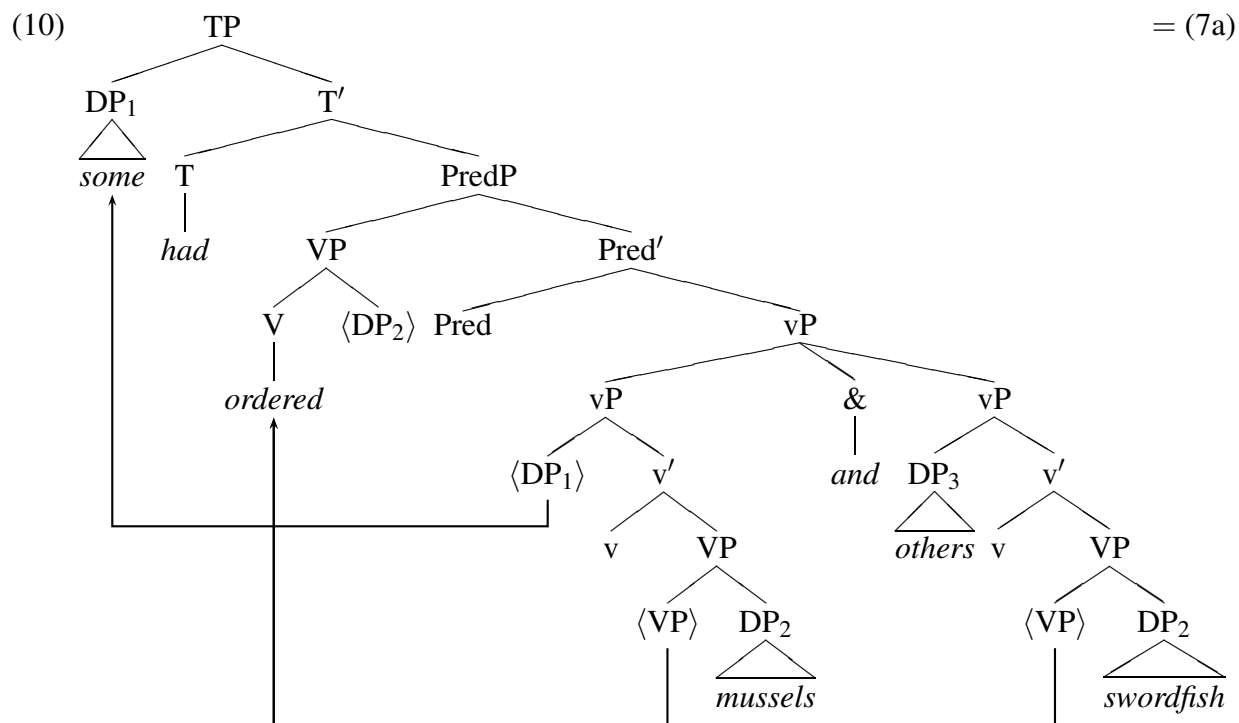
While noncanonical, both assumptions are not unmotivated. Asymmetrical coordination structures created through A-movement from just one coordinate have been proposed elsewhere (see Johnson 2004:41–49, 2009:294f. for discussion and references). And, in general, if a case assigner is able to license an argument in one coordinate of a coordinate structure, it is able to do so in all others; for example, an ECM (raising-to-object) predicate can assign accusative case to each subject in a coordinated infinitival complement, e.g. *I consider him to be honest and her to be charming*.<sup>4</sup>

<sup>4</sup>There might be some reason to think, though, that subject remnants in gapping never receive nominative case:

- (i) He wanted to learn piano, and \*she/her violin.

The subject remnant in (i) cannot actually bear morphological nominative case. Perhaps it is case licensed by a default accusative case.

The derivation of the auxiliary gapping sentence in (7a), where additional material is removed in the second coordinate, starts out with a structure identical to the one in (9). A vP-coordination structure is embedded under a single T head, which derives the absence of a finite element in the second coordinate. Additional material goes missing through two additional steps:



First, if the remnants are not already located outside of VP, they raise out, while the correlates of the remnants in the first coordinate do the same. In (10), the DPs *mussels* and *swordfish* raise to adjoin to VP. Second, now that the lower segment of VP in each coordinate is identical, it across-the-board moves to the specifier of a functional projection located just outside the coordination below T—called PredP, after Zwart (1997).

This short-distance movement of a verbal projection is sometimes proposed in English for independent reasons (Zwart 1993, Kayne 1994, Koopman and Szabolcsi 2000). When it happens in an across-the-board fashion, it results in the main verb going missing in the second coordinate and surfacing instead to the right of the finite auxiliary and to the left of the direct object. The main-verb gapping sentence in (8) has a similar parse, except that T is realized on the across-the-board moved main verb, since there is no auxiliary.

Johnson's account, which combines low coordination and across-the-board movement, succeeds admirably at deriving the four properties of gapping described in §1. He sketches arguments for the first three properties on pp. 296–300, and for the fourth property in a personal communication. (Where necessary, I have expanded on these arguments.)

**Gapping is restricted to coordinate structures** T goes missing in the second coordinate because multiple vPs are embedded under a single T head. Only through coordination can vPs be embedded in this way. That is, the only lexical item that can be slotted in for X in the following schema is a coordinator:

$$(11) \quad [TP \dots T [[_{VP} \dots ] X [_{VP} \dots ]]]$$

Subordinators, such as *because*, would not fit in this configuration since they select for a full clause (finite or nonfinite) containing its own T. Nothing in the above argument makes reference to the pronounced position of T. It is independent of whether T is realized on an auxiliary or on the main verb (when there is no auxiliary). Consequently, both main-verb and auxiliary gapping are restricted to coordinate structures.


**The subject of the first coordinate takes scope over the second coordinate** Since gapping employs a low-coordination structure, the subject of the first coordinate, which raises to Spec-TP, c-commands everything inside the coordination. This includes the second coordinate.

**The gap cannot be embedded** In gapping, a single T head is shared between the vP coordinates it embeds. It cannot, however, be shared with a clause that is embedded inside a coordinate. To see this, suppose the second coordinate embedded a finite clause:

$$(12) \quad [TP \dots T_1 [[_{VP} \dots ] \text{ and } [_{VP} \dots [TP \dots T_2 [_{VP} \dots ]]]]]$$

For a gap to be embedded,  $T_1$  would have to be shared between the first vP coordinate and the embedded vP. This is obviously not possible, precisely because it is embedded.

**The antecedent of the gap cannot be embedded** When additional material besides T goes missing from the second coordinate in gapping, it does so, according to Johnson, through across-the-board movement of VP. Like verb movement, raising of VP to Spec-PredP is highly local. It must be a very short movement, since the main verb stays low in English. Consequently, the antecedent of the gap can never be embedded, since then across-the-board movement of VP would be nonlocal:

$$(13) \quad [TP \dots T [_{PredP} [_{VP} \dots ] [[_{VP} \dots [TP \dots T [_{VP} \dots \langle VP \rangle ]]] \text{ and } [_{VP} \dots \langle VP \rangle ]]]]$$


The VP of the first coordinate would have to raise out of the embedded clause, a distance that is unacceptably long. (This might be another reason that the gap itself cannot be embedded. The VP in the second coordinate would have to undergo the same forbidden long-distance movement.)

Any theory of gapping that failed to derive these four properties would have a serious vice, since it would overgenerate. It would predict that gapping should be grammatical outside of coordination structures, when the gap is embedded, or when the antecedent is embedded. Of course, as with any case of overgeneration, it might be possible to identify a principle that would rule out these unexpectedly ungrammatical sentences independently. Much to its credit, though, Johnson's across-the-board movement account avoids all of these vices to begin with.

It faces, however, a different kind of problem. As I show next, it *undergenerates* in coordinate structures with corrective *but*. This deficiency is significantly more serious than the vice of overgeneration, because there can be no independent principle that *rules in* an unexpectedly grammatical sentence. By failing to generate grammatical gapping sentences with corrective *but*, the across-the-board movement account commits, in a manner of speaking, a mortal sin.

### 3 Across-the-board movement's mortal sin

Negation sometimes takes scope in unexpected ways in gapping sentences. While sentence negation appears to be contained inside the first coordinate in (14), it can, in fact, take scope over the entire conjunction or disjunction (Oehrle 1987:205, Siegel 1987:53). (14) conveys that it is not the case that Kim played bingo and Sandy sat at home ( $\neg(\phi \wedge \psi)$ ). This interpretation is expected if gapping involves low coordination, since sentence negation can be located outside vP coordinations.

- (14) Kim didn't play bingo, and Sandy sit at home all evening. (Johnson 2004:25)

There is also a distributed reading ( $\neg\phi \wedge \neg\psi$ ) where negation takes scope inside each coordinate (Hartmann 2000, Repp 2009). But there is no interpretation where negation asymmetrically takes scope inside just one coordinate ( $\neg\phi \wedge \psi$ ). That is, (14) cannot mean that Kim did not play bingo and that Sandy *did* sit at home all evening.<sup>5</sup>

This is not true of all coordinators. As we will see in §3.1, the corrective use of *but* does allow—and in fact requires—asymmetric coordinations in which negation takes scope just inside *one* coordinate. As I show in §3.2, these coordinations with corrective *but* also allow gapping, setting up a unique testing ground for theories of gapping. In §3.3, I argue that the across-the-board movement account undergenerates in coordinations with corrective *but*, because it cannot create the gap without incorrectly ordering the verb before negation.

#### 3.1 The corrective use of *but*

The coordinator *but* has at least two distinct uses (Anscombe and Ducrot 1977).<sup>6</sup> Alongside the more familiar COUNTEREXPECTATIONAL use in (15), there is the CORRECTIVE use in (16).<sup>7</sup>

- (15) Max eats chard but hates it.  
(16) Max doesn't eat chard, but spinach.

The two uses have the same truth conditions. Both (15) and (16) convey the conjunction of two propositions. But the first conjunct of the counterexpectational sentence in (15) also gives rise to an expectation—that because Max eats chard, he does not hate it—which is denied by the second

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<sup>5</sup>In this, I disagree with Repp (2009:2), who claims that sentence negation—in both English and German—can take scope just inside the first coordinate in coordinations with *and* and *or*. To support this claim, she offers examples like the following:

- (i) Pete wasn't called by Vanessa, and John only by Jessie. (Repp 2009:2)

I cannot interpret (i) with negation taking narrow scope just inside the first conjunct, and no native English speaker I have ever consulted can either.

<sup>6</sup>It is usually assumed, following Anscombe and Ducrot (1977), that English has distinct, albeit homophonous, lexical items corresponding to the counterexpectational and corrective uses, since other languages have phonologically distinct lexical items (see Pusch 1975, Abraham 1979, and Lang 1984:238–262 for German; Dascal and Katriel 1977 for Hebrew; Toosarvandani 2010:26f. for Persian; and, Schwenter 2000 and Vicente 2010 for Spanish). Though, see Toosarvandani (to appear-a) for a unified semantic account of these and other uses.

<sup>7</sup>The term 'corrective' is a misnomer, since this use of *but* does not actually require the speaker to correct a previous utterance, though this is a possible use (McCawley 1991, Toosarvandani 2010:49f., Toosarvandani, to appear-a).

conjunct. The corrective sentence in (2) does not convey such an expectation, so that it simply entails that Max does not eat chard and that he does eat spinach:

$$(17) \quad \neg \text{eat}(\text{chard})(\text{max}) \wedge \text{eat}(\text{spinach})(\text{max}) \quad = (16)$$

The negation in the first coordinate of the corrective *but* sentence in (16) is obligatory — *\*Max ate chard, but spinach*. And, crucially, it takes semantic scope just inside the first conjunct.

For this reason, there must be more to the structure of the corrective *but* sentence in (16) than meets the eye. Assuming for simplicity that sentence negation adjoins to vP, corrective *but* must coordinate two constituents that are at least as large as vPs, so that negation can adjoin just inside the first of them. If we thought instead that it coordinated smaller constituents — say DPs, because *but* is followed by *spinach* — negation would necessarily take scope over the entire conjunction, contrary to fact.

If corrective *but* coordinates constituents at least as large as vPs, then in (16) the second coordinate must somehow be reduced to a DP, *spinach*. This reduction has the profile of gapping (McCawley 1991, Vicente 2010, Toosarvandani, to appear-b), since it can leave behind a single remnant, as in (16), or multiple remnants:

$$(18) \quad \text{Liz didn't sell her bike to a friend for \$100, but her car for \$1,000.}$$

It is hard to see how the string following corrective *but* in (18) — comprised of the discontinuous DP *her car* and PP *for \\$1,000* — could arise, except through an elliptical operation like gapping.<sup>8</sup>

### 3.2 Gapping with corrective *but*

Gapping in coordinate structures with corrective *but* exhibits the same properties that it does elsewhere. For instance, a quantifier in the subject position of the first coordinate can take scope over the second coordinate:

- (19) a. No child didn't eat chard but spinach.  
           'There was no child who did not eat chard and who ate spinach.' *no* >  $\wedge$   
       b. At most five students didn't drink the whiskey but the gin.  
           'There were at most five students who did not drink the whiskey and who drank the gin.' *at most five* >  $\wedge$

The sentence in (19a) is true in a state of affairs where there are no children who did not eat chard and who ate spinach. In other words, every child ate chard or did not eat spinach. Similarly, the sentence in (19b) is true in a state of affairs where at most five students did not drink the whiskey and who drank the gin. Also, as shown in (20), a subject quantifier in the first coordinate can bind a variable in the second coordinate.

$$(20) \quad \text{No woman}_i \text{ didn't talk to an old friend, but to her}_i \text{ girlfriend.} \\ \text{(Toosarvandani, to appear-b, p. 30)}$$

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<sup>8</sup>A persistent mystery, originally identified by McCawley (1991:192), is why subject remnants are always impossible with corrective *but*: *\*Max does not eat chard, but Sam*. To my knowledge, no explanation has yet been offered for this restriction.



Moreover, neither the gap in the second coordinate, as in (21), nor its antecedent in the first coordinate, as in (22), can be embedded.

(21) \* Max didn't bring gin to the party, but he claims that vodka.

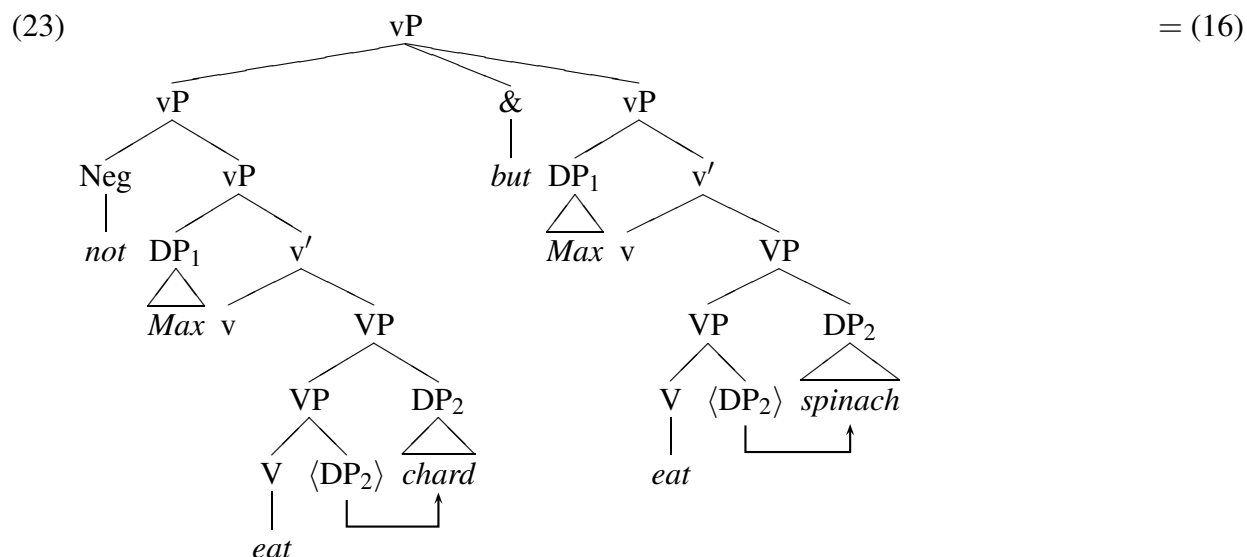
(22) \* She said that Max didn't bring gin to the party, but vodka.

(Toosarvandani, to appear-b, p. 34)

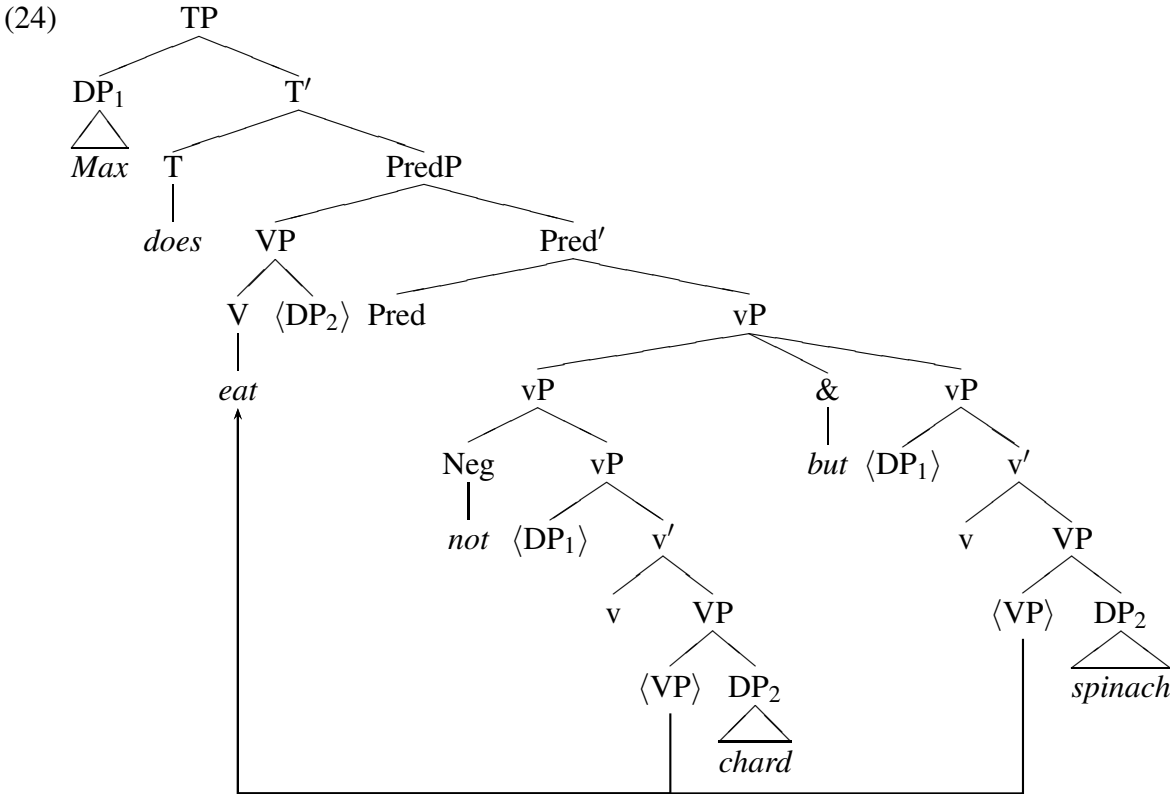
Recall that the interpretation under which the sentence in (22) is ungrammatical is: She said that Max did not bring gin to the party, and he did bring vodka to the party.

### 3.3 Across-the-board movement cannot derive gapping with corrective *but*

The across-the-board movement account fails to derive gapping in coordinations with corrective *but*. It can only generate a structure in which the main verb is incorrectly ordered *before* negation. Under Johnson's account, corrective *but* in (16) would coordinate two vPs, with sentence negation adjoined at the left edge of the first coordinate:



Then, the remnant and its correlate in the first coordinate would each raise and adjoin to their respective VPs. Finally, the lower segments of VP would across-the-board move into Spec-PredP (in addition, the subject of each coordinate would have to across-the-board move into Spec-TP):



At the end of the derivation, VP is located outside and to the left of the coordination. But this incorrectly places the main verb before negation contained in the first coordinate. The across-the-board movement account undergenerates by failing to derive the grammatical sentence in (15).

In principle, one could maintain the across-the-board movement account of gapping by positing some sort of mismatch between the interpretation and pronunciation of negation in corrective *but* sentences. This mismatch can be achieved through one of two strategies, neither of which strikes me as feasible. First, negation could start out outside the coordination. If this were high enough, it would derive the position of negation before the main verb. But then negation would have to lower into the first coordinate (only) at LF. This is a type of movement that, to my knowledge, is completely unprecedented.

Alternatively, negation could start out inside the first coordinate, giving rise to the correct interpretation. It would then raise out of the coordinate structure to the left of the main verb at PF. Ostensibly, there would be some sort of phonological or morphological motivation for this movement. Whatever this is, it would have to extend to the full range of negative elements that can occur inside the first coordinate of corrective *but*. This includes negative left-edge adverbs such as *never* (25a), *rarely* (25b), and *no longer* (25c).

- (25) a. I had **never** been on the A team but always the B or C team throughout middle school and 10th grade.<sup>9</sup>  
 b. It is **rarely** found inside a house, but often outside in the garden, and in sheds.<sup>10</sup>  
 c. When he heard music he **no longer** listened to the notes, but the silences in between.<sup>11</sup>

Just like sentence negation in (16), these adverbs take scope semantically inside the first conjunct. Consequently, Johnson's account is unable to generate the sentences in (25a–c), since across-the-board movement would incorrectly order the main verb before the negative left-edge adverb.

The across-the-board movement account derives the gap in the second coordinate by moving the VP of each coordinate entirely outside the coordinate structure. Since coordinations with corrective *but* contain sentence negation or another negative element inside the first coordinate, this always incorrectly places the main verb before them. Barring some mismatch between where the negative element is interpreted and where it is pronounced, the gap in gapping simply cannot arise through across-the-board movement.

## 4 Gapping is VP-ellipsis

What is the alternative? One possibility is that gapping is VP-ellipsis applied to low coordinations. This account was originally proposed by Coppock (2001) and Lin (2002) in response to Johnson's earlier work (2004), though there are earlier proposals which took gapping to be VP-ellipsis applied to clausal coordinations (Sag 1976:189–300, Jayaseelan 1990:73–78). And, the idea that gapping is some sort of deletion operation is certainly an old one (Ross 1970, Hankamer 1973, 1979, Neijt 1979, van Oirsouw 1987, Wilder 1994, 1997, Hartmann 2000, Merchant 2003).<sup>12</sup>

Consider again the gapping and pseudogapping sentences from the introduction, repeated in (26–27) below. They are identical except that T goes missing in pseudogapping.

- (26) Some have ordered mussels, and others swordfish. = (1)  
 (27) Some have ordered mussels, and others have swordfish. = (2)

The pseudogapping in (27) is nothing more than VP-ellipsis that has applied to the second coordinate of a clausal coordination structure (Jayaseelan 1990, Lasnik 1999a,b,c). The remnants survive deletion because they raise out of the VP in the second coordinate, which is then deleted under identity with the VP of the first coordinate:

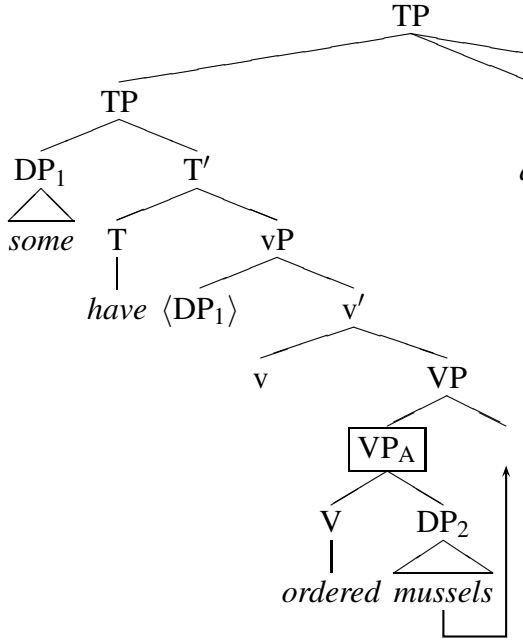
<sup>9</sup><http://www.ncsasports.org/football-recruiting/tx/katy/cinco-ranch-high-school/joshua-firth>, August 9, 2012.

<sup>10</sup><http://www.hitman.com.au/news/5-spiders-likely-to-be-lingering-around-your-house/>, August 9, 2012.

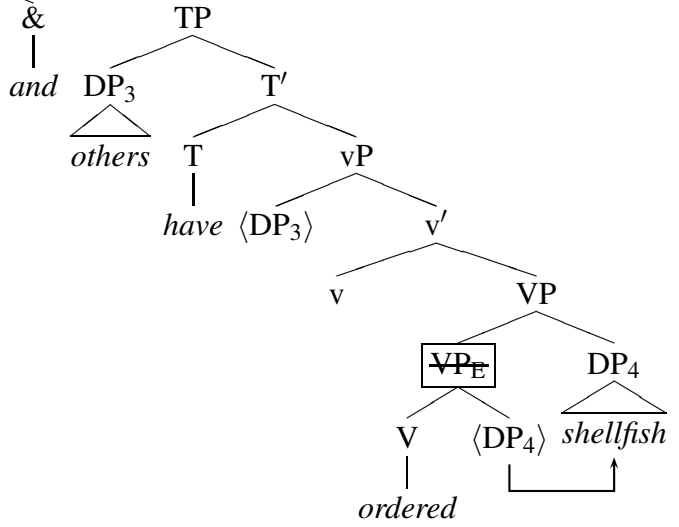
<sup>11</sup>Nicole Krauss. 2006. *The history of love: A novel*. New York: W. W. Norton.

<sup>12</sup>There are, of course, more what-you-see-is-what-you-get analyses of gapping where what goes missing is simply never there to begin with (Oehrle 1987, Sag et al. 1985, Steedman 1990, Culicover and Jackendoff 2005). These accounts confront the significant problem that the remnants behave syntactically as if the missing structure is present at some point in the derivation; for instance, they obey constraints on movement like islands (Hankamer 1979:20f., Neijt 1979:23f.).

(28)



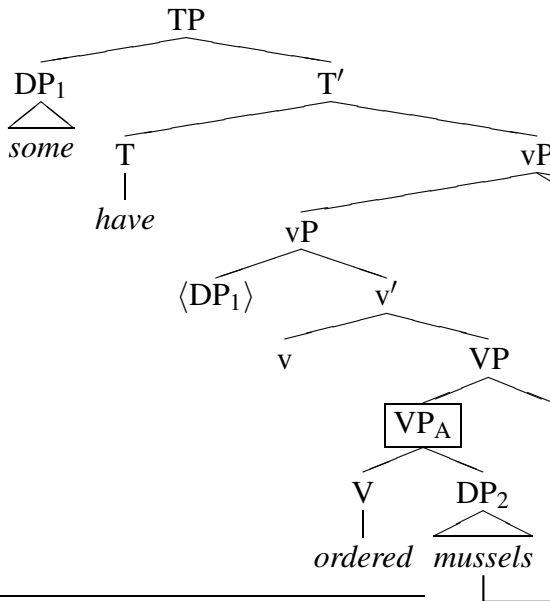
= (27)



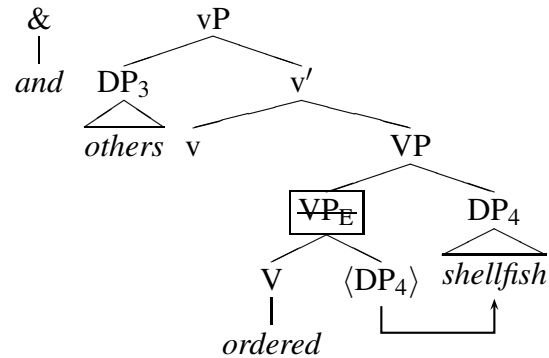
For VP<sub>E</sub> in the second coordinate to be elided, it must be identical in some sense to VP<sub>A</sub> in the first coordinate. The relevant notion of identity could be syntactic (Fiengo and May 1994) or semantic in nature (Merchant 2001). In either case, the elided and antecedents VPs are identical except for the correlate of the remnant in the first coordinate, which must somehow be factored out. Merchant (2008:148f.) shows that this can be done through LF movement of the correlate, which I indicate with an arrow originating in the pronounced position.<sup>13</sup>

If gapping is VP-ellipsis that applies to low coordinations, *and* in (26) coordinates vPs:

(29)



= (26)

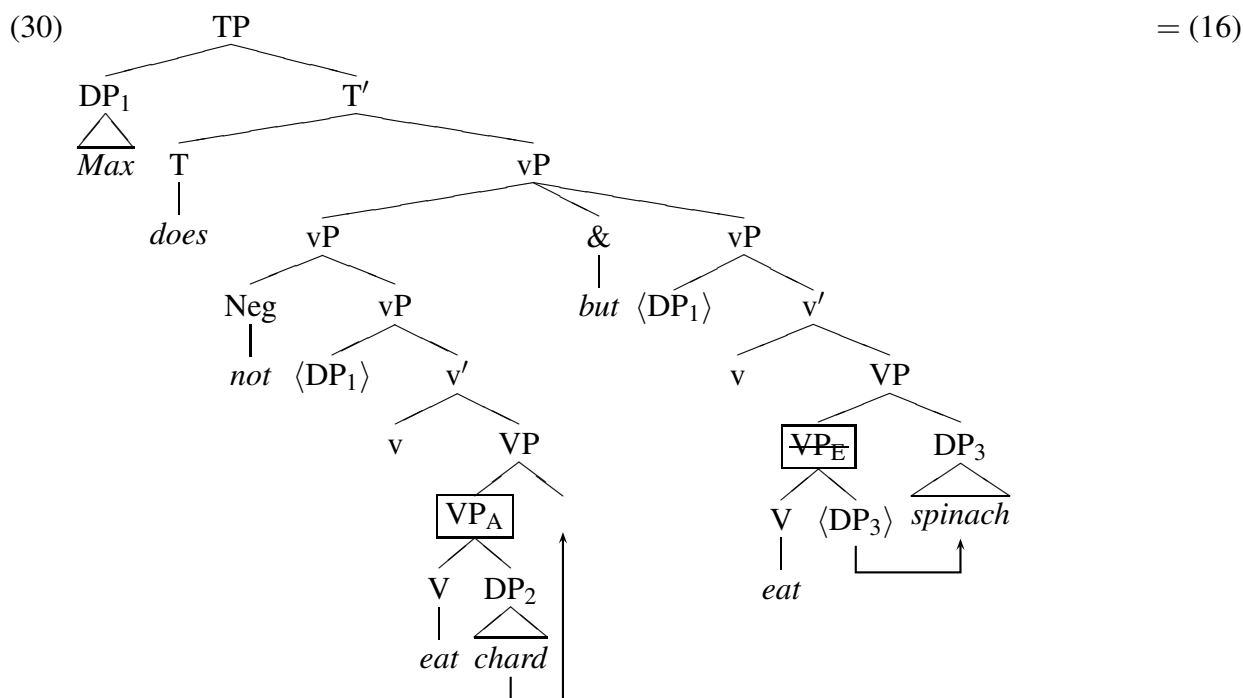


<sup>13</sup>Coppock (2001:140) offers an alternate way of doing this, relying on the fact that remnants and their correlates are focused in gapping. She invokes a clause in Merchant's (2001) definition of the eGIVENness identity constraint that allows not just unsaturated arguments to be  $\exists$ -bound but also expressions that are in focus. This gives the same result as covert movement of the correlate.

T goes missing in the second coordinate because it was never there to begin with. Additional material—including the main verb *ordered*—goes missing through VP-ellipsis. After the remnant raises out of VP<sub>E</sub>, it is deleted under identity with VP<sub>A</sub> in the first coordinate. As above, the correlate is factored out of the identity calculation through LF movement.

This ellipsis account requires the same two assumptions about subject licensing that Johnson’s across-the-board movement account does. A-movement must be immune to the Coordinate Structure Constraint, so that the subject can escape from the first coordinate into Spec-TP. And, the subject of the second coordinate must be able to be case licensed *in situ*, in Spec-vP. Since these assumptions are shared equally by the two accounts, they cannot be used to distinguish between them.

It should be clear why the ellipsis account is able to derive gapping in coordinate structures with corrective *but*. If it is deletion that is responsible for removing material in the second coordinate—not across-the-board movement—the VP of the first coordinate stays *in situ*. Thus the sentence in (16) has the following parse:



Corrective *but* coordinates two vPs, the first of which contains sentence negation. Since T is shared between the two coordinates, only the main verb in the second coordinate still has to go missing. The remnant, DP<sub>4</sub>, raises out of VP<sub>E</sub>, which is deleted under identity with VP<sub>A</sub> in the first coordinate. If the correlate, DP<sub>2</sub>, also raises covertly, then the antecedent and elided phrases are identical.

What about the four properties of gapping from §1 that distinguish it from pseudogapping? It turns out that the ellipsis account does a pretty good job of deriving most of them, as Johnson points out (p. 296–300). If gapping involves low coordination (plus VP-ellipsis), the first three properties arise for the same reasons they do under the across-the-board movement. I do not want to rehearse these arguments in full—see §2 for that. Briefly, though, gapping is restricted to coordinate structures because only when vPs are coordinated can they share a single T head. The subject of the first coordinate can, moreover, take scope over the entire second coordinate because coordination

is low, at the vP level. And, finally, the gap cannot be embedded because then it would be contained in a finite clause that could not participate in T sharing with the first coordinate.

As successful as the ellipsis account is, however, it appears to fail with the fourth and final property of gapping. Johnson argues (p. 300) that it cannot derive the fact that in gapping the antecedent clause cannot be embedded (31a), while in pseudogapping it can be (31b).

- (31) a. \*She's said Peter has eaten his peas, and Sally her green beans, so now we can have dessert.  
 b. ?She's said Peter has eaten his peas, and Sally has her green beans, so now we can have dessert. = (6)  
 (Johnson 2009:293)

If the elided VP in the second coordinate of (31b) is able to find its antecedent inside an embedded clause in the first coordinate, then the elided VP in the second coordinate of (31a) should be able to as well. For ease, I will refer to this property of gapping as the No Embedding Generalization:

- (32) *No Embedding Generalization*  
 The antecedent in gapping cannot be embedded.

Recall from §2 that the across-the-board movement account derives the No Embedding Generalization from a locality constraint on verb movement. If the antecedent were embedded, the VP of the first coordinate would have to undergo forbidden long-distance movement, from an embedded clause into the matrix clause. The ellipsis account has no recourse to this solution, since it does not invoke across-the-board movement at all. Consequently, there is nothing in the syntax of the ellipsis account that derives the ungrammaticality of (31a). It overgenerates, which Johnson thinks is a vice serious enough to damn the ellipsis account.

I argue next, however, that low coordinations have special information-structural properties. They require coordinates to have parallel focus structures, which derives the No Embedding Generalization and the contrast in (31a–b). Since an independent principle rules out (31a), the ellipsis account fares just as well as the across-the-board movement account in deriving the four properties of gapping. And ultimately, the ellipsis account is the more successful of the two, since it generates gapping in all coordination structures—even ones with corrective *but*.

## 5 Rehabilitating the ellipsis account

It is a common observation that the remnants in gapping contrast with their correlates in the first coordinate. In (33), the remnant *others* is opposed to the subject of the first coordinate *some*, and the remnant *swordfish* to the direct object *mussels*.

- (33) [SOME]<sub>F</sub> had ordered [MUSSELS]<sub>F</sub>, and [OTHERS]<sub>F</sub> [SWORDFISH]<sub>F</sub>. = (7a)

This contrast is realized phonologically as a pitch accent on each of the remnants and their correlates, which I represent with small caps. Each accent corresponds to a focus, whose extent is indicated with square brackets ([ ]<sub>F</sub>). By normal rules of accent placement (Chomsky and Halle 1968:24ff., Selkirk 1984, Schwarzschild 1999), each focus extends over the entire remnant or correlate DP.

Early on, Kuno (1976:310) described this property of gapping as follows (see also Levin and Prince 1986 and Kehler 2002:81–100):

Constituents deleted by Gapping must be contextually known. On the other hand, the two constituents left behind by Gapping necessarily represent new information and, therefore, must be paired with constituents in the first conjunct that represent new information.

Kuno draws attention to the fact that to describe contrast in gapping it is not enough to look just at the remnants and correlates. A remnant and its correlate contrast in virtue of their relationship to shared material in each coordinate.

Kuno's observation suggests the following more general principle about the information structure of low-coordination structures, which I call LOW-COORDINATE PARALLELISM:

(34) *Low-Coordinate Parallelism (informal)*

If vPs are coordinated, they must be semantically identical, modulo focus-marked constituents.

I am proposing that in low-coordination structures the coordinates must have parallel focus structures. That is, constituents that are not focused must be identical in each coordinate; only focused material can be different. Since by hypothesis gapping only occurs in low coordinations, remnants and their correlates contrast with one another when they are focused.

The gapping sentence in (33) satisfies Low-Coordinate Parallelism. It has the structure below, which is identical to the parsetree in (28) above except that the subject of the first coordinate has been returned to its base position for convenience:

(35) had [[<sub>vP1</sub> [SOME]<sub>F</sub> ordered [MUSSELS]<sub>F</sub>] and [<sub>vP2</sub> [OTHERS]<sub>F</sub> ~~ordered~~ [SWORDFISH]<sub>F</sub>]]  
= (33)

In (35),  $vP_1$  is semantically identical to  $vP_2$ , modulo focus-marked constituents. All the material that is not focused in each coordinate is the same. In  $vP_1$  and  $vP_2$ , only the main verb is not focused, and indeed the main verb *ordered* of the first coordinate is identical to the elided main verb *ordered* of the second coordinate.

We can state Low-Coordinate Parallelism more formally using Rooth's (1985, 1992b) theory of focus. He represents the position of focus in a linguistic expression through a focus meaning that exists alongside the ordinary meaning we are familiar with (produced by the interpretation function  $\llbracket \cdot \rrbracket$ ). This focus meaning—given by the function *ALT*—is a *set of alternative expressions* derived by replacing a focus-marked constituent with every expression of that type. The alternative sets for the vPs in (35)—*ALT*( $vP_1$ ) and *ALT*( $vP_2$ )—are the same, since they have the same focus structure. Both are the set of propositions of the form 'y ordered x' where  $x$  and  $y$  are individuals—or,  $\{\mathbf{order}(x)(y) \mid x, y \in D_e\}$ .

In these more formal terms, Low-Coordinate Parallelism can be restated as (36). The vPs in a low-coordination structure must be alternatives to one another:

(36) *Low-Coordinate Parallelism (formal)*

For vPs  $\alpha$  and  $\beta$ , if  $\alpha$  and  $\beta$  are coordinated,  $\llbracket \alpha \rrbracket \in ALT(\beta)$  and  $\llbracket \beta \rrbracket \in ALT(\alpha)$ .

It is clear that Low-Coordinate Parallelism is satisfied in (35). Since focus is located on parallel constituents in each coordinate,  $ALT(vP_1)$  and  $ALT(vP_2)$  are the same set of propositions, and the ordinary meanings of both coordinates are in this set. The proposition that some ordered mussels is of the form ‘y ordered x’, as is the proposition that others ordered swordfish.<sup>14</sup>

Next, in §5.1, I show that Low-Coordinate Parallelism derives the No Embedding Generalization, as stated in (32). When the antecedent is embedded, the coordinates in a low-coordination structure are not semantically identical, modulo focus-marked constituents. Pseudogapping, however, does allow its antecedent to be embedded, since it occurs in TP coordinations, which are not subject to Low-Coordinate Parallelism. But, as a general constraint, Low-Coordinate Parallelism should hold of vP coordinates even when there is no VP-ellipsis. This is indeed the case, as I show in §5.2 for cases of auxiliary gapping that involve low coordination but no ellipsis. Finally, in §5.3, I discuss how Low-Coordinate Parallelism relates to other parallelism constraints that have been proposed to license ellipsis.

## 5.1 Deriving the No Embedding Generalization

The No Embedding Generalization, as stated in (32), follows from Low-Coordinate Parallelism. Consider the ungrammatical gapping sentence in (37a), which is parallel to Johnson’s (31a) but eliminates some ambiguities that were muddying the judgments. It is very clearly degraded relative to the pseudogapping sentence in (37b), which *does* allow the antecedent to be embedded.

- (37) a. \* She has gone to check that [PETER]<sub>F</sub> eats [his PEAS]<sub>F</sub>, and [SALLY]<sub>F</sub> [her GREEN BEANS]<sub>F</sub>.  
 b. She has gone to check that [PETER]<sub>F</sub> eats [his PEAS]<sub>F</sub>, and [SALLY]<sub>F</sub> will [her GREEN BEANS]<sub>F</sub>.

Under the intended interpretation in the ungrammatical gapping sentence in (37a), the antecedent of the elided VP in the second coordinate is embedded under the predicate *gone to check*. Since this additional content is present in the first coordinate but not in the second coordinate, the coordinates are not semantically identical, modulo focus marking.

To see this more clearly, consider the structure for (37a), which contains a low-coordinate structure whose first coordinate contains the embedded antecedent (again, the subject of the first coordinate has been reconstructed for clarity):

- (38) \* has [[<sub>vP1</sub> she gone to check that [PETER]<sub>F</sub> eats [HIS PEAS]<sub>F</sub>] and [<sub>vP2</sub> [SALLY]<sub>F</sub> ~~eaten~~ [her GREEN BEANS]<sub>F</sub>]] = (37a)

Modulo the focus marking on each of the remnants and on their correlates in the embedded antecedent clause, the two coordinates are not alternatives to one another, because of the embedding predicate in the first coordinate:

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<sup>14</sup>Note that, as defined in (36), Low-Coordinate Parallelism does not suffice to ensure that the remnants and their correlates are distinct from one another. An additional condition is needed for this, which Rooth (1992b) builds into the presupposition introduced by the  $\sim$  operator responsible for interpreting focus alternatives. I will simply assume that coordinations independently require their coordinates to be distinct. If then, by (36), material that is not focused must be shared between coordinates, focused constituents will necessarily be distinct.



- (39) a.  $\llbracket \text{vP}_1 \rrbracket = \text{go-to-check}(\text{eat}(\text{his-peas})(\text{peter}))(\text{she}) \notin$   
 $ALT(\text{vP}_2) = \{\text{eat}(x)(y) \mid x, y \in D_e\}$   
 b.  $\llbracket \text{vP}_2 \rrbracket = \text{eat}(\text{her-green-peas})(\text{sally}) \notin$   
 $ALT(\text{vP}_1) = \{\text{go-to-check}(\text{eat}(x)(y))(\text{she}) \mid x, y \in D_e\}$

This is the only possible focus structure for this sentence. Because the VP of the second coordinate is elided — and elided material cannot be in focus (Romero 2000:162–164, Merchant 2001:179, Romero and Han 2004:199, Beaver and Clark 2008:176–180, Hartman 2011:371)<sup>15</sup> — there must be a narrow focus on each remnant. That means that, to satisfy Low-Coordination Parallelism, the first coordinate *must* express a proposition of the form ‘y eats x’. But it does not.<sup>16</sup>

Now for pseudogapping: When it even occurs in a coordination structure, it must be in a coordination of at least of TPs, since T surfaces overtly in the clause that undergoes ellipsis. Since Low-Coordinate Parallelism only applies to low coordinations, it is simply not relevant for pseudogapping. The coordinates of the TP coordination in (37b) can be nonparallel, in precisely the way they are when the antecedent is embedded:

- (40) has  $\llbracket [\text{TP}_1 \text{ she gone to check that } [\text{PETER}]_F \text{ eats } [\text{HIS PEAS}]_F \text{ and } [\text{TP}_2 [\text{SALLY}]_F \text{ will eat } [\text{her GREEN BEANS}]_F] \rrbracket = (37b)$

TP<sub>1</sub> and TP<sub>2</sub> are *not* semantically identical, modulo focus-marked constituents. But since Low-Coordinate Parallelism does not apply, the pseudogapping sentence is grammatical.

We see the information-structural effects of Low-Coordinate Parallelism everywhere, not just when the antecedent is embedded. When the coordination structure is not parallel in other ways, as in (41–42), gapping is ungrammatical. In the gapping sentences in the first of B’s utterances below, Low-Coordinate Parallelism is not satisfied:

- (41) A: Did the students check on what’s in the oven?  
 B1: \*The cupcakes were ready so they took them out, but (either)  $[\text{JOHN}]_F$  didn’t test  $[\text{the CAKE}]_F$  or  $[\text{MARY}]_F$   $[\text{with a TOOTHPICK}]_F$ .  
 B2: The cupcakes were ready so they took them out, but (either)  $[\text{JOHN}]_F$  didn’t test  $[\text{the CAKE}]_F$  or  $[\text{MARY}]_F$  did  $[\text{with a TOOTHPICK}]_F$ .  
 (42) A: I can’t keep up with kids! What are they going to be up to next?  
 B1: \*Don’t worry!  $[\text{SALLY}]_F$  will  $[\text{take a NAP}]_F$ , and  $[\text{JOE}]_F$   $[\text{after LUNCH}]_F$ .  
 B2: Don’t worry!  $[\text{SALLY}]_F$  will  $[\text{take a NAP}]_F$ , and  $[\text{JOE}]_F$  will  $[\text{after LUNCH}]_F$ .

In B1 in (41), for example, a focus-marked constituent in the first coordinate corresponds to material that is inside the elided VP in the second coordinate:

- (43) \*didn’t  $\llbracket [\text{vP}_1 [\text{JOHN}]_F \text{ test } [\text{the CAKE}]_F \text{ or } [\text{vP}_2 [\text{MARY}]_F \text{ ~~test the cake~~ } [\text{with a TOOTHPICK}]_F] \rrbracket = (41B1)$

<sup>15</sup>There are, of course, Kratzer’s (1991) famous Tanglewood examples, where a focus bound by *only* appears to go missing through VP-ellipsis. But Beaver and Clark (2008:106–115) argue that these examples might not involve deletion of a focused element at all.

<sup>16</sup>One might worry that VP-ellipsis is impossible in (37a) simply because the elided verb bears participial inflection, while its antecedent bears present tense inflection. But it is well known that ellipsis allows such mismatches in verbal inflection: e.g. *Their daughter went to Europe, and their son will, too*.

Again, assuming that deleted material cannot be focused, the vP coordinates do not satisfy Low-Coordinate Parallelism, since modulo focus-marked constituents they are not semantically identical. In particular, the proposition that Mary tested the cake with a toothpick is *not* a proposition of the form ‘y tested x’—so,  $\llbracket \text{vP}_2 \rrbracket \notin \text{ALT}(\text{vP}_1)$ .

Crucially, the pseudogapping sentences in (41–42), which are only minimally different from their gapping counterparts, *are* grammatical. In B’s second utterances, the coordinates are unbalanced, as expected because coordinations of TPs are not subject to Low-Coordinate Parallelism.

It is sometimes observed that pseudogapping might require its remnants to contrast with their correlates, just like gapping (see Jayaseelan 1990:65). But (41–42) show that it is simply not the case that pseudogapping and gapping both require parallel focus structures. Low-Coordinate Parallelism holds only of low-coordination structures, and this is why only gapping does not permit its antecedent to be embedded.

## 5.2 No embedding—except when there is

Low-Coordinate Parallelism should hold equally of all low-coordination structures, including ones to which VP-ellipsis does *not* apply. So, for instance, the underlying source of (37a) without deletion should be just as bad as it is. Indeed, B’s answer in (44) is ungrammatical under the intended interpretation (she has gone to check that Peter eats peas, and Sally has eaten her green peas).

- (44) \* She has gone to check that [PETER]<sub>F</sub> eats [his PEAS]<sub>F</sub>, and [SALLY]<sub>F</sub> eaten [her GREEN BEANS]<sub>F</sub>.

As with (37a), matrix T in (44) is shared across two vP coordinates, though nothing else goes missing. VP-ellipsis does not apply to the second coordinate, making this example parallel to the auxiliary gapping sentence in (7b). This sentence violates Low-Coordinate Parallelism and is ungrammatical for exactly the same reason that (37a) is:

- (45) \* has  $\llbracket \text{vP}_1 \text{ she gone to check that [PETER]_F \text{ eats [HIS PEAS]}_F \rrbracket$  and  $\llbracket \text{vP}_2 \text{ [SALLY]}_F \text{ eaten [her GREEN BEANS]}_F \rrbracket$  = (44)

The vP coordinates must have parallel focus structures. But they do not since the first coordinate contains the embedding predicate *gone to check*.

Notice that, strictly speaking, there is no antecedent in (44). By the definition in §2, the string in (44) is an instance of auxiliary gapping where only T, and nothing else, goes missing. But since VP-ellipsis does not apply in the second coordinate, the VP of the first coordinate does not actually antecede anything. Since (44) is ungrammatical, this means that the No Embedding Generalization has been stated incorrectly. It does not actually matter whether the *antecedent* is embedded. Rather, gapping does not allow for the *correlates* to be embedded under material that is only present in the first coordinate:

- (46) *No Embedding Generalization (revised)*  
The correlate(s) in gapping cannot be embedded.

As we saw above, Low-Coordinate Parallelism is able to derive this revised generalization. It is violated when there is non-focused material that just embeds the correlate(s) in the first coordinate—regardless of whether VP-ellipsis applies in the second coordinate or not.

Of course, this predicts that if the extra material in the first coordinate could be focused—that is, made part of a correlate—it should be possible to ‘embed the antecedent,’ so to speak. The focus structure of (37a) was fixed because VP-ellipsis in the second coordinate limits what can be in focus. But since the VP of the second coordinate in (44) is not deleted, there is in fact another focus structure available that makes this string grammatical. The pitch accents on the object DPs *his peas* and *her green beans* can, by regular rules of accent assignment, correspond to broader foci on the largest verb phrase in each coordinate, as if the sentence were answering the question *Who has done what?*<sup>17</sup>

- (47) [SHE]<sub>F</sub> has [gone to check that Peter eats his PEAS]<sub>F</sub>, and [SALLY]<sub>F</sub> [eaten her GREEN BEANS]<sub>F</sub>.

(47) is grammatical with the interpretation that is missing in (37a) and (44)—she has gone to check that Peter eats his peas, and Sally ate her green beans.

The grammaticality of (47) falls out from Low-Coordinate Parallelism. By shifting focus in this way, the embedding predicate in the first coordinate is contained inside a correlate, so that the two coordinates end up being semantically identical, modulo focus-marked constituents (in fact, there is no non-focused material in either coordinate):

- (48) has [[<sub>VP1</sub> [SHE]<sub>F</sub> [gone to check that Peter eats his PEAS]<sub>F</sub>] and [<sub>VP2</sub> [SALLY]<sub>F</sub> [eaten her GREEN BEANS]<sub>F</sub>]] = (47)

To satisfy Low-Coordinate Parallelism, each coordinate must be of the form ‘ $x f$ ’, where  $x$  is an individual and  $f$  is a predicate. It is easy to verify that this is indeed the case in (48).

The ungrammaticality of (44) and its contrast with (47) is particularly striking, because the across-the-board movement account has nothing to say about either fact. Recall that Johnson argues that the antecedent in gapping cannot be embedded since VP raising from inside the first coordinate would have to be nonlocal. This does not explain why (44) is bad, though since its derivation would not even involve across-the-board movement. And, it does not help to explain why there should be a contrast with (47), since both sentences have the same syntactic structure.

Rather, it is the focus structure of gapping sentences that matters. The revised No Embedding Generalization makes this clear. It is correlates—not antecedents—that cannot be embedded under material only present in the first coordinate. Low-Coordinate Parallelism derives the No Embedding Generalization, both when gapping involves VP-ellipsis and when it does not.

### 5.3 Parallelism and ellipsis licensing

Parallelism plays an important role in licensing VP-ellipsis and other elliptical constructions. For canonical cases of VP-ellipsis, Rooth (1992a) proposes that a one-way partial redundancy relation holds between the antecedent clause and the clause containing the elided VP. The antecedent clause must be an alternative to the clause containing ellipsis (see also Fox 1999 and Takahashi and Fox 2005):

- (49) For an elided VP  $\alpha$  contained in a clause  $\gamma$ , there must be an antecedent clause  $\beta$  such that  $\llbracket \beta \rrbracket \in ALT(\gamma)$ .

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<sup>17</sup>I thank David Pesetsky (p.c.) for this observation.

Among other things, the constraint in (49) accounts for scopal parallelism in VP-ellipsis. As Hirschbühler (1982) observes, a quantifier contained inside the elided VP can take inverse scope over a quantifier located outside of it. But whatever scope the quantifier takes in the clause with VP-ellipsis, its counterpart in the antecedent clause must do so as well. This parallelism follows from the constraint in (49).

When VP-ellipsis occurs in a low coordination—as I have argued it does in gapping—Low-Coordinate Parallelism ensures that the constraint in (49) is satisfied, since it imposes an even stricter parallelism requirement between the vP coordinates dominating the elided VP and its antecedent. This is a *two-way* redundancy relation between coordinates. Low-Coordinate Parallelism requires, not just that the first coordinate be an alternative to the second coordinate, but also that the second coordinate be an alternative to the first coordinate.

Such a two-way redundancy relation has been proposed for gapping for independent reasons. Rooth (1992b:102–107) observes that the interpretation of a gap can vary with the position of focus in the *antecedent* clause:

- (50) a. [MOM]<sub>F</sub> wants her to choose [ME]<sub>F</sub>, and [DAD]<sub>F</sub> [SUE]<sub>F</sub>.  
 b. [MOM]<sub>F</sub> wants [HER]<sub>F</sub> to choose me, and [DAD]<sub>F</sub> [SUE]<sub>F</sub>. (Rooth 1992b:98)

The second coordinate of (50a) conveys that Dad wants her to choose Sue, while the second coordinate of (50b) conveys that Mom wants *Sue* to choose *me*. Under the ellipsis account of gapping, these two different interpretations arise from different underlying structures:

- (51) a. T [[<sub>VP1</sub> [MOM]<sub>F</sub> wants her to choose [ME]<sub>F</sub>] and [<sub>VP2</sub> [DAD]<sub>F</sub> ~~wants her to choose~~ [SUE]<sub>F</sub>]] = (50a)  
 b. T [[<sub>VP1</sub> [MOM]<sub>F</sub> wants [HER]<sub>F</sub> to choose me] and [<sub>VP2</sub> [DAD]<sub>F</sub> ~~wants~~ [SUE]<sub>F</sub> ~~to choose~~ ~~me~~]] = (50b)

If VP-ellipsis in the second coordinates of these examples were solely constrained by the weaker parallelism constraint in (49), the position of focus in the first coordinate could not influence what went missing in the second coordinate. For instance, in (51a), the first coordinate (<sub>VP1</sub>) is an alternative to the second coordinate (<sub>VP2</sub>) regardless of where focus is located:

- (52)  $\llbracket \text{VP}_1 \rrbracket = \text{want}(\text{choose}(\text{me})(\text{her}))(\text{mom}) \in$   
 $ALT(\text{VP}_2) = \{\text{want}(\text{choose}(x)(\text{her}))(y) \mid x, y \in D_e\}$

Low-Coordinate Parallelism, however, ensures redundancy in the other direction as well. The second coordinate must be an alternative to the first coordinate:

- (53)  $\llbracket \text{VP}_2 \rrbracket = \text{want}(\text{choose}(\text{sue})(\text{her}))(\text{dad}) \in$   
 $ALT(\text{VP}_1) = \{\text{want}(\text{choose}(x)(\text{her}))(y) \mid x, y \in D_e\}$

If any other material had gone missing in the second coordinate or if focus had been located elsewhere in the first coordinate, Low-Coordinate Parallelism would not be satisfied. If the first coordinate had instead been: [MOM]<sub>F</sub> wants [HER]<sub>F</sub> to choose me, its focus meaning would be  $\{\text{want}(\text{choose}(\text{me})(x))(y) \mid x, y \in D_e\}$ , a set that  $\llbracket \text{VP}_2 \rrbracket$  is *not* a member of.

I have argued that low coordinations have special information-structural properties. Low-Coordinate Parallelism requires that vP coordinates have parallel focus structures. We saw the

effects of this constraint in the No Embedding Generalization. We also saw it produce the semantic variability of gapping sentences with the position of focus. What remains now is to explain why Low-Coordinate Parallelism exists. I make some speculations in §7, but I leave that mostly for the future.

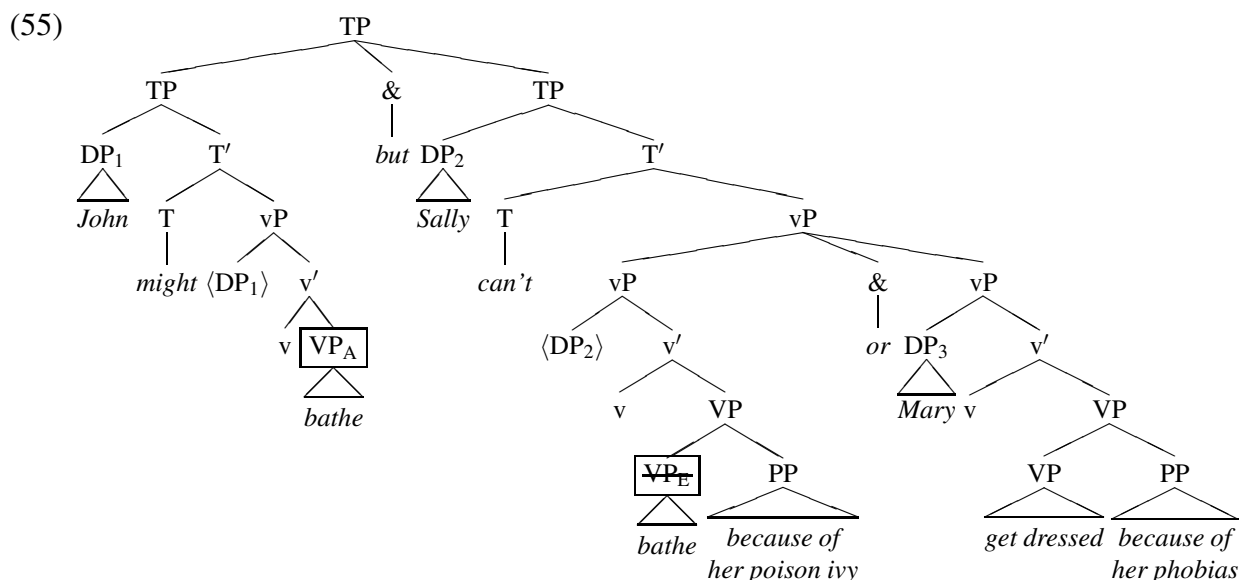
## 6 Another potential vice

Before concluding, there is another potential vice that Johnson identifies for the ellipsis account. If additional material in gapping goes missing through VP-ellipsis, then any VP—including an elided one—should be able to serve as its antecedent. He argues, however, that this is not possible with the following examples:

- (54) a. John might bathe, but Sally can't get wet because of her poison ivy or Mary get dressed because of her phobias, so we may as well give up.  
 b. \*John might bathe, but Sally can't because of her poison ivy or Mary get dressed because of her phobias, so we may as well give up.

(Johnson 2009:301f.)

We are interested in the last two clauses in (54a–b) coordinated by *or*. The VP of the final coordinate has been elided. When its antecedent in the medial coordinate is pronounced, as in (54a), the sentence is grammatical. But when the antecedent itself is elided under identity with the VP of the first coordinate, as in (54b), it becomes ungrammatical:



That is, gapping appears to destroy the environment for VP-ellipsis. Johnson finds this surprising under the ellipsis account since with canonical cases of VP-ellipsis the antecedent of an elided VP can itself be another elided VP. Consequently, he writes (p. 304), ‘that VP-ellipsis cannot be what is responsible for eliding the main verb in gapping.’

I do not think that the ungrammatical sentence in (54b), in fact, tells us anything about the proper analysis of gapping. In the auxiliary gapping in the final coordinate, only T goes missing.

Since this happens in the same way under both the across-the-board movement and ellipsis accounts — though low coordination — both accounts assign (54b) the same structure in (55). No additional operations apply. This means that whatever explanation one offers for the ungrammaticality of (54b) under one analysis, it should, in principle, extend to the other.

Johnson offers an explanation for the ill-formedness of (54b) that relies on certain assumptions about how VP-ellipsis is licensed. Namely, ‘an elided VP must be located in the specifier of a licensing X’ (p. 308), where X in English can be the Pred functional head located just outside a vP coordination. This is a way of implementing Lobeck’s (1995) proposal that VP-ellipsis is licensed by a T head that is in construction with the elided phrase. With this assumption, the VP of the medial coordinate in (54b) cannot be elided, since it would have to raise out of the first coordinate, resulting in a violation of the Coordinate Structure Constraint. This argument does not, however, directly distinguish between the ellipsis and across-the-board movement accounts of gapping, since both assign (54b) the same structure.<sup>18</sup>

I would like to suggest another reason gapping destroys the environment for VP-ellipsis — namely, Low-Coordinate Parallelism. As we have seen, VP-ellipsis can eliminate some of the possible focus structures for a string, because deleted material cannot be in focus. I repeat the coordination with *or* from (54b) as B’s answer in (56). The first coordinate, which serves simply to provide an antecedent for VP-ellipsis in the second coordinate, is uttered by A.

- (56) A: John might bathe.  
 B: \* [SALLY]<sub>F</sub> can’t [because of her poison IVY]<sub>F</sub> or [MARY]<sub>F</sub> [get DRESSED]<sub>F</sub> [because of her PHOBIAS]<sub>F</sub>.

B’s answer in (56) is ungrammatical because there can be no focus on the deleted VP in the first coordinate, even though there is one on the VP of second coordinate. The result is that Low-Coordinate Parallelism is not satisfied:

- (57) \* can’t [[<sub>vP1</sub> [SALLY]<sub>F</sub> ~~bathe~~ [because of her poison IVY]<sub>F</sub>] or [<sub>vP2</sub> [MARY]<sub>F</sub> [get DRESSED]<sub>F</sub> [because of her PHOBIAS]<sub>F</sub>]] = (56B)

To my ear, the VP of the second coordinate must be focused, because it contrasts with the VP *bathe* found in A’s utterance, as well as with the elided VP in the first coordinate. As a result, the sentence is infelicitous, since the coordinates are not semantically identical, modulo focus-marked constituents. In particular, [<sub>vP2</sub>] is not a member of  $ALT(vP_1)$ : **get dressed(mary)**  $\notin$  {**bathe**(*x*) | *x*  $\in$  *D<sub>e</sub>*} (abstracting away from the reason clauses).

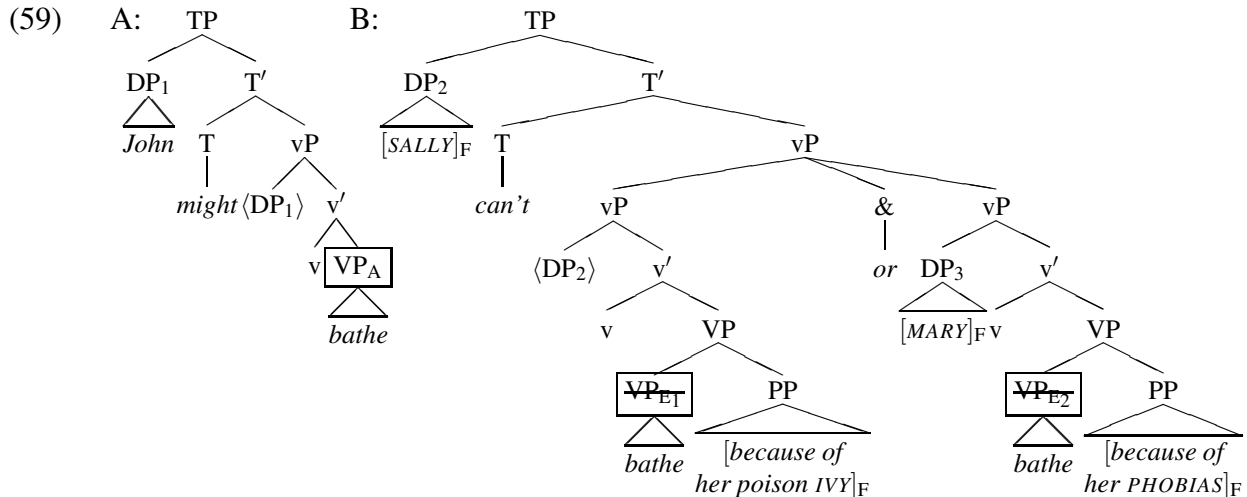
As Johnson observes (p. 311), (56) improves when additional material is removed from the gapped clause. When the VP also goes missing in the second coordinate, the sentence is fully grammatical:

- (58) A: John might bathe.  
 B: [SALLY]<sub>F</sub> can’t [because of her poison IVY]<sub>F</sub> or [MARY]<sub>F</sub> [because of her PHOBIAS]<sub>F</sub>.

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<sup>18</sup>There is a larger incompatibility between Johnson’s explanation for the ungrammaticality of (54b) and the ellipsis account of gapping. If, as Johnson assumes, VP-ellipsis must be licensed through movement of the elided VP to the specifier of a functional projection located outside the vP coordination, there is no way that additional material in a gap could go missing through VP-ellipsis, since this would involve asymmetrical extraction of the elided VP from the second coordinate.

The problem in (56) does not arise in (58). Regardless of how the additional material goes missing in the gap—whether through VP-ellipsis or through across-the-board movement—the coordination satisfies Low-Coordinate Parallelism. For the sake of argument, assume that the main verb in the second coordinate of B’s answer goes missing through VP-ellipsis, as I would have it:



Because both  $VP_{E1}$  in the first coordinate and  $VP_{E2}$  in the second coordinate have been deleted under identity with  $VP_A$ , neither is in focus. Consequently, modulo focus-marked constituents, both coordinates are semantically identical.

This understanding of why gapping destroys the environment for VP-ellipsis finds additional support in other types of verb-phrase anaphora, which are degraded when they occur in the first coordinate of a gapping structure:<sup>19</sup>

- (60) A: John might bathe.  
 B: ?\*  $[SALLY]_F$  can't do so  $[because of her poison IVY]_F$  or  $[MARY]_F$   $[get DRESSED]_F$   $[because of her PHOBIAS]_F$ .

The VP of the first coordinate of B’s utterance in (60) is the verb-phrase anaphor *do so*, which has its antecedent the VP of A’s utterance. Since this VP is given and is not focus-marked, this low-coordination also does not satisfy Low-Coordinate Parallelism and to my ear is severely degraded, if not ungrammatical. Just as with (56), the second vP coordinate is not an alternative to the first vP coordinate.

In the end, this potential vice of the ellipsis account turns out to be a vice for any account of gapping that makes use of low coordination, including Johnson’s across-the-board movement account. While he proposed that gapping destroys the environment for VP-ellipsis by making an assumption about how VP-ellipsis is licensed (through movement), I gave an alternative solution that reduces it to Low-Coordinate Parallelism, the information-structural constraint that I proposed in the previous section. Since gapping requires low coordination in both the across-the-board movement and ellipsis accounts, it should work for whichever theory ultimately ends up being the right one.

<sup>19</sup>I am grateful to Kyle Johnson (p.c.) for pointing this out.

## 7 Summary and future prospects

Johnson (2009) argues that the gap in gapping is not produced by deletion because it has certain properties that canonical cases of VP-ellipsis do not. He instead proposes that gapping arises through the combination of two other mechanisms—low coordination and across-the-board movement—which conspire to give rise to the unique properties of gapping. I have argued, however, that the across-the-board movement account cannot be a general theory of gapping since it is unable to derive the gap in all coordinate structures. In particular, since a negative element only takes scope inside the first coordinate of corrective *but*, a gap in its second coordinate cannot arise through across-the-board movement. Moving the VP from each coordinate to a position outside the coordination would incorrectly place the main verb to the left of the negative element.

I proposed that gapping is VP-ellipsis in low coordinations. Since the material that goes missing does so *in situ*—through deletion—nothing more needs to be said to derive gapping with corrective *but*. The negative element in the first coordinate will always correctly be ordered before the main verb. The ellipsis account also does a pretty good job of deriving most of the unique properties of gapping, since like the across-the-board movement account it takes advantage of low coordinations. If T is shared between vP coordinates in gapping, then it will automatically be restricted to coordinate structures; the subject of the first coordinate will take scope over other coordinates; and, it will be impossible to embed the gap.

Johnson argues that the ellipsis account faces an insurmountable problem with the fourth property of gapping. I proposed, though, that the antecedent in gapping cannot be embedded because of an information-structural property of low coordinations. When vPs are coordinated, both coordinates must have parallel focus structures, a constraint I call Low-Coordinate Parallelism. If the correlates in the first coordinate are embedded, the low coordinates will not be semantically identical, modulo focus-marked constituents, and the sentence is ungrammatical.

The result is a unified view of VP-ellipsis, encompassing both pseudogapping and gapping. Canonical VP-ellipsis is found in clauses that are not coordinated. The same operation in a TP coordination produces pseudogapping. Deletion of VP in a vP coordination produces gapping. It might seem problematic that gapping does not behave like pseudogapping. But the unique properties of gapping do not arise solely from the operation that creates the gap. Equally important is the syntactic environment where this deletion occurs—low coordinations—and the information-structural consequences this has.

So rather than asking where the gap in gapping comes from, we might ask why vP is privileged in this way. Why do low coordinations require their coordinates to have parallel focus structures? I do not have an answer to this question, but I suspect that Low-Coordinate Parallelism might derive from basic question-answer congruence. Assuming that every assertion is the answer to a question, as in Roberts' (1996, 2004) question-under-discussion framework for modeling discourse, Low-Coordinate Parallelism can be restated in terms of how low coordinates address questions. Say that vP coordinate must answer the same question. Since answers must be congruent to a question, vP coordinates will have parallel focus structures, because they answer the same question.

Low coordinations might have to answer the same question as a corollary of how temporal interpretation works. In a (neo-)Reichenbachian system such as Klein's (1994), tense functions to specify a relation between the time of utterance and a topic time. This topic time is provided by the discourse context, and more specifically by the question. As Klein puts it, 'an introductory



question. . .not only fixes a time to be talked about—the topic time; usually, it also introduces an object, or a place to be talked about’ (p. 39). It follows that, if tense is conveyed by T and a sentence contains a single T head, the sentence will make reference to only one topic time, and hence will answer only one question. When vPs are coordinated under a single T head, then, there can be but a single question for each coordinate to answer.<sup>20</sup>

Of course, there are a couple of questions that arise immediately.<sup>21</sup> First, gapping is possible in embedded clauses, as in (61). But if low coordinations must answer a single question, what question is it that this low coordination answers in its embedded position?

(61) Do you think that Obama will win Ohio, and Romney Florida?

Second, Jackendoff (1971) observes that gapping is apparently also able to operate in DPs, as in (62).

(62) Bill’s story about Sue and Max’s about Kathy both amazed me. (Jackendoff 1971:27)

Presumably, this should involve low coordination in the nominal domain with the same information-structural restrictions. But since DPs do not express propositions, what kind of question would these answer?

Clearly, there remains much work to figure out exactly what Low-Coordinate Parallelism is. But I hope to have shown that there is nothing wrong with the ellipsis account of gapping. It derives three of the unique properties of gapping. And, the No Embedding Generalization falls out from the information-structural properties of low coordinations. When VP-ellipsis applies to a low coordination, the antecedent clause cannot be embedded, since the coordinates fail to be semantically identical, modulo focus-marked constituents.

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<sup>20</sup>Hartmann (2000:156–161) hints that gapping might be subject to a similar constraint.

<sup>21</sup>I thank Kyle Johnson (p.c.) for raising these issues with me.

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