Gapping is Deletion of a Prosodic Constituent Licensed by Syntactic Identity

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Abstract

All of the peculiar properties of English gapping fall out from an analysis with the following four characteristics: (1) The missing material in the gapped clause is missing as the result of an ellipsis process. (2) The pronounced remnants in the gapped clause are in situ and have not moved. (3) The ellipsis process in the gapped clause is licensed by syntactic identity of selecting heads. (4) What is elided is prosodically non-prominent material in the first two phonological phrases of the second conjunct, and not a syntactic constituent. Unexpected wide scope for modals and negation comes from across the board quantifier raising that is enabled by the deletion that takes place in gapping.

1 Introduction

Gapping (Ross 1970) is a phenomenon that occurs in coordinations where material is missing from the second and possibly subsequent conjuncts, as in the following attested example:

(1) Some prefer inkjets and others — laser printers.

The gapped clause has two (and sometimes more) pronounced remnants, one that occurs at the left edge of its clause (typically a subject, here *others*), and the other later in the clause (here, *laser printers*). Material in between is missing, in this example *prefer*.

There is no shortage of analyses of gapping. However, none of them explains all of its peculiar properties. In this paper, I argue that an analysis of gapping with the following four characteristics is capable of explaining all of the known properties of gapping, as well as some novel observations:

1. The missing material in the gapped clause is missing as the result of an ellipsis process.
2. The pronounced remnants in the gapped clause are in situ and have not moved.
3. The ellipsis process in the gapped clause requires syntactic identity of selecting heads.
4. What is deleted is not a syntactic constituent, but a prosodic one: all of the first two phonological phrases except the heads of those phrases.

Some of these claims have been defended before. Ellipsis has been proposed by, among others, Sag (1976), Jayaseelan (1990), Hartmann (2000), Coppock (2001), Lin (2002b), Murphy (2016), Potter et al. (2017). There are two prominent counter positions, the first being across-the-board (ATB) movement (Johnson 2009), and the second being that the gapped clause contains nothing but the remnants (Sag et al. 1985, Steedman 1990, Culicover & Jackendoff 2005, 2019, Abeillé et al. 2014, Kubota & Levine 2016). I will give arguments for the ellipsis position. Most versions of the ellipsis analysis have the remnants move out of the constituent that is elided (e.g., Jayaseelan 1990, Coppock 2001, Lin 2002b, Potter et al. 2017). The ATB movement analysis also has movement of the remnants. I will argue that the remnants are in situ, in their normal positions in the clause, adding to arguments given by, among others, Culicover & Jackendoff (2005), Kubota & Levine (2016). Given that the remnants have not moved, it is impossible for the deleted material to be viewed as a syntactic constituent. In the fourth pillar of the analysis, I claim that what is deleted is a prosodic constituent. This was also proposed by Hartmann (2000), but I give arguments for this position from the English Rhythm Rule. (The importance of prosody to gapping has long been recognized; see Kuno 1976, Sag 1976, Hartmann 2000, Fery & Hartmann 2005, Winkler 2005, 2019.)

As for the third pillar of the analysis, the identity requirement, it is novel, although it has precursors. The closest are the syntactic identity condition proposeds by Chung (2013) and Rudin (2019) for sluicing. I will show that alternatives to a syntactic identity condition, in particular semantic, morphological, and phonological conditions, do not work, and that syntactic identity is both necessary and sufficient. There is no need to appeal to a focus condition like that of Rooth (1992), as both Reich (2007) and Toosarvandani (2016) proposed for gapping, and doing so leads to incorrect expectations. The proposed syntactic condition, while requiring that all deleted material match something identical in the antecedent, does not require that everything in the antecedent have a correspondent in the gapped clause, and so non-selected adverbs and negation can be missing from the gapped clause.

In section 2 I lay out the motivation for the four pillars of the analysis. They are ordered with the prosodic one last so that I can give relevant background on prosody before establishing that what is deleted is a prosodic constituent. Section 3 then turns to formalizing the analysis. In order to do that, some further background on the size of the conjuncts and the limits of deletion are necessary. Section 4 then goes through all of the known properties of gapping that have not already been explained and shows how the analysis accounts for them. Section 5 discusses the only property of gapping that does not follow from the analysis, namely, the ability of modals and negation to take wide scope in gapping. This section proposes that exceptional wide scope arises from ATB quantifier raising (QR) that is made possible by the deletion that takes place in gapping. This proposal makes a novel prediction regarding NPI licensing, which I show is upheld. All in all, the proposed analysis of gapping is shown to be the most successful to date.

An important consequence of this work is the claim that a deletion process can make simultaneous reference to syntax and to prosody. What is deleted is a prosodic unit, but what licenses that deletion is a syntactic condition stated over syntactic heads.

2 The Four Pillars of the Analysis

This section motivates the four pillars of the analysis. It also gives some background on prosody that is necessary for motivating the fourth claim.

2.1 First Pillar: Ellipsis

I will start by dismissing analyses that have no syntactic structure in the gapped clause other than the pronounced remnants. Analyses of this sort include Sag et al. (1985), Steedman (1990), Culicover & Jackendoff (2005, 2019), Abeillé et al. (2014), Kubota & Levine (2016). These analyses are inadequate because recent work on ellipsis has found that the elided material has effects. Colley & Bassi (2022) and Wu (2025) show that elided material is treated as though it were present for prosody.[1] Bruening et al. (2025) show that the phonological form of an elided verb is activated in VP ellipsis even when that form is not present in the antecedent. These findings indicate that there is full syntactic structure present in ellipsis, and this syntactic structure includes lexical and prosodic information. Note that these findings also rule out analyses where ellipsis includes full syntactic structure but no lexical items, as in for instance Murphy (2016), Arregi & Pietraszko (2021), Saab (2022). I conclude that the right account of ellipsis in all its forms includes complete syntactic and lexical content for the elided material, lacking only pronunciation. As I will now argue, gapping is a form of ellipsis, and so it must have this character, too.

The only other alternative to ellipsis in the literature is the ATB movement account proposed by Johnson (2009, as well as earlier unpublished work; there is also a sideward movement version of it in Winkler 2005). This analysis has been heavily criticized (Vicente 2010, Kubota & Levine 2016), and I will not rehash all those arguments here. Instead I will present what I believe are the strongest arguments against ATB (or sideward) movement and for ellipsis.

First, gapping behaves like ellipsis in a number of respects. Coppock (2001) shows that gapping freezes scope in the same way as VP ellipsis, and it obeys the same constraint as VP ellipsis on the interpretation of pronouns as strict versus sloppy. While these similarities are suggestive, Johnson (2009) addresses both facts within the ATB movement theory, and so one might not take them to be conclusive.

However, one strong argument for ellipsis and against ATB movement comes from the possibility of vehicle change (Fiengo & May 1994). Vehicle change is possible in gapping (Frazier 2015):[2]

(2) a. Bill explained Mandy's theory to Professor Smith, and she to Professor Jones.
b. The art teacher showed Sandy's painting to her parents, and she to her boyfriend.

If the gapped material were pronounced, it would have the pronoun *she* c-commanding an R-expression, which would be a Condition C violation.

Condition C is not the best phenomenon for comparison with ATB movement, because movement can also circumvent Condition C (Leddon & Lidz 2006, Adger et al. 2017, Bruening & Al

[1] Note that Colley & Bassi (2022) call the data they examine "gapping," but it is not gapping, it is non-constituent coordination aka left edge ellipsis. In gapping, material between two remnants is missing; in non-constituent coordination/left edge ellipsis material at the left edge is missing. The two have different properties, some of which will come up in the text (for instance, left edge ellipsis allows argument structure mismatches, whereas gapping does not).

[2] Abeillé et al. (2014) show that clitics in French and Romanian can undergo vehicle change in gapping.

Khalaf 2019). However, we can also see vehicle change in gapping where an NP that is not a local anaphor can behave like one in the gapped clause:

(3) She blames him for every problem, and he for none of them.

In (3), the missing material must be *blames himself*, although the antecedent has *blames him*. The antecedent can also have *himself* while the gapped clause has to have *herself*:

(4) John shouldn't make himself a martini and Mary a gimlet. (make herself; Frazier 2015: 87, (167))

This sort of behavior is not possible in ATB movement:

(5) a. * To her$_1$ James sent a secret missive and she$_1$ shipped a nuclear detonator.
b. * To himself, James sent the secret blueprints and Samantha mailed the video footage.

In (5a), the pronoun in the ATB-moved PP cannot be interpreted as a local anaphor in the second conjunct. As for gender mismatches like that in (4), it is absolutely impossible to interpret (5b) to mean that Samantha mailed the video footage to herself. Vehicle change involving reflexives therefore does not appear to be possible in ATB movement the way it is in gapping (and ellipsis generally). Given these facts, gapping clearly behaves like ellipsis, and not like ATB movement.

Gapping also behaves like ellipsis and not movement with regard to CP complements. In ellipsis, CPs can be remnants when a verb or preposition that selects NPs and not CPs is elided (Merchant 2004, Arregi 2010), and this is true of gapping:

(6) a. I reject the category-less root hypothesis, and you that nouns and verbs are the same category.
b. You reject *(the claim/hypothesis) that nouns and verbs are the same category.

(7) a. Your formulation of the rule captures the observed behavior of neutrinos, and mine that they do not behave otherwise.
b. My formulation of the rule captures *(the fact) that they do not behave otherwise.

(8) a. We are talking about the federal funding situation, and they that it is still not resolved.
b. They are talking about *(the fact) that it is still not resolved.

CPs can also be remnants when a verb that selects only a CP and not an NP is elided (Bruening & Al Khalaf 2020), and this is also true of gapping:

(9) a. She is hoping that she will win, and he that she will not.
b. He is hoping {that she will win/*a win}.

(10) a. She is boasting that she won the Pulitzer Prize, and he that he won the Nobel Prize.
b. He is boasting {that he won the Nobel Prize/*winning the Nobel Prize}.

Ellipsis thus behaves differently from movement. In leftward movement, CPs can only be related to positions where NPs are licensed (Higgins 1973, Kuno 1973, Kaplan & Bresnan 1982, Postal 1994, Bresnan 1995, Alrenga 2005, Takahashi 2010), while in rightward movement, they

can only be related to positions where CPs are licensed (Bruening 2018a). In the ATB movement analysis in Johnson (2009), all of the remnants appear to be moving rightward. We would therefore expect CPs to only be able to be related to positions where CPs are licensed, contrary to fact. (For an analysis of the behavior of CPs in ellipsis that is compatible with the current analysis of gapping, see Bruening & Al Khalaf 2020, Bruening 2025c.)

Finally, gapping behaves like ellipsis and not like ATB movement in that it permits extraction out of the elided material. Consider the following example:

(11) Who do some people consider *t* to be good with children, and others clever with pictures? (based on Vicente 2010: (6b))

In this example, the wh-phrase is extracted in an across the board fashion from both conjuncts. In the second one, it is part of the gapped material (*consider* t *to be*). In the ATB movement theory, the wh-phrase would have to be part of the ATB-moved phrase, from which it would subsequently extract. However, extraction from an ATB-moved phrase is not possible:

(12) * Which university did you say that, get into *t*, she might but he certainly won't?

In every way, gapping behaves like ellipsis, and not like ATB movement. Ellipsis is therefore the first pillar of the analysis proposed here.

2.2 Second Pillar: Remnants are in Situ

Most versions of ellipsis analyses of gapping have the remnants move out of the constituent that is elided (Jayaseelan 1990, Coppock 2001, Lin 2002b, Potter et al. 2017). The ATB movement theory also has the remnants move, out of the constituent that undergoes ATB movement, as does the sideward movement version of it in Winkler (2005). In this subsection, I argue against movement of the remnants, and for an in situ analysis.

The distribution of CPs in the previous subsection is one argument against movement of the remnants. As mentioned there, if a CP remnant moved rightward, it would be expected to have to be related to a base position where CPs are licensed, since that is how rightward movement behaves (Bruening 2018a). If a CP remnant moved leftward, it would be expected to have to be related to a base position where NPs are licensed, since that is how leftward displacement of CPs behaves (see references in the previous subsection). The fact is that CPs as remnants can be related either to CP positions or to NP positions. A movement theory would have to say that CPs can move either leftward or rightward. But this then makes responding to the next problem more difficult.

The next problem is that the movement analysis requires that the postulated movements of the remnants always have to recreate the base order. Vicente (2010) and Kubota & Levine (2016) discuss this issue. In the following example, three postverbal remnants have to move, and something has to force them to end up in the same order they started in:

(13) I bet ten dollars with Robin that the game will go into overtime, and you, thirty euros with Terry that the final score would be a tie, and we both won. (Kubota & Levine 2016: (21))

Note that one of these constituents is a CP. In order to capture the pattern of CPs just described, CPs would have to be allowed to move either to the left or to the right. But then we would expect

them to be able to switch positions with another argument when the verb allows either an NP or a CP (since the CP could move either leftward or rightward), and that they cannot do:

(14) a. I told Jerry {a story/that he shouldn't be late}. (*tell* allows either an NP or a CP as second argument)

b. ? I told Jerry that the moon landing was faked, and you, Terry that Pizzagate was real.

c. * I told Jerry that the moon landing was faked, and you, that Pizzagate was real Terry.

Example (14b) is awkward and not fully acceptable, because it has three remnants, but there is a very large contrast between it and (14c), which is impossible.

Many publications have also shown that the proposed movement of the remnants would have to violate all known conditions on movement, including all of the island constraints. Example (15a) would be a violation of the wh-island constraint, (15b) a violation of the adjunct island constraint, and (15c) a violation of the complex NP constraint:

(15) a. (Wife of a couple discussing who decides what to cook for which meal:)
OK, how about this: I get to decide what to cook for LUNCH, and you, for DINNer. (Kubota & Levine 2016: (24a))

b. Robin believes that everyone pays attention to you when you speak French, and Leslie, German. (Culicover & Jackendoff 2005: 273, (62e))

c. Robin knows a lot of reasons why dogs are good pets, and Leslie, cats. (Culicover & Jackendoff 2005: 273, (63e))

Example (16a) is another example of a complex NP island, and (16b) is an example of a subject island:

(16) a. Robin is reading a book written by John Updike, and Leslie, Ann Tyler. (Culicover & Jackendoff 2005: 273, (63d))

b. (I don't think we need worry about John harassing us.) Threats directed at me would offend his wife, and at you, everyone else! (Kubota & Levine 2016: (24e))

In VP preposing, the ability of a constituent to strand correlates perfectly with the ability of that constituent to move to the right edge of the VP (Bruening 2025b). Movement to the right edge enables the stranded constituent to vacate the constituent that preposes. In the following examples of stranding with VP preposing, for instance, it is independently possible for the stranded constituent to move to the right:

(17) (Bruening 2025b)

a. Edwin said he would edit a review of someone's article for them, and edit a review he did — for Sue [of her article on phrenology].

b. She said she would steal a painting by a famous artist this week, and steal a painting she did — yesterday [by Rembrandt].

c. She said she would display a book with a startling cover, and display a book she did — (yesterday) [with a cover made of human skin].

However, when an island boundary is in the way and rightward movement is not possible, then stranding is not either (as was first observed by Lechner 2003):

(18) (Bruening 2025b)

a. She said she would leave on Tuesday or a day or two after that, and *leave on Tuesday or she did on Wednesday.

b. She said she could get in with a key she found, and *get in with the key she found she did in the garden. (* where she found the key in the garden)

c. She said she could get in before the guard returned from somewhere, and get in before the guard returned she did from the boiler room. (cannot mean: before the guard returned from the boiler room)

d. She said she would find out why Bill left when he did, and find out why Bill left she did on a Tuesday. (cannot mean: why Bill left on a Tuesday)

This nice correlation does not hold at all in gapping, but it should if remnants undergo movement. (19a) repeats example (16a) from above, and (19b) shows that rightward movement of the remnant in the gapped clause is not possible:

(19) a. Robin is reading a book written by John Updike, and Leslie, Ann Tyler. (Culicover & Jackendoff 2005: 273, (63d))

b. * Leslie is reading a book written by out loud Ann Tyler.

The same is true of all of the examples of islands above, as the reader can verify.

The one island constraint that gapping does seem to be subject to is the coordinate structure constraint. In the following example, it is not possible to understand that Sheila read *War and Peace* in addition to some Dostoevsky novel:

(20) Max read *War and Peace* and some German short story, and Sheila some Dostoevsky novel. (Coppock 2001: (44b))

I add some additional examples where the first conjunct is given and a pronoun to see if that improves them, and it does not:

(21) a. (What about *War and Peace*?) Max read it and *The Idiot*, and Sheila *The Brothers Karamazov*. (Sheila did not read *W&P*)

b. (What about Samantha?) I'll invite her and her boyfriend, and you her adult son. (can't mean, her and her adult son)

This seems to be true of the first remnant as well as the second:

(22) Max and I will check out the new movie, and you the new video game. (cannot mean, Max and you)

However, gapping does seem to be able to violate the coordinate structure constraint if what is conjoined is VPs rather than NPs:

(23) a. Some were drinking coffee and eating eggs, others a kind of oat cake. (can mean they were drinking coffee and eating a kind of oat cake)

b. Some were working and singing, others humming along,... (can mean they were working and humming along)

While I do not have a complete account of why the CSC can be violated with VP coordination but not NP coordination, I can speculate that it is about prosody. Coordinated NPs are inherently contrastive, even with pronouns. My speculation is that this makes the entire coordinated NP in the antecedent clause prosodically prominent. The contrasting remnant in the gapped clause then has to contrast with the entire coordinated NP in the antecedent clause. This effect is apparently much less strong in VP coordination.

Another example relevant to constraints on movement is the following from Coppock (2001):

(24) I make too strong an espresso, and Fred too weak. (Coppock 2001: (35a))

The remnant *too weak* is not something that can independently extract from the NP *too weak an espresso*. However, Coppock (2001) suggests that it is capable of movement, since it appears before the indefinite determiner. She contrasts it with an attributive adjective, which can never appear before the indefinite determiner and correspondingly cannot be a remnant in gapping:

(25) * Sheila drives a white car, and Bob, red. (Coppock 2001: (37a))

However, an attributive adjective can be a remnant in gapping if the NP is a bare plural:

(26) Some were driving blue cars, others red.

There is no reason to think that the AP *red* would be capable of moving with a bare plural but not with the indefinite determiner. It certainly cannot move either leftward or rightward:

(27) a. <*Red> others <*red> were driving cars.
b. Others were driving cars <*red> at the track <*red>.

Additionally, with the indefinite determiner, the head noun does not need to be pronounced in gapping, in contrast with every other environment:

(28) a. Sheila drives a white car, and Bob, a red.
b. A: Sheila drives a white car. B: Bob drives a red *(one).

This shows that gapping is truly exceptional, and appeal to movement is not helpful, since *a red* is no more capable of moving out of the NP *a red car* than *red* by itself is.

I hypothesize that the problem with the indefinite determiner is prosodic. The indefinite determiner has to be part of a prosodic unit with what follows it. The deletion rule that I propose will then not be able to target it, since it is part of the prosodically prominent unit that is pronounced (the remnant). This also explains why the indefinite determiner cannot be deleted in the first remnant, while other determiners can; see section 4.1. In contrast, with a bare plural, the attributive adjective and the head noun can be separate prosodic units. With *too weak an espresso*, *too weak* can also form its own prosodic unit separate from *an espresso* (since it precedes the indefinite determiner). More details of how this works will be given in section 4.1.

To summarize so far, if the remnants in the gapped clause undergo movement, the hypothesized movement would have to be able to violate every known constraint on movement. In the few cases where a constraint does appear to have to be satisfied, that constraint can still be violated sometimes, and when it cannot, there is an alternative, prosodic, explanation for that.

An additional argument against movement of the remnants is that the pattern of pronunciation of prepositions does not match that of P-stranding in movement. The literature has been inconsistent on whether prepositions can delete along with the rest of the deleted material in gapping. Jayaseelan (1990), Lasnik & Saito (1991), Abe & Hoshi (1997) state that prepositions cannot delete:

(29) a. * John depends on his wife, and Bill his secretary. (Jayaseelan 1990: (32b))
b. John talked about Bill and Mary ?*(about) Susan. (Abe & Hoshi 1997: (3a))

On the other hand, Steedman (1990), Chaves (2005), Reich (2007), Johnson (2019) state that prepositions can be deleted (note that Reich gives the opposite judgment on *talk about* from Abe and Hoshi; my judgment accords with Reich):

(30) a. ? The men talked about the Red Sox, and the women ethics in science. (Reich 2007: (46))
b. Harry went to London and Barry, Detroit. (Johnson 2019: (44))

My native speaker intuitions indicate variability depending on the preposition:

(31) a. Josh was looking for the dean's office and Maria (for) the president's mansion.
b. I'll hit it with the hammer and you (with) the mallet.
c. Some climb up boulders and others (up) sheer cliffs.

(32) a. Some rely on family and others *(on) friends.
b. Some complained to the chair and others *(to) the dean.
c. The host poured a drink for me and the hostess *(for) you.

If the remnants have undergone movement, this variability is unexpected. If movement is to the right, then the preposition would always have to be pronounced, since prepositions cannot strand under rightward movement:

(33) Maria was looking <*for> everywhere <for> the president's mansion.

If movement is to the left, then pronunciation of every preposition should be optional, because P-stranding is generally possible but optional with leftward movement:

(34) a. Friends, many people rely on.
b. On friends, many people rely.

If movement can be either to the left or to the right, then again pronunciation should always be optional, because leftward movement stranding the preposition should always be an option.

I suggest instead that what is relevant is prosodic phrasing. In the analysis that I develop below, what is left unpronounced is the prosodically non-prominent material in the gapped clause. Whether a preposition is pronounced or not will depend on which prosodic constituent it is parsed with. For instance, in (31a), the gapped clause can be parsed prosodically in two different ways:

(35) a. (Maria) (~~was looking~~ (for the president's mansion))
b. (Maria) (~~was looking for~~ (the president's mansion))

The preposition *for* can either be parsed as part of the phrase including the prominent *the president's mansion*, or not. If not, it is part of the non-prosodically-prominent material that includes *was looking*. In gapping, the prosodically non-prominent material is left unpronounced. So in the former case, *for* is pronounced, and in the latter, is is not.

In this account, if a preposition must be pronounced, then it apparently must be part of the prosodic phrase that includes its complement. Ideally there would be independent evidence for this difference in phrasing, but I will have to leave this to future research. What is important for now is that the in situ analysis has a potential explanation for the pattern of P pronunciation, but the movement analysis does not (nor does any other analysis, that I am aware of).

Yoshida (2005) gives an argument in favor of a movement analysis of remnants in gapping. He states that, if the remnant is indeed moved, then it should be an island to further extraction. According to him, this is correct:

(36) * I wonder which topic John talked about and Mary about too. (Yoshida 2005: (10b))

However, the putative source for Yoshida's example is unacceptable even without extraction:

(37) * John talked about this topic and Mary about this topic, too.

The problem here is that the PP in the gapped clause is given and therefore does not make a good remnant in gapping. Examples where the remnant is not given are absolutely fine:

(38) What did Mathilda come up with an argument for and Janice an argument against?

Abeillé et al. (2014: note 2) give a similar example of extraction from the remnants in French.

I conclude that there is no evidence that remnants in gapping have moved. All of the evidence indicates that the pronounced remnants in the gapped clause have not moved anywhere. They occur in the position that they would normally appear in.

2.3 Third Pillar: Licensing by Syntactic Identity

The third pillar of the analysis is the licensing condition on the ellipsis. I propose that the deleted material in the gapped clause has to be syntactically identical to material in the preceding conjunct.

I will motivate this by ruling out alternatives. First, Reich (2007) and Toosarvandani (2016) both suggest applying Rooth's (1992) focus condition on ellipsis to gapping, and this has intuitive appeal, as it would align well with the parallel contrastive prosody of gapping. As is well-known, the two pronounced constituents in the gapped clause are generally contrastively focused, as are the contrasting constituents in the first conjunct (Kuno 1976, Sag 1976; see especially Hartmann 2000, Fery & Hartmann 2005, Winkler 2005, 2019). Here is how Toosarvandani (2016) states the focus condition (Toosarvandani adopts the low coordination analysis which I will argue against in section 3.1):

(39) Low-Coordinate Parallelism
For vPs α and β, if α and β are coordinated, $[\![\alpha]\!] \in$ ALT(β) and $[\![\beta]\!] \in$ ALT(α).
(Toosarvandani 2016: (12))

The basic idea is that the two conjuncts have to be focus alternatives to each other. Focus alternatives are derived by replacing all focused items with variables. In a simple example like *Some prefer inkjets and others laser printers*, the two pairs of subjects and objects are all contrastive, so that the focus semantic value of each clause is just *x prefer y*, with the focus material replaced with variables. The first conjunct then licenses ellipsis in the second.

As appealing as this is, it is not sufficient. If the licensing condition were purely semantic, then actives and passives would license each other, but they do not. Gapping does not tolerate voice mismatches (Koutsoudas 1971):

(40) a. * The meat was eaten by John and Mary the fish. (Koutsoudas 1971: (122))
b. * Some ate meat and plants by others.
c. * Inkjets are preferred by some and others laser printers.

Gapping contrasts with VP ellipsis, which does allow voice mismatches (see Merchant 2013, Stockwell 2024, among others). The focus licensing condition would permit voice mismatches, since actives and passives are truth-conditionally equivalent.

Morphological and phonological identity are also not required, because gapping does tolerate morphological and phonological mismatches:

(41) He was drinking wine and the others ~~were drinking~~ beer. (Repp 2009: (9, (1.10a))

We also saw this with the vehicle change examples in (2–4).

If semantic, morphological, and phonological identity are not sufficient, the only thing left is syntactic identity. As I will now show, syntactic identity is both necessary and sufficient. First, just as gapping does not tolerate voice mismatches, it also does not tolerate argument structure mismatches of any kind:

(42) a. * I will give you a present, and you to me.
b. * The boss blamed me for the leak, and our colleagues on you.
c. * France provided Ukraine with ammunition, and Russia to Iran.
d. The boy loads packages in the van and the man with boxes. (*the man loads the van with boxes; Frazier 2015: 56, (100))

The example in (42d) can only be understood as left edge ellipsis, where the boy loaded the man with packages. It cannot be understood as gapping, with a different argument structure from the antecedent. Gapping requires strict matching of argument structures.

Additional motivation for a syntactic licensing requirement and against a semantic one comes from gapping's intolerance for split antecedents. Coppock (2001) claims that gapping can have split antecedents, just like VP ellipsis. She gives a number of examples that all have the same form as the following:

(43) Liz goes running six times a week, and Alex lifts weights three times a week, but neither every day. (Coppock 2001: (24c))

All of her examples use adjuncts as the second remnant and *neither* as the first. If arguments are used rather than adjuncts, the result is very unacceptable:

(44) a. * James writes philosophy papers and Jill edits biology papers but neither linguistics articles.

b. * Sam robs banks and Tandy burgles penthouse apartments but neither trailer park homes.

c. * Sam eats fish and Tim cooks meat but neither eggs.

d. * Fred bought Suzy flowers, and Bob made her a cake, but neither hand-dipped chocolates.

Additionally, Coppock's examples are fine even without the adjunct in the two antecedents:

(45) Liz goes running, and Alex lifts weights, but neither every day.

This is very unlike gapping, which requires a contrasting constituent for every remnant. Gapping does not allow the equivalent of "sprouting" in sluicing (Schwarz 1999 refers to these as "dangling remnants"):

(46) a. * Jim has eaten and Mandy a snack.

b. * Some drank, and others soft drinks.

c. * George drinks cocktails, but Gina only at parties.

The fragment *neither every day* is also good as a fragment answer, but gapping clauses are not acceptable as fragment answers:

(47) How often does Liz go running, and how often does Alex lift weights? Neither every day.

(48) a. What kind of printers do people prefer? *Some, inkjets.

b. What did someone eat? *James, a hot dog.

As is well known, gapping is only possible in coordination (Jackendoff 1971).

I conclude that Coppock's examples are not instances of gapping, they are something else. They are some other kind of fragment that admits multiple constituents, or has one adjunct adjoined to another constituent.

So, true gapping seems to require strict syntactic identity. Argument structure mismatches and voice mismatches are not allowed, nor are split antecedents. So far the case for a syntactic identity condition seems well motivated.

Several versions of a syntactic identity condition have been proposed. Rudin (2019) proposes that all syntactic heads have to be the same in the elided clause and its antecedent (essentially; the actual proposal is much more complicated). Bruening (2021b) proposes that all maximal projections have to be the same in the two clauses. Neither of these will work, because gapping does permit one syntactic mismatch: The gapped clause can lack negation and adverbs that are present in the antecedent clause. Here is an example with an adverb:

(49) The sailors went reluctantly back to the oars, and the captain to the wheel.

The captain does not have to be reluctant in this example. For instance, in a context where the captain has just berated the crew, they might reluctantly return to the oars, while the captain would presumably go back to the wheel with no reluctance whatsoever. The sentence in (49) can be used in this context. Here is another example:

(50) McCormack and some other senator jointly sponsored the legislation, and Kennedy the education bill. (Coppock 2001: note 7, (ivb))

As Coppock (2001) notes, the second conjunct does not include *jointly* in its interpretation; it could not, since the subject is singular.

Frazier (2015) and Potter et al. (2017) also note that adverbs can be left out in gapping in English (but they incorrectly claim it is limited to high adverbs; see example (75) below). Hankamer (1979: 104–105) states that adverbs can be left out of one conjunct in Turkish, Japanese, and Korean. Repp (2009: 69) also notes that adverbs are not always included in the second conjunct (citing especially some work on Dutch).

As for negation, Repp (2009) observes two types of cases where it can be present in the antecedent but left out of the gapped clause. The first has corrective *but*:

(51) a. Pete wasn't called by Vanessa but John by Jessie. (Repp 2009: 84, (3.2))

b. I've learned GOD did not walk away from me but I from him. (attested example cited by Kubota & Levine 2016: note 7, (ic))

The second type of sentence has an *only* or *even* in the second conjunct (Repp 2009):

(52) a. (Context: Discussing whether two women had any luck at the casino.)
Anna didn't win any money, and Bertha only ten bucks. (Tomioka 2011: 222)

b. John doesn't earn as much as Sue and Bill ?(even) less. (Repp 2009: 146, (3.122a))

Kubota & Levine (2016: note 25) suggest deriving this reading as an instance of discontinuous gapping, where (for example 51a) *was called* in the second conjunct is matched to that discontinuous string in the first conjunct, ignoring negation. However, Kubota & Levine (2016) propose no constraints on this, so that it would be expected that the gapped clause just needs to be any subset of the antecedent clause. As I will argue momentarily, this overgenerates massively (it would allow the gapped clause to be active while the antecedent is passive, for instance).

Repp (2009) proposes instead that there is a null positive morpheme in the second conjunct which contrasts with negation in the first. As Tomioka (2011) points out, this is a little worrisome, as a phonologically null element should not be able to bear contrast.[3]

[3]Repp (2009) also says that the negative adverb *never* is not allowed in gapping in English, giving the following example:

(i) ?? Little Max never played the violin and little John the piano. (Repp 2009: 43, (2.4b))

I would find this example acceptable in a context, and other examples with *never* are perfect:

(ii) a. I've never tried natto, or you sashimi, so let's go to that new Japanese restaurant.

b. James has never been to Berlin, or Harold to Düsseldorf.

It is hard to see what would rule out *never* in gapping. *Never* can also be missing from the interpretation of the second conjunct under the right conditions, just like negation and other adverbs:

(iii) I've never tried Japanese food, and you only teriyaki, so let's go to that new Japanese restaurant.

This is as expected by the proposed analysis.

Turning back to the syntactic licensing requirement, requiring either all XPs or all heads to match would rule out these examples: An adverb is both a head and a maximal projection, and negation is at least a head (and maybe a maximal projection, in some analyses). Since adverbs and negation can be missing from the gapped clause, one might conclude that the syntactic licensing requirement only requires that the gapped clause be a subset of its antecedent, not identical to it. In fact this is exactly what Murphy (2016) proposes, and apparently Kubota & Levine (2016), too. However, this is not sufficient, either. Consider the following example:

(53) Galahad kicked her a weapon, Gawain a shield. (cannot mean, "Gawain kicked a shield")

If a subset was all that was required, the gapped clause in this example should be able to be interpreted as "Gawain kicked a shield." In most analyses of English double object constructions, the simple transitive is a subset of the double object construction syntactically (Kayne 1984, Larson 1988, 2017, Aoun & Li 1989, Marantz 1993, den Dikken 1995, Pesetsky 1995, Bruening 2001, 2021b, Pylkkänen 2008, Hallman 2024).[4] The pronounced words are certainly a subset. (The simple transitive is also a semantic subset: one cannot kick someone something without kicking that something.) Additionally, a syntactic subset licensing condition would incorrectly license deletion in an active clause from a passive antecedent, since actives are generally analyzed as a subset of the corresponding passive. In (40c), the active would presumably have all of the heads and maximal projections that the passive does, while the passive would in addition have perhaps a Pass head, a P *by*, an Aux, and (depending on the theory) a head for the participle morphology.

Another version of a syntactic licensing condition was proposed by Chung (2013). In this version, argument structures must match and case licensing heads must match, but other things can differ. This is close to what we want for gapping, where the syntax must be identical except for adverbs and negation. In fact we can view adverbs and negation as the same thing, if we adopt the adverbial analysis of English negation (Jespersen 1917, Baker 1991, Zeijlstra 2004, Bruening 2010b, 2025d). Then the only things that can be left out of the gapped clause are non-selected adjuncts. (This is essentially what Repp 2009 proposes for gapping in German, but not for English; I extend it to English.)

I will propose a head-based licensing condition that says that, for every syntactic head X that is deleted in the gapped clause, there must be a corresponding head Y in the preceding conjunct, such that what selects X is identical to what selects Y. That is, the chain of selecting heads has to be identical, down to the lowest deleted head. The licensing condition will go one way, so that every head that is deleted needs a corresponding head in the antecedent. This makes it impossible for there to be something in the gapped clause that is not present in the antecedent, but it is possible for the antecedent to have material that is not present in the gapped clause, so long as that material is not involved in selection. This is exactly what we need, since the empirical generalization is that the gapped clause must be syntactically identical to its antecedent except that it can lack adjuncts that are present in the antecedent. The analysis will be formalized in section 3.3. As I will show in the rest of this paper, this syntactic licensing condition is sufficient to account for all of the facts. There is no need to appeal to a semantic or focus condition, or to any other form of identity.

[4] In one version of the small clause analysis of double object constructions, namely that due to Harley (2008) where the lexical verb is nothing but a manner modifier, the simple transitive may not be a subset of the double object construction. However, all versions of the small clause analysis have been shown to be untenable by Bruening (2010a, 2018b, 2020, 2025a), Asami & Bruening (to appear).

Now, one might think that not referring to focus will lose an explanation for the contrastive focus prosody of gapping. The current analysis does not run afoul of this problem, because the fourth pillar of the analysis is direct reference to prosody. This will be the topic of the next two subsections. Before getting to that, it should be pointed out that, in fact, reference to focus does not fully explain the facts. It seems to at first glance, because gapping has been claimed to require the remnants to contrast with their correspondents in the preceding conjunct (Levin 1979):

(54) * Patricia loves ice cream, and Patricia/she cookies.

However, the two subjects can be non-contrastive and coreferential so long as the descriptive content is different:

(55) A hated rival took the gold yesterday, and the same stupid bastard the silver today.

If (contrastive) focus was what was important, we would expect the subject of the gapped clause to have to be a salient alternative to the subject of the first conjunct. In (55), it is not; they are the same individual. I contend that what is important here is prosody. In (54), if the second subject refers to the same individual as the subject of the first conjunct, it is given and destressed. It therefore cannot serve as the head of a phonological phrase, and in the theory outlined below, it would have to be deleted. In contrast, in (55), although the two subjects are coreferential, the descriptive content of the second subject is new. It is therefore not given and not destressed, and it can serve as the head of a phonological phrase.[5] Focus is therefore not what is at issue in gapping, prosody is.

Additionally, gapping is often used in narratives to present new information, not contrastive focus. Here is an example from a novel:

(56) The bed was adequate, the furnishings simple in Thick's small room. (Robin Hobb, *Golden Fool*)

Sentences like this are not contrastive, they just present new information. There is no implication that the bed is not simple or that the furnishings are not adequate (in fact, it is implied that they are in this example). Gapping is still licensed, meaning again that contrastive focus is not necessary for gapping.

I conclude that reference to focus is neither necessary nor sufficient in an account of gapping. The current analysis does not refer to it at all, and instead licenses deletion of a prosodic constituent (next) through a syntactic licensing mechanism (motivated in this subsection).

2.4 Background on Prosody

The fourth pillar of the analysis is the contention that what deletes is not a syntactic constituent, but a prosodic one. Before I can motivate this, however, I need to give some background on prosodic phrasing. Some relevant references include Selkirk (1984, 1986, 2011), Beckman & Pierrehumbert (1986), Nespor & Vogel (1986), Pierrehumbert & Beckman (1988), Hayes (1989, 1990), Itô

[5]Note that the converse situation also obtains, where the lexical content is the same but reference is different:

(i) Five people elected me and five people you. (Hartmann 2000: 163, note 9, (i))

Again the subject is not given and not destressed, and so it can serve as the head of a phonological phrase.

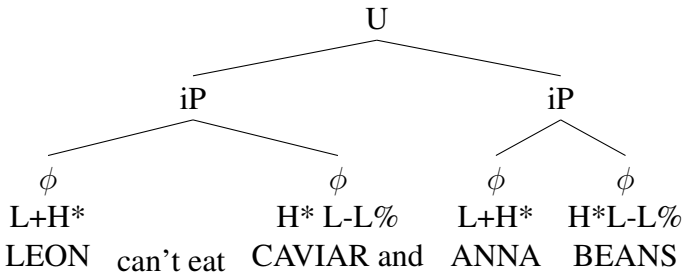
& Mester (2007). Most researchers assume a Prosodic Hierarchy, where syllables are organized into feet and feet into prosodic words; prosodic words are themselves organized into phonological phrases (also sometimes called "major phrases" or "intermediate phrases"), and phonological phrases into intonational phrases. Some analyses add a "clitic group" or "minor phrase" between prosodic word and phonological phrase, but this will not be directly relevant here; the most relevant unit here will be the phonological phrase. Each prosodic level consists of one or more units of the next level down, one of which serves as the head. For instance, the head of a phonological phrase will be a prosodic word (or clitic group, in some theories). Recent work also permits recursive prosodic structure, so that a phonological phrase can dominate another phonological phrase (e.g., Selkirk 2011, Elfner 2015). In that case, the most prominent member of a phonological phrase can itself be a phonological phrase. This is what we will sometimes see in gapping.

Syntactic structure maps onto prosodic structure. At the most basic, syntactic heads map onto prosodic words, syntactic phrases like VP and NP map onto phonological phrases, and clauses map onto intonational phrases. However, this mapping is not completely isomorphic, for instance many functional heads do not constitute prosodic words on their own but form prosodic words with material adjacent to them (e.g., Tyler 2019). There is also great variability in how any given phrase and clause can be pronounced; multiple phrases or even clauses can be parsed together in some situations but parsed into multiple prosodic phrases in others. I will have little to say here about how prosodic phrasing works in general; what will be important is that, for gapping to succeed, a particular prosodic parse will be necessary.

Turning to gapping, other than in cases of wide scope for a modal and/or negation (see section 5), each conjunct is its own intonational phrase (iP; Hartmann 2000: 165). Each intonational phrase consists of at least two phonological phrases (ϕ). Each phonological phrase has a prosodically prominent head. As just shown, it is common for the pronounced remnants to be contrastively focused, but this is not necessary; what is necessary is that the remnants are prosodically prominent.

Pitch tracks for gapping sentences, with TOBI annotation, appear in Winkler (2005: chapter 4) and Winkler (2019: Fig.15.1). To give a sense of how prosodic phrasing works in general and in gapping in particular, I reproduce a phrasing diagram from Winkler (2005: 206, (54)) for the distributed scope reading of *Leon can't eat caviar, and Anna beans* (U is the utterance):

(57)



Winkler does not indicate which phonological phrase the string *can't eat* is part of. I assume that it is part of the phonological phrase with the object, because that is generally how phrasing works in English, at least when the object is a single prosodic word (Nespor & Vogel 1986, Hayes 1989):

(58) $({}_{iP}({}_{\phi}\text{LEON})\ ({}_{\phi}\text{can't eat}\ \langle\text{CAVIAR}\rangle)\ )$ and $({}_{iP}({}_{\phi}\text{ANNA})\ ({}_{\phi}\sout{\text{can't eat}}\ \langle\text{BEANS}\rangle)\ )$

The string *can't eat* forms part of a phonological phrase with *caviar*, which is the head of that phonological phrase. In this case, it is contrastively focused. Where it is relevant, I will mark the

head of the relevant phonological phrases with "⟨H⟩." (The head may be a prosodic word, or it may be another phonological phrase.) I will assume that the deleted material is parsed analogously to its antecedent material in the second conjunct, as shown. (As for *and*, it is probably part of the following intonational and phonological phrase, so, grouped with *ANNA*. I will leave it out of the prosodic representations here, since it is the material *after* the conjunction that matters.)

The most relevant level of the prosodic hierarchy for gapping will be the phonological phrase. As in the example above, the two conjoined clauses are parsed into sequences of phonological phrases. The proposal here will be that the non-prominent material in the first two phonological phrases of the second conjunct can be deleted.

Most diagnostics for phonological phrase boundaries require instrumental analysis to detect. For instance, Elfner (2014) looks at phrase-final lengthening, changes in F0, and pause duration in her study of English double object constructions (which are typically parsed as ($_{\phi}$V NP1)($_{\phi}$NP2); see also Hayes 1989, Selkirk 2000). I will have to leave instrumental confirmation of the proposals here to future work. However, there is one diagnostic that has been proposed that does not need instruments to detect, and this is the Rhythm Rule. The Rhythm Rule retracts stress on words like *thirtéen* in phrases like *thírteen láser printers*. According to Nespor & Vogel (1986), Hayes (1989), the Rhythm Rule applies within a phonological phrase but not across them. It is not possible to apply the Rhythm Rule across the two remnants in a gapping clause:

(59) In our survey of twenty people, seven preferred inkjets, and {thirtéen/*thírteen} laser printers.

This shows that the two remnants are in distinct phonological phrases, as in the parses given above.

In the antecedent clause, the Rhythm Rule applies naturally between the verb and the contrasting object, as predicted if they form a phonological phrase:

(60) James cómprehends German, and Ginny Japanese.

Similarly, the Rhythm Rule applies naturally within a remnant:

(61) Kelly bought seven inkjets, and Larry thírteen laser printers.

Where possible, I will use the Rhythm Rule to motivate the prosodic parses that I propose.

With this background, we can turn to the fourth pillar of the analysis.

2.5 Fourth Pillar: Deleted Material is a Prosodic Constituent

The second pillar of the analysis was that the pronounced remnants in the gapped clause have not moved anywhere. Given this, it is impossible for deletion in gapping to target a syntactic constituent. Consider the following example:

(62) Ice cream gives me brain-freeze if I eat it too fast and beans ~~give me~~ indigestion if I eat them too slow. (Johnson 2009: (58))

In no current analysis of double object constructions do the verb and first object form a constituent to the exclusion of the second object. In the following example, the deleted string is a finite verb plus an embedded clause that includes an adjunct clause, but excluding the object within that adjunct clause:

(63) Robin believes that everyone pays attention to you when you speak French, and Leslie, German. (Culicover & Jackendoff 2005: 273, (62e))

The deleted string here is not a syntactic constituent, either.

Deleted material can even be discontinuous, as in the following examples:

(64) a. Jack begged Elsie to get married, and Wilfred, Phoebe. (Jackendoff 1971: (18e))

b. Robin knows a lot of reasons why dogs are good pets, and Leslie, cats. (Culicover & Jackendoff 2005: 273, (63e))

It is abundantly clear that the deleted material is not a syntactic constituent. It is not always even a contiguous linear string. (This is exactly why many previous analyses posited movement of the remnants.) What remains to be shown is that the deleted material *is* a prosodic constituent.

In simple cases, this has already been demonstrated. In (60), the Rhythm Rule showed that the verb in the antecedent forms a phonological phrase with the object:

(65) James ($_{\phi}$ cómprehends ⟨German⟩), and Ginny Japanese.

Given that *German* is prosodically prominent, it is the head of the phonological phrase it is part of. The hypothesis here is that the gapped clause has a parallel prosodic parse:

(66) James ($_{\phi}$ cómprehends ⟨German⟩), and Ginny ($_{\phi}$ ~~comprehends~~ ⟨Japanese⟩).

Now the deleted material is a prosodic constituent: What is deleted is a phonological phrase minus its head. I contend that this is true even in much longer cases, like the example in (63). The parse that is required is the following:

(67) a. CP1: ($_{\phi 1}$ ⟨Robin⟩)($_{\phi 2}$ believes that everyone pays attention to you when you speak ⟨French⟩)

b. CP2: ($_{\phi 1'}$ ⟨Leslie⟩)($_{\phi 2'}$ ~~believes that everyone pays attention to you when you speak~~ ⟨German⟩)

This is indeed how the sentence is pronounced, with stress on the two prominent heads in CP1 and all the rest of the material destressed and spoken without any kind of pause. The Rhythm Rule can apply across the clause boundary, where it usually does not:

(68) a. Robin cómprehends that everyone pays attention to you when you speak French, and Leslie, German.

b. Robin comprehénds that everyone has different coping mechanisms.

I contend that in all cases of gapping, deleted material is the non-head of a phonological phrase, with only the head of that phonological phrase pronounced.

If this is correct, then we expect that it should be impossible for the deleted material to span multiple phonological phrases. This is difficult to show, because it is often possible to pronounce even very long strings as a single phonological phrase, as in the example just gone through. However, non-restrictive relative clauses typically have strong prosodic boundaries around them. They do in fact block gapping, if the deleted material crosses the boundary between the main clause and the non-restrictive relative clause:

(69) a. * Robin is reading two books, both of which were written by John Updike, and Leslie, Ann Tyler.

b. * I carved a statue, which caused tennis elbow, and you carpal tunnel syndrome. (intended: You carved a statue, which caused carpal tunnel syndrome.)

This supports the hypothesis that what is deleted is a single phonological phrase minus its head.

In discontinuous cases, every word in the antecedent that follows the second focused element has to be destressed (as Culicover & Jackendoff 2005: 276 observe). I propose that in such cases, the deaccented material is adjoined to the phonological phrase to its left, which is headed by the prosodically prominent remnant:

(70) ($_\phi$ Wilfred)($_\phi$ ($_\phi$ ~~begged~~ ⟨Phoebe⟩) ~~to get married~~)

This is an instance of recursion of phonological phrases. Support for this prosodic parse comes from the fact that the Rhythm Rule applies naturally across the head to the post-head deaccented material in the antecedent clause:

(71) Jack considers the Jápanese friendly, and Wilfred, ~~considers~~ the Koreans ~~friendly~~.

To summarize, given that all of the evidence indicates that the remnants have not moved, we need an analysis of gapping where the deletion process targets material that is not a syntactic constituent and may not even be a contiguous linear string. The current proposal is that this material is a prosodic constituent, namely, all of the non-head material of a phonological phrase.

2.6 Summary

This section provided background on prosody and motivated the four pillars of the analysis. Gapping involves an ellipsis process; the remnants have not moved; the licensing condition involves strict syntactic identity of selected heads; and the material that is deleted is a prosodic constituent, not a syntactic one.

3 Formalizing the Analysis

This section formalizes the proposed analysis. Before that can be done, however, we need some additional background regarding the size of the gapped clause and the limits of deletion.

3.1 Background: The Size of the Gapped Clause

Numerous authors have proposed that the second conjunct in gapping is small, something like a VP, VoiceP, or vP (Coppock 2001, Lin 2002a, Winkler 2005, Johnson 2009, Murphy 2016, Toosarvandani 2016). Kubota & Levine (2016) show that this analysis is untenable. I will show the same thing, by specifically addressing the version of it that posits amibiguity. Frazier (2015), Potter et al. (2017) hypothesize that gapping can be either conjunction of CP, or conjunction of vP. If it is vP, then negation, modals, and high adverbs necessarily scope over the conjunction. If it is CP, then those obligatorily distribute. The scope difference can be illustrated with the following:

(72) a. With only ten dollars between them, James could get a sandwich, and Mary a bowl of soup. (Potter et al. 2017: (39b))

b. Caviar, James can't order and chili, Mary. (Potter et al. 2017: (50a))

According to Potter et al. (2017), example (72a) can only have low vP coordination, because something has fronted to a position outside of the coordination (it is unclear why this could not be a high position, adjoined to CP, say, while the conjuncts are also CPs). Concomitantly, Potter et al. (2017) judge (72a) to only have a reading where what is possible is the conjunction of James getting a sandwich and Mary a bowl of soup. The sentence is judged to be false in a situation where sandwiches and soup cost ten dollars each (I disagree with this judgment). In contrast, in (72b), something has fronted in each conjunct, meaning that only CPs could be conjoined. Accordingly, only distributive scope is possible, where James can't order caviar and Mary (independently) can't order chili. The sentence is claimed to lack the reading where what is not allowed is the conjunction of James ordering caviar while Mary orders chili (I also disagree with this judgment, if the sentence is pronounced with no pauses, which is somewhat unnatural for object fronting).

This ambiguity hypothesis does not hold up to careful scrutiny. There are a number of problems with it, and with low coordination generally. First, low coordination has to countenance asymmetric A-movement of the subject out of the first conjunct, in violation of the coordinate structure constraint (CSC). Proponents of low coordination typically claim that A-movement is not subject to the CSC. However, it demonstrably is:

(73) a. That topic was talked about and argued about (over and over).

b. * That topic was talked about and argued about a different topic.

(74) a. The bridge was flown both under and over.

b. * The bridge was flown under and over the tower.

A-movement in these examples of prepositional passives has to be across the board, and cannot take place out of just one conjunct.

The second problem with this analysis is that it is designed to allow either high scope, with negation, modals, and adverbs taking scope over the entire conjunction, or distributive scope, with them being interpreted in both conjuncts. The analysis does not allow the cases shown above where negation and adverbs can occur solely in the first conjunct and not in the second. Furthermore, Potter et al. (2017) claim that low adverbs like *quickly* can only ever have a distributive interpretation, but this is false:

(75) The sailors went slowly/quickly back to the oars, and the captain to the wheel. (captain does not have to move slowly/quickly)

Another problem is that the facts do not line up the way they should in the ambiguity analysis. For instance, according to Potter et al. (2017), nominative case on the subject of the gapped clause is only possible in coordination of CPs, since a precondition for receiving nominative case is occupying Spec-TP. But then nominative case should be impossible in all the contexts where Potter et al. (2017) say that CP coordination is impossible, and this is false:

(76) a. With only ten dollars between us, you could get a sandwich, and I a bowl of soup.

b. To Mary, you should give a novel, and I a cookbook.

c. That you love me and I you is true.

Additionally, fronting within each conjunct is supposed to block low coordination and hence wide scope for modals and negation. This is also false, however. In the following example, a PP has been fronted in each conjunct, and the expletive *there* appears in Spec-TP in the first conjunct. The fronted PP in the gapped clause could not be adjoined to vP, because that is not a place that PPs can adjoin. It must be adjoined to CP, and the coordination must have two CPs conjoined. Yet the sentence clearly allows a wide scope interpretation for the modal and negation, where what is not allowed is the conjunction of the two occurrences:[6]

(77) (Director of a fantasy film:)
Out of the FIRST door there can't step an OGRE and then out of the SECOND a GIANT ORC! That would look terrible on camera!

We can additionally adapt an argument from Kubota & Levine (2016) involving *merely*. The adverb *merely* must follow the subject and cannot precede it. Kubota & Levine (2016) point out that the low coordination analysis predicts that *merely* should be able to precede the subject in a gapped clause, but it cannot (Kubota & Levine 2016: (37)). We can modify their example to show that this is true even when a modal and negation take wide scope:

(78) Robin can't comment on every aspect of our analysis and <*merely> Leslie <merely> that our footnotes are too long!

If low coordination is necessary for the wide scope reading, then *merely* should be able to precede the subject on that reading. This is incorrect.

An additional argument against low coordination in general and the ambiguity hypothesis in particular comes from tag questions. Tag questions in English have a pronoun that has to match what is in Spec-TP (Culicover 1992, Bruening 2016). If the second conjunct's subject does not occupy Spec-TP, then it would be expected to be unable to have a tag question pronoun match it, but this is false:

(79) With only ten dollars between them, James could get a sandwich, and Mary a bowl of soup, or could she?

The low coordination hypothesis predicts that only the subject of the first conjunct could match a tag question pronoun, but this is actually much less acceptable, because another subject comes in between them.

I will not address all of the claims in Frazier (2015) and Potter et al. (2017), although I will say that I find many of their judgments suspect, as already noted.[7] The arguments given above are sufficient to rule out the ambiguity hypothesis in particular and low coordination in general. I conclude that gapping always involves coordination of full clauses, which I will assume are always CPs. The wide scope reading of modals and negation will require an analysis that does not involve low coordination. I will propose one in section 5.

[6] I thank an anonymous reviewer for pointing out that wide scope is possible with such examples.

[7] To the extent that there is sometimes disambiguation, this seems to be due to prosody. As Oehrle (1987) and Winkler (2005) observe, the wide scope reading for modals and negation is brought out by having less of a prosodic break between the conjuncts, and pronouncing the two conjuncts as a single intonational phrase. Fronting in the second conjunct often induces a prosodic break, which then makes the wide scope reading much less salient. Fronting a PP with *there* as in (77) does not induce a prosodic break, and wide scope is accordingly salient.

3.2 Background: The Limits of Deletion

Also necessary for formalizing the analysis is an understanding of what can be deleted, and what cannot. As has been stated above, in a gapped clause, there are typically two prosodically prominent remnants. In the typical case, material that is parsed prosodically with the second one is deleted:

(80) LEON can't eat CAVIAR and ($_{iP}$($_{\phi}$ANNA) ($_{\phi}$~~can't eat~~ BEANS))

In cases of "determiner sharing" (McCawley 1993), it appears that material that is grouped with the first prominent element can also be deleted (see section 4.1):

(81) Too many Irish setters are named Kelly and ($_{iP}$($_{\phi}$~~too many~~ German shepherds) ($_{\phi}$~~are named~~ Fritz)). (modified from McCawley 1993: (1a))

We have already seen that it is possible for there to be three or more remnants (Sag 1976). However, when there are, it is absolutely impossible for anything to delete that is associated with the third or subsequent remnants:[8]

(82) a. Ice cream gives me brain-freeze if I eat it too fast and (beans) (~~give me~~ indigestion) (if I eat them too slow). (Johnson 2009: (58))

b. * Popsicles give me brain-freeze if I eat them too fast and (beans) (~~give me~~ indigestion) (~~if I eat them~~ too slow).

(83) a. Arizona elected a right-wing bastard to represent them in the Senate and (Massachusetts) (~~elected~~ a moderate wank) (to represent them in Congress). (modified from Johnson 2014: (56))

b. * Arizona elected a right-wing bastard to represent them in the Senate and (Massachusetts) (~~elected~~ a moderate wank) (~~to represent them~~ in Congress).

(84) a. Peter talked to his boss on the day after Christmas, and (Betsy) (~~talked~~ to her supervisor) (on the day after New Years). (modified from Kubota & Levine 2016: note 2, (iia))

b. * Peter talked to his boss on the day after Christmas, and (Betsy) (~~talked~~ to her supervisor) (~~on the day after~~ New Years).

(85) a. I bet ten dollars with Robin that the game will go into overtime, and (you), (~~bet~~ thirty euros) (with Terry) (that the game will go into double overtime), and we both won. (modified from Kubota & Levine 2016: (21))

b. * I bet ten dollars with Robin that the game will go into overtime, and (you), (~~bet~~ thirty euros) (with Terry) (~~that the game will go~~ into double overtime), and we both won.

[8] Frazier (2015) claims that, for some speakers, gapping can leave one remnant in a higher clause and two in a lower clause:

(i) ? I think that John resents Mary, and you, Mary John. (Frazier 2015: 64, (124a))

It is not clear whether such sentences are actually acceptable, or are some kind of grammaticality illusion. I will have to leave them aside pending further investigation.

I propose that what is going on is that the gapped clause is organized into phonological phrases. In the first two phonological phrases, non-prominent material can be deleted, while the prosodically prominent heads of those two phonological phrases are not deleted. Subsequent material can be pronounced, but no more deletion can take place.[9]

If deletion is limited to the first two phonological phrases, then it should not be possible for the first contrastively focused remnant to span more than one phonological phrase. This appears to be correct. The remnants are better the shorter they are, but they can be fairly long. This is far better with the second remnant than it is with the first, however (example (86a) comes from an anonymous reviewer):

(86) a. Jared is interested in exercise science and Justin **in the latest developments in technology and artificial intelligence**.

b. The wolf chased the rabbit and the dog, **the cat that ate the rat that ate the cheese**.

(87) a. ?? Exercise science is interesting, and **the latest developments that researchers have made in technology and artificial intelligence** mind-bending.

b. * The wolf chased the rabbit and **the cat that ate the rat that ate the cheese** the bird.

The following example, from an anonymous reviewer, is about the limit on the first remnant:

(88) My ex is a researcher, but **the man I am currently dating** a special ed teacher.

And the Rhythm Rule can apply in such cases:

(89) Seven rejected the first two examples, and thírteen that I know of the rest.

It appears to be correct that the first remnant must form a single phonological phrase. The second remnant does not all have to fit into a single phonological phrase. As just noted, I will formalize the analysis such that non-prominent material is deleted in the first two phonological phrases in the second conjunct. The second remnant can extend beyond that without causing a problem for the application of deletion:

(90) The wolf chased the rabbit and ($_{iP}$ ($_{\phi}$the dog), ($_{\phi}$ ~~chased~~ ⟨the cat⟩) ($_{\phi}$that ate the rat) ($_{\phi}$ that ate the cheese))

Deletion here is still limited to the first two phonological phrases. If the first remnant were to span more than one phonological phrase, then deletion around the second remnant would be blocked, because it would be part of a third or subsequent phonological phrase.[10]

Finally, deletion also cannot go below the level of the prosodic word:

(91) a. * Carly is overpaid and Will under-. (Johnson 2014: (11a))

b. * Prewar Germany was violent, post- deadly.

[9] One might ask what sort of linguistic generalization is behind the limit to two phonological phrases. Perhaps gapping is telling us that there is another level of the prosodic hierarchy that consists of exactly two phonological phrases.

[10] An anonymous abstract reviewer says that this nicely accounts for the unacceptability of the following example: **Ice cream gives my aunt's husband brain freeze and beans indigestion*. According to the reviewer, *my aunt's husband* cannot be parsed as a single phonological phrase with *gives*. It is not clear to me that this is impossible, but to the extent that is, the current analysis does predict it.

I will formalize the analysis such that what is not deleted is always a prosodic unit that is the *head* of a phonological phrase. The head of a phonological phrase is always *at least* a prosodic word, and often larger (a recursive phonological phrase).

3.3 The Formal Analysis

I propose to formalize the analysis as follows:

(92) In a coordination of CPs, [CP1 CONJ CP2], where CP1 consists of ordered phonological phrases $\phi 1$ $\phi 2 \ldots$ and CP2 consists of ordered phonological phrases $\phi 1'$ $\phi 2' \ldots$, delete all but the heads of $\phi 1'$ and $\phi 2'$ if, for every syntactic head X that is deleted in ϕn′, there is a corresponding syntactic head Y in the non-head part of ϕn such that X and Y are tokens of the same lexical item and the head that selects X is a token of the same lexical item as the head that selects Y.

The condition checks for every syntactic head that is deleted that there is an identical one in the antecedent clause, and that what selects it is the same in both clauses. Take a simple example like the following:

(93) Some prefer inkjets, and others laser printers.

This will have the following prosodic parse:

(94) a. CP1: ($_{\phi 1}$ ⟨some⟩)($_{\phi 2}$ prefer ⟨inkjets⟩)
b. CP2: ($_{\phi 1'}$ ⟨others⟩)($_{\phi 2'}$ ~~prefer~~ ⟨laser printers⟩)

The heads that are deleted include at least the lexical verb V and, depending on one's theory, Voice or v, T(ense), perhaps an Agr head, and possibly (null) C. I will assume that Voice selects V, T selects Voice, C selects T. In this particular example, all of these heads are completely identical across the two CPs. Deletion is licensed.

One thing to note is that the material that is not deleted can be different, and in fact typically must be, since if it were the same it would be given and destressed. Identity is only enforced for the material that is deleted and what selects it, not what it itself selects as a remnant. So the selected objects (the remnants) can even be different syntactic categories, as we already saw in (6–8).

Now consider the example of an argument structure subset mismatch:

(95) Galahad kicked her a weapon, Gawain a shield.

a. CP1: ($_{\phi 1}$ ⟨Galahad⟩)($_{\phi 2}$ [$_{\text{VoiceP}}$ Voice [$_{\text{ApplP}}$ her Appl [$_{\text{VP}}$ kicked ⟨a weapon⟩]]])
b. CP2: ($_{\phi 1'}$ ⟨Gawain⟩)($_{\phi 2'}$ [$_{\text{VoiceP}}$ ~~Voice~~ [$_{\text{ApplP}}$ ~~her~~ ~~Appl~~ [$_{\text{VP}}$ ~~kicked~~ ⟨a shield⟩]]])
c. * CP2: ($_{\phi 1'}$ ⟨Gawain⟩)($_{\phi 2'}$ [$_{\text{VoiceP}}$ ~~Voice~~ [$_{\text{VP}}$ ~~kicked~~ ⟨a shield⟩]])

I assume that in a double object construction, the first object is projected in the specifier of an Appl(icative) head that selects the lexical V (Marantz 1993, Bruening 2001, Asami & Bruening to appear). V moves through Appl to Voice, not shown. If CP2 includes this Appl head, then deletion is licensed, because the two clauses are identical. If it does not, however, then the head that selects V is not the same across the two clauses (it is Voice in CP2 but Appl in CP1), and deletion is not licensed.

Now consider a case of negation missing in the second conjunct:

(96) Pete wasn't called by Vanessa but John by Jessie. (Repp 2009: 84, (3.2))

a. CP1: ($_{\phi 1}$ ⟨Pete⟩)($_{\phi 2}$ wasn't called ⟨by Vanessa⟩)

b. CP2: ($_{\phi 1'}$ ⟨John⟩)($_{\phi 2'}$ ~~was called~~ ⟨by Jessie⟩)

I assume that English *not* adjoins to the AuxP complement of T, while *n't* adjoins to the highest AuxV (Bruening 2025d):

(97) a. [$_{CP1}$ [$_{TP}$ Pete was-n't [$_{PassP}$ Pass [$_{VoiceP}$ Voice [$_{VP}$ called] by Vanessa]]]]

b. [$_{CP2}$ [$_{TP}$ John was [$_{PassP}$ Pass [$_{VoiceP}$ Voice [$_{VP}$ called] by Jessie]]]]

In CP2, the deleted heads are at least T, the Aux *was*, Pass, Voice, and the V *kicked*. For every one of these heads, there is a corresponding one in CP1 that is a token of the same lexical item. The corresponding heads are all also selected by the same item: C selects T, T selects Aux, Aux selects Pass, Pass selects Voice, Voice selects V. Deletion is licensed. If the two clauses were reversed, such that negation appeared in the gapped clause but not the antecedent clause, then deletion would not be licensed, because a deleted head would have no correspondent in the antecedent clause. The same holds for missing adverbs.

Now consider a case of voice mismatch, which is unacceptable:

(98) * Inkjets are preferred by some and others laser printers.

a. CP1: ($_{\phi 1}$ ⟨Inkjets⟩)($_{\phi 2}$ are [$_{PassP}$ Pass [$_{VoiceP}$ Voice [$_{VP}$ preferred]⟨by some⟩]])

b. CP2: ($_{\phi 1'}$ ⟨others⟩)($_{\phi 2'}$ [$_{Voice}$ Voice [$_{VP}$ prefer ⟨laser printers⟩]])

The lexical V moves to Voice, so Voice must be deleted along with V (at least; T probably is, as well). Deletion is not licensed, because Voice in CP2 is selected by T but Voice in CP1 is selected by Pass.

Other cases of argument structure mismatch also fall out:

(99) * France provided Ukraine with ammunition, and Russia to Iran.

a. CP1: ($_{\phi 1}$ ⟨France⟩) ($_{\phi 2}$($_{\phi 2}$ provided ⟨Ukraine⟩) with ammunition)

b. CP2: ($_{\phi 1'}$ ⟨Russia⟩)($_{\phi 2'}$ provided ammunition ⟨to Iran⟩)

Regardless of what the structure is, deletion is not licensed here, because the head *ammunition* is selected by V in CP2 but by P in CP1.

The way the condition is stated, each deleted syntactic head must be matched by a token of the same lexical item in the antecedent. This means that what is deleted has to contain exactly the same lexical items as appear in the antecedent. This leads to semantic identity as well as syntactic identity, but without the need to refer to semantics. It also correctly permits the morphological mismatches we have seen, if allomorphs are tokens of the same lexical items. We only have to view *was* and *were* as tokens of the same lexical item(s), which is probably the standard view, and agreement heads like *-s* and -Ø as tokens of the same lexical item. This again is probably the standard view. One thing to note is that tense and aspect can *not* vary in gapping, as was noted for tense by Hankamer (1979: 228):

(100) Anna wasn't eating anything, and Bertha only a little, so we'll have to make dinner later.

The second conjunct in this example must be interpreted as past progressive, even while negation can be missing. This follows in the current analysis because T and Asp heads, unlike negation, are selected and selecting heads in the clausal spine. Past tense T and present tense T are also apparently not tokens of the same lexical item. They must be distinct lexical items.[11]

Besides allomorphy, the other case of form non-identity we have seen involves vehicle change. An R-expression can be treated as a pronoun, a pronoun can be treated as a reflexive, and agreement features do not need to match (*himself–herself*). The latter (agreement features) is the same as verbal agreement: Differently agreeing forms of the same lexical items are tokens of the same lexical item. So *himself* and *herself* are tokens of the same lexical item(s). The R-expression–pronoun case will fall out from the proposal that R-expressions have the form Det(erminer) Restriction, while pronouns are exactly the same thing but with a null restriction (Elbourne 2001, Schlenker 2005, Bruening 2021a). Then an R-expression and the corresponding pronoun also consist of tokens of the same lexical items.

As for pronouns and reflexives, we do not currently have a good understanding of what the structure of reflexives is. We just said that pronouns are a Det plus a null restriction. Reflexives must have this same structure, then, and the *self* part must count as a token of the same lexical item as something in the pronoun (perhaps something null that forces local disjoint reference). I will have to leave full exploration of this to future work.

3.4 Summary

This section has argued against the small conjunct analysis and for the gapped clause being a full CP. It has also established that deletion takes place only in the first two phonological phrases of the gapped clause. The analysis was formalized to have this effect. The analysis was illustrated by explaining many of the properties of gapping that we have already seen to this point.

4 Explaining Remaining Properties of Gapping

In this section, I show that the analysis can explain all of the known properties of gapping that have not already been accounted for. We have already accounted for the possibility of negation and adverbs being left out of the gapped clause; the impossibility of voice mismatches and argument structure mismatches; the impossibility of split antecedents; the possibility of the deleted string being non-contiguous; the impossibility of deleting sub-word material; the need for the remnants to be prosodically prominent; and variability in whether prepositions need to be pronounced.

4.1 "Determiner Sharing" and Ellipsis in the First Phonological Phrase

One immediate advantage of this analysis is that it accounts for the phenomenon of "determiner sharing," where a determiner is missing from the subject in the second conjunct (McCawley 1993,

[11] Frazier (2015) claims that tense can sometimes mismatch:

(i) No woman$_1$ can leave today and her$_1$ daughter yesterday. (Frazier 2015: 35, (51))

I believe that this is spurious. No other combination of tenses works, and *No woman can leave yesterday* seems just as acceptable as (i).

Lin 1999, Ackema & Szendröi 2002):

(101) Too many Irish setters are named Kelly and German shepherds Fritz. (modified from McCawley 1993: (1a))

Determiner sharing is just the case where there is material in the first phonological phrase besides the prominent head that is not deleted. In most of the examples that we have seen, the first phonological phrase consists only of the prominent head of that phonological phrase. In determiner sharing, there is non-head material that can be deleted:

(102) a. CP1: ($_{\phi 1}$ too many ⟨Irish setters⟩)($_{\phi 2}$ are named ⟨Kelly⟩)
b. CP2: ($_{\phi 1'}$ ~~too many~~ ⟨German shepherds⟩)($_{\phi 2'}$ ~~are named~~ ⟨Fritz⟩)

The non-head material is deleted in the second conjunct. More than just determiners can be included, as well:

(103) a. Too many setters with long hair are called Kelly and with short hair Tony. (Ackema & Szendröi 2002: (45))
b. (I don't think we need worry about John harassing us.) Threats directed at me would offend his wife, and at you, everyone else! (Kubota & Levine 2016: (24e))
c. Pictures of Andre appeared in the *Times*, and of Belinda in the *Post*.
d. A few of my men will secure the village, of yours, the fields.

This is exactly as predicted by the current account.

Additionally, just as the first phonological phrase could include no non-head material, so can the second. Then we get determiners deleting without the verb gapping:

(104) Some dog barked and donkey brayed last night. (Kubota & Levine 2016: (39a))
a. CP1: ($_{\phi 1}$ some ⟨dog⟩)($_{\phi 2}$ ⟨barked⟩)
b. CP2: ($_{\phi 1'}$ ~~some~~ ⟨donkey⟩)($_{\phi 2'}$ ⟨brayed⟩)

Since the second phonological phrase includes only its head, nothing in it is deleted. This is entirely parallel to cases of gapping where nothing in the subject deletes.

Lin (1999) gives the following example as ungrammatical, where just the determiner of the subject is deleted:

(105) * That is Davenport College, the exterior of which is Gothic, and — interior of which — Georgian. (Lin 1999: (63b))

In the current analysis, the deletion rule has to target *all* non-head material. In my judgment, the following variation is acceptable, where *of which* is also deleted:

(106) That is Davenport College, the exterior of which is Gothic, and — interior — Georgian.
a. CP1: ($_{\phi 1}$($_{\phi 1}$ the ⟨exterior⟩) of which)($_{\phi 2}$ is ⟨Gothic⟩)
b. CP2: ($_{\phi 1'}$($_{\phi 1'}$ ~~the~~ ⟨interior⟩) ~~of which~~)($_{\phi 2'}$ ~~is~~ ⟨Georgian⟩)

I assume that *of which* is adjoined to the phonological phrase to its left, as shown. Since it is non-prominent, it is not the head of the phonological phrase, and deletes if the rule applies. Lin's example in (105) cannot be produced because the rule has not applied correctly.

Determiner sharing is sometimes optional:

(107) Your daughter is 16 and (your) son 17 1/2. (modified from McCawley 1993: (1c))

I propose that this is optionality in prosodic phrasing rather than deletion being optional in the first phonological phrase. In this case, *your* can either be parsed with the prominent head *son*, in which case it is pronounced, or it can be parsed separately, in which case it is deleted. Certain types of items must be parsed one way or the other. *Whose* seems to have to be parsed separately from the head, since (in my judgment) it cannot be pronounced:

(108) The Temple of Dagon, for example, whose exterior is seen in act one and (*whose) interior in act three, rivals a movie set. (modified from McCawley 1993: (1b))

While the indefinite determiner must be parsed with the contrastive head and so cannot be deleted:

(109) An Irish setter should be called Kelly and *(a) German shepherd Fritz. (modified from McCawley 1993: (5b))

As mentioned above, this is what is behind the unacceptability of Coppock's (2001) example of an attributive adjective remnant:

(110) * Sheila drives a white car, and Bob, red. (Coppock 2001: (37a))

If the indefinite determiner needs to be parsed with what follows it, then there is no way to delete it in this example. As was shown above, while the determiner must be pronounced, the head noun does not need to be:

(111) Sheila drives a white car, and ($_\phi$ ⟨Bob⟩), ($_\phi$($_\phi$ ⟨a red⟩) ~~car~~).

In this case, *car* is adjoined to the phonological phrase and, not being part of the head, deletes.

As can be seen, the current analysis captures determiner sharing as simple application of the deletion rule. There is no need to propose any particular (and very non-standard) syntax for determiners, as Lin (1999) does, and in any case this is belied by examples where more than determiners delete, like those in (103) and (106).

One thing to note is that the gapping rule as stated requires that deleted material in ϕn′ find its correspondent in ϕn. This rules out an identical determiner in ϕ2 licensing deletion of a determiner in ϕ1′:

(112) * I gave too many gifts to Sarah, and ~~too many~~ friends ~~gave too many gifts~~ to Samantha.

4.2 Antecedent May Not Be Embedded

Gapping is not possible when the antecedent is embedded (Hankamer 1979: 20):

(113) She's said Peter has eaten his peas, and Sally her green beans, so now we can have dessert. (Johnson 2009: (16b))

This sentence can only be understood where the second conjunct is under the scope of *said*. It cannot be understood to be conjoined with the matrix clause. Without gapping, it can be so understood:

(114) She's said Peter has eaten his peas, and Sally has eaten her green beans, ...

The representation where the first conjunct includes the matrix clause violates the condition on gapping proposed here. The conjuncts would be parsed as follows:

(115) a. CP1: ($_{\phi 1}$ she's said) ($_{\phi 2}$ ⟨Peter⟩)($_{\phi 3}$ has eaten ⟨his peas⟩)
b. CP2: ($_{\phi 1'}$ ⟨Sally⟩)($_{\phi 2'}$ has eaten ⟨her green beans⟩)

The condition states that heads deleted in $\phi 2'$ in CP2 have to have correspondents in $\phi 2$ in CP1. The correspondents here are instead in $\phi 3$. Deletion is not licensed. (One could also appeal to non-identity: T is presumably deleted in CP2, but it is selected by matrix C, while T in CP1 is selected by embedded C. If matrix and embedded Cs are not tokens of the same lexical items, then the identity condition is violated.)

4.3 Gapping Not Possible in Embedded Clauses

Gapping is also not possible in embedded clauses (Hankamer 1979: 19):

(116) * Some had eaten mussels and she claims that others shrimp. (Johnson 2009: (15b))

This is impossible for the same reason that embedding the antecedent is not: Deleted heads do not find identical counterparts in corresponding phonological phrases. If everything after *and* up to *others* is parsed as a single phonological phrase, then the rule has not applied properly, because all non-head material has to be deleted. This would include *she claims that*, but these heads do not have identical heads in the preceding conjunct. There is no way to delete just *had eaten*.

Weir (2014) claims that certain embedded clauses are allowed in gapping, so long as the complementizer does not appear:

(117) a. ? John ate oysters and I think Mary swordfish. (Weir 2014: 332, (679))
b. John ate oysters and I suspect Mary swordfish. (Weir 2014: 333, (680a))

My intuition says that these are parentheticals. The complementizer is not allowed because complementizers are not allowed in parentheticals (*That guy—I think (*that)—is a shoe-in for president*). The predicates that Weir (2014) shows do not work in gapping are all also unacceptable in parentheticals (e.g., **That guy—I am proud!—is a shoe-in for president*). In support of this parenthetical analysis, variable binding is not possible:

(118) * The woman stole the town's rainy day fund and every widow$_1$ thinks the man her$_1$ savings.

It is well known that variable binding is not possible from a parenthetical to a main clause (e.g., Potts 2005). If this were simple embedding, then variable binding would be possible, so this strongly indicates that this is *not* simple embedding.

It is perhaps surprising that a parenthetical could follow *and* and not disrupt gapping. I hypothesize that this is possible because parentheticals occupy a different syntactic and semantic plane from the main clause (see Potts 2005). This must make them occupy a different prosodic plane, as well, such that they can be ignored in identifying the first two phonological phrases of CP2.

4.4 VP Ellipsis in the Antecedent

Johnson (2009) observes that the antecedent for gapping cannot itself have VP ellipsis:

(119) * 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: (35))

There is a very simple reason for this: An elided verb cannot be the head of a phonological phrase. The relevant part of the above sentence would be parsed as follows:

(120) a. CP1: ($_{\phi 1}$ ⟨Sally⟩)($_{\phi 2}$ ⟨can't⟩ ~~bathe~~) ($_{\phi 3}$ because of her poison ivy)
b. CP2: ($_{\phi 1'}$ ⟨Mary⟩)($_{\phi 2'}$ ~~can't~~ ⟨get dressed⟩) ($_{\phi 3}$ because of her phobias)

In order for *can't* to be deleted in $\phi 2'$, there must be identical syntactic heads in the non-head part of $\phi 2$. But since *bathe* is elided, it cannot be the head of $\phi 2$, only *can't* can. The corresponding heads in $\phi 2$ are part of the head of $\phi 2$, not the non-head material. (If *can't* groups with either of the surrounding phonological phrases in CP1, then it still will not correspond to the deleted material in CP2.) Deletion is not licensed. Thus, the current analysis explains Johnson's observation.

4.5 Complementizers versus Wh-Phrases

The current analysis can also explain why complementizers cannot appear in the gapped clause, but wh-phrases and relative pronouns can. Fiengo (1974) observes that the complementizer *that* is not allowed in the second conjunct, and Johnson (2019) shows that various other complementizers are also not allowed:

(121) a. Holmes deduced that Bartholomew smokes latakia, and (*that) Thaddeus trichinopoly. (Fiengo 1974: 121, (29))
b. Smith wanted for some to bring beans and (*for) others rice. (Johnson 2019: (122b))
c. If some bring beans and (*if) others rice, ... (Johnson 2019: (122c))
d. Smith stayed because some brought beans and (*because) others rice. (Johnson 2019: (122d))
e. This is the woman who some gave books and (*who) others magazines. (Johnson 2019: (122d))

This follows if complementizers and the non-contrastive relative pronoun in (121e) are obligatorily parsed as part of the non-head part of the first phonological phrase (unlike determiners and prepositions, which can optionally—depending on what they are—be parsed with the head):

(122) a. CP1: ($_{\phi 1}$ that ⟨Bartholomew⟩)($_{\phi 2}$ smokes ⟨latakia⟩)
b. CP2: ($_{\phi 1'}$ ~~that~~ ⟨Thaddeus⟩)($_{\phi 2'}$ ~~smokes~~ ⟨trichinopoly⟩)

If deletion applies to delete the verb, then it necessarily deletes the complementizer, too.

Wh-phrases which are presumably in Spec-CP in matrix and embedded wh-questions can appear in the second conjunct as well as the first:

(123) a. Who was the traitor and who the patriot? (attested example)

b. Who wants to invite Peter, and who Mary? (Neijt 1979: 25, (50a))

c. Smith asked which guest had brought rice and which beans. (Johnson 2019: (123a))

This follows, since the wh-phrase is the head of the first phonological phrase in each conjunct; it is one of the points of contrast between the two conjuncts (unlike in (121e)):

(124) a. CP1: ($_{\phi 1}$ ⟨which guest⟩)($_{\phi 2}$ had brought ⟨rice⟩)

b. CP2: ($_{\phi 1'}$ ⟨which⟩)($_{\phi 2'}$ ~~had brought~~ ⟨beans⟩)

(Deletion of *guest* can either be an independent process of syntactic ellipsis in NP, which is independently available, or *guest* can be part of the non-head of the first phonological phrase and deleted by the gapping rule.)

The advantage of the present account is that it does not have to say that the conjuncts in declarative instances of gapping cannot be CPs, while they can be in interrogatives and relative clauses. Conjunction can uniformly be CP. When CPs are conjoined, however, and material in Spec-CP or C is not contrastive, then it will necessarily be deleted in the gapped clause.

4.6 No Backwards Gapping

VP ellipsis can be cataphoric, but gapping may not be (Koutsoudas 1971, Jackendoff 1971):

(125) a. Even though she doesn't want to —, Cassandra will have to tell everyone her premonitions.

b. * Some — inkjets, and others prefer laser printers.

This follows from the statement of the conditions on gapping: Deletion affects the first two phonological phrases of the CP after the coordinator, and there must be identical material in the *preceding* conjunct. Admittedly, the proposed conditions only restate the facts here; hopefully future work can find an explanation for why they must be the way they are and could not be otherwise (but see also the next subsection).

4.7 Limited to Coordination

Gapping is limited to coordination (Jackendoff 1971). The conditions as stated have this effect, since they refer specifically to coordination and coordinators. In fact, gapping is actually more limited than that, being limited to only certain types of symmetric coordination (Abeillé et al. 2014: 243–244). This will also have to be included in the analysis, but I will not do that here and will leave the conditions as stated. As they are stated, they limit the deletion that is operative in gapping to the second of two coordinates.[12] This is of course just a restatement of the facts, but I will have to leave the search for an explanation to future work. I do note, however, that analyses of other types of ellipsis have yet to do better. For instance, as far as I am aware, no one has an explanation for why VP ellipsis in English has to apply to the complement of an auxiliary verb.

[12] Jackendoff (1971) states that gapping is acceptable in comparatives. I personally find gapping unacceptable in comparatives, but Lechner (2004) provides extensive documentation of its appearance there. In the present analysis, all that needs to be said is that, for those speakers who accept and produce gapping in comparatives, the comparator *than* is in the class of conjunctions (CONJ) referred to by the gapping rule.

That being said, it does seem that there may be a broader generalization. Bruening (2015) argues that non-constituent coordination/left edge ellipsis operates over prosodic constituents in a way that is very similar to the proposal here for gapping. Non-constituent coordination/left edge ellipsis is also limited to the second of two conjuncts. It seems that there is something about coordination such that ellipsis targets prosodic material in non-initial conjuncts. Hopefully future work can find a deep reason behind this connection.

4.8 More than One Conjunct

Gapping can of course take place in more than one conjunct:

(126) Ivan plays krummhorn, Boris fluegelhorn, and Schwarz bassethorn. (Jackendoff 1971: 1b)

In the current analysis, the first conjunct licenses deletion in the second, and the second licenses deletion in the third. The non-head material is identical across all three conjuncts, and so deletion is licensed in each beyond the first. (I assume that there is a null coordinator when a non-initial conjunct lacks a pronounced one.)

As the conditions on gapping are stated, they refer to the preceding conjunct. This predicts that the third conjunct does not need to have gapping, but the second must (i.e., there can be no skipping):

(127) a. Ivan plays krummhorn, Boris fluegelhorn, and Schwarz drives the van.
b. * Ivan plays krummhorn, Boris drives the van, and Schwarz bassethorn.

The ATB movement account also rules out (127b), since movement has to proceed across-the-board. It can allow (127a), if the third conjunct is adjoined higher, above the height of the landing position of the ATB-moved phrase. The current analysis needs no such structure for coordination; the facts follow regardless.

4.9 Summary

Almost all of the peculiar properties of gapping fall out from the proposed analysis. Gapping being limited to the second of two conjuncts is just stated in the formulation of the rule, but everything else follows with no additional stipulations. The one thing that does not is the strange scopal properties of gapping, to which I now turn.

5 Strange Scopal Properties

There is one property of gapping that does not follow automatically from the proposed analysis. This is the strange scopal properties of gapping. A negative quantifier as subject of the first conjunct can take scope over and bind into the second conjunct, while this is not possible without gapping (Oehrle 1987, McCawley 1993):

(128) a. No woman$_1$ can join the army and her$_1$ girlfriend the navy.
b. * No woman$_1$ can join the army and/but her$_1$ girlfriend can join the navy.

Negation and modals can also take scope over the entire coordination (Siegel 1987). In (129a), what is not allowed is the entire coordination, John eating steak while Mary eats spam; John can eat steak and Mary can eat spam, they just can't do both at the same time. This is unlike the non-gapping case in (129b), where the two prohibitions are independent.

(129) a. John can't eat steak and Mary just spam, it's not fair. (Culicover & Jackendoff 2005: 278, (78a))

b. John can't eat steak and Mary can't eat spam.

The most straightforward application of the current analysis to (129a) would make it equivalent to (129b), with deletion of *can't eat* in the second conjunct. This would incorrectly predict (129a) to be semantically equivalent to (129b). Similarly for (128a): The second conjunct would have deletion of *can join*, and it should be equivalent to (128b). Leaving out negation in the second conjunct will not work, either; then negation would only be contentful in the first conjunct, it would not take scope over the entire coordination.

It is important to note that negation and modals can also distribute, they do not have to take scope over the coordination (Siegel 1987, Winkler 2005, Repp 2009, Kubota & Levine 2016):

(130) a. Max didn't read the book and Martha the magazine. (Repp 2009: 42, (2.2))

b. Amanda can't eat peanuts, and Jane shellfish, so we can't have either of those at the buffet.

c. No bus is available from Düsseldorf to Cologne, or train from Cologne to Frankfurt—in either case, we won't be able to get to Frankfurt in time. (Kubota & Levine 2016: note 4, (i))

The reading of (130a) is, 'Max didn't read the book and Martha didn't read the magazine.' In (130b), both Amanda and Jane can be understood to have dietary restrictions. Similarly for (130c) (and note that the negative quantifier can be deleted at the same time as it takes narrow scope). The fact is that both the exceptional wide scope, and scope in each conjunct, are both available.

Scope in each conjunct follows straightforwardly in the current analysis. In all of these examples, full CPs are coordinated, and shared material is deleted in the second conjunct, exactly as has been assumed up until now. The example in (129a) is analyzed as follows:

(131) a. CP1: ($_{\phi 1}$ ⟨John⟩)($_{\phi 2}$ can't eat ⟨steak⟩)

b. CP2: ($_{\phi 1'}$ ⟨Mary⟩)($_{\phi 2'}$ ~~can't eat~~ ⟨just spam⟩)

The modal and negation are both present in both conjuncts, as shown. This straightforwardly derives the reading where they are interpreted in both, as in (130b). As for the reading where the modal and negation take scope over the whole coordination, I propose that they are undergoing across-the-board covert quantifier raising to a higher position:

(132) ~~can't~~t_1 [[$_{CP}$ John can't$_1$ eat steak] and [$_{CP}$ Mary ~~can't~~t_1 ~~eat~~ just spam]].

Since the point of quantifier raising is to give a quantifier higher scope, *can't* is interpreted at LF in the moved position. The two copies inside the conjuncts are not interpreted at LF. This gives us the wide scope interpretation. Quantifier raising is optional; if it does not apply, *can't* is interpreted in each conjunct, as in (130b).

Now we must explain why across the board quantifier raising is not possible in (129b), repeated as (133):

(133) John can't eat steak and Mary can't eat spam.

If it were, this should be able to have the same interpretation, with a single modal and a single negation both taking scope over the coordination. It cannot have this interpretation. The reason is that, in movement chains in general and in ATB movement chains in particular, only one copy of the moving element can be pronounced. In (133), two instances of *can't* are pronounced. They both must therefore be contentful, and cannot be part of a movement chain. This is why covert ATB movement generally does not exist (Bošković & Franks 2000). Gapping, on the other hand, independently deletes one instance of *can't*. Only one instance of *can't* is pronounced, and so it can be interpreted as part of a movement chain. This is why the interpretation is particular to gapping.

Let us now consider the examples in (128), repeated in (134). Here it appears that gapping is specifically enabling a subject quantifier in the first conjunct to bind into the second conjunct:

(134) a. No woman$_1$ can join the army and her$_1$ girlfriend the navy.
b. * No woman$_1$ can join the army and/but her$_1$ girlfriend can join the navy.

I propose to analyze (134a) exactly like the example in (129a). Negative quantifiers like *no woman* are actually a combination of a negative operator and an existential (Jacobs 1980; see Penka 2012). The negative operator is abstract, call it NEG. This abstract NEG can also merge in the second conjunct, but then it and *can* both undergo covert ATB quantifier raising from both conjuncts in (134a). NEG and *can* are then interpreted in the higher position, and not in each individual conjunct. NEG is also able to bind a variable in both subjects from this higher position outside the coordination.

As for (134b), gapping has not applied. The modal *can* is pronounced twice and so cannot be taken to have undergone covert ATB movement. The abstract negative NEG is not pronounced at all, and so it could, in principle, undergo covert ATB movement. I propose that it not being able to is essentially a strong garden path effect. The second conjunct has no gapping and is therefore a complete tensed clause. The parser has no reason to posit an abstract NEG within it, and it therefore does not. I suggest that this preference is so strong that the parser simply does not even consider the option.

In this analysis, gapping does not allow exceptional scope for a subject quantifier, as the low coordination analysis does. In agreement with this analysis, an anonymous reviewer cited by Johnson (2009: note 5) notes that gapping does not always allow the first subject to bind a variable in the second conjunct:

(135) * Every boy$_1$ will eat his$_1$ packed lunch and a girl will his$_1$ chocolate.

In fact, binding of a pronoun in one conjunct by a quantifier in another depends on many factors, and is in no way dependent on gapping. See Barker (2012) for naturally occurring examples.

Kubota & Levine (2016) note that determiner sharing without verb gapping (see section 4.1) also allows exceptional wide scope:

(136) No dog barked or donkey brayed last night. (Kubota & Levine 2016: (39b))

This is expected given what has been said so far: The fact that the determiner is deleted in the second conjunct indicates that the gapping rule has applied. This is enough for the parser to allow (and even prefer) the parse where the abstract NEG has undergone covert ATB movement.

The proposed analysis with ATB quantifier raising also makes a prediction. It raises negation and the modal to a position outside the conjunction of the CPs. The LF of the wide scope reading is therefore basically equivalent to the following paraphrase:

(137) It can't be the case that Martha eats steak and Preston eats just spam!

The thing to note is that this paraphrase does not license an NPI in either of the conjuncts:

(138) a. * It can't be the case that Martha buys something expensive and Preston buys anything (at all)!
b. * It can't be the case that Martha buys anything (at all) and Preston buys something super expensive!

I assume that this is because of the multiple CP boundaries occurring between negation and each conjunct: *Neg. . . [$_{CP}$ [$_{CP}$ . . . NPI. . .] CONJ [$_{CP}$. . . NPI. . .]]. Since the current analysis of the wide scope reading shares this feature, it predicts that NPIs will not be licensed in either conjunct of a gapping sentence, either. This seems to be correct:[13]

(139) a. * Martha can't buy something expensive and Preston anything (at all)!
b. * Martha can't buy anything (at all) and Preston something super expensive!

Rather than an NPI, *nothing* is acceptable, and a double negation reading is not possible:

(140) a. Martha can't buy nothing and Preston something super expensive!
b. Martha can't buy something expensive and Preston nothing (at all)!

This is again just like the proposed paraphrase:

(141) a. It can't be the case that Martha buys nothing and Preston buys something super expensive!
b. It can't be the case that Martha buys something expensive and Preston nothing (at all)!

In contrast, NPIs are licensed in both conjuncts on the distributive scope reading:

(142) a. Martha can't eat anything with gluten and Preston anything with sugar, so there's not much we can serve.
b. Martha didn't bring any sunscreen or Preston any swimming trunks, so we can't go to the beach.

[13] Winkler (2005) claims that such NPI licensing is possible, citing the following example:

(i) During dinner he didn't address his colleagues from Stuttgart or at any time his boss, for that matter. (Winkler 2005: 186, (9))

However, this example can be parsed as an instance of left edge ellipsis, not gapping. Left edge ellipsis is probably best analyzed as coordination of VPs with deletion of shared material at the left edge of VP. See Bruening (2015) for such an analysis and further references.

This is exactly as predicted by the current account, which has negation inside both CPs on the distributive reading.

As far as I can see, all other accounts of the wide scope reading predict that NPIs should be licensed in both conjuncts on that reading. The low coordination account certainly predicts that NPIs should be licensed, since they are in overt VP coordination sharing negation/modals:

(143) a. James can't buy anything expensive or eat out since he's currently between jobs.
b. James can't go out or visit anyone while he's sick.

The "hypothetical reasoning" proposal in Kubota & Levine (2016) also predicts that NPIs should be licensed in both conjuncts on the wide scope reading (at least, as far as I can tell).

The hypothesis of optional covert ATB movement in addition to the proposed analysis of gapping is able to account for all the scope facts of gapping. It also makes a prediction that no other analysis makes, and this prediction is borne out.

6 Conclusion

In this paper, I have shown that an in situ ellipsis analysis of gapping that deletes a prosodic constituent subject to syntactic identity explains all of the known facts of gapping, as well as some novel ones. All of the properties of gapping fall into place under this analysis.

Along the way, I have argued against alternatives, including ones where the remnants undergo movement, the ATB movement analysis, low coordination, and bare fragment analyses. Up until now, the most successful analysis of gapping has probably been the "hypothetical reasoning" analysis of Kubota & Levine (2016). However, as pointed out above, this account fails to predict the behavior of NPIs on the wide scope reading of negation in gapping. As far as I can see, it also has nothing to say about prepositions (section 2.2). It also fails to explain why gapping cannot be embedded (section 4.3) and why the antecedent cannot be embedded (section 4.2). In their note 22, Kubota & Levine (2016) try to explain both embedding facts by limiting gapping to matrix verbs, but gapping is clearly not so limited. Many examples throughout this paper have illustrated gapping in embedded clauses. Another example is, *If Olga wins silver and Ilya bronze, then*.... Gapping can even take place in embedded non-finite and gerund clauses, as in *I remember Max learning the piano, and Melinda the violin*. This analysis also suffers from the defects that all bare fragment analyses do, listed in section 2.1. Given these deficiencies, the current proposal is more successful than any made so far.

One potentially important consequence of the current analysis is that it requires an ellipsis process to make reference both to prosody and to syntax. What is deleted is a prosodic unit, but what licenses that deletion is syntactic identity. This may point to a view of grammar where syntax and prosody are built in parallel, although it would also be compatible with one where syntactic licensing takes place first and then deletion happens at a later stage where a prosodic representation is created from the syntactic one. I will have to leave full exploration of this issue to future work.

Appendix: Word Order

I repeat the statement of the gapping rule from (92) below:

(144) In a coordination of CPs, [CP1 CONJ CP2], where CP1 consists of ordered phonological phrases $\phi 1$ $\phi 2 \ldots$ and CP2 consists of ordered phonological phrases $\phi 1'$ $\phi 2' \ldots$, delete all but the heads of $\phi 1'$ and $\phi 2'$ if, for every syntactic head X that is deleted in ϕn′, there is a corresponding syntactic head Y in the non-head part of ϕn such that X and Y are tokens of the same lexical item and the head that selects X is a token of the same lexical item as the head that selects Y.

One thing to note is that the deleted head and the one that corresponds to it have to be in corresponding phonological phrases. This was important in "determiner sharing" (section 4.1) and in ruling out embedding (sections 4.3–4.2). In this appendix, I address potential word order mismatches between the gapped clause and the preceding conjunct. Sag et al. (1985) claim that mismatches are allowed, but they give only one example:[14]

(145) A policeman walked in at 11, and at 12, a fireman. (Sag et al. 1985: (106))

As with the putative split antecedents in section 2.3, this order reversal works only with an adjunct PP, and is much less acceptable with an argument PP or NP:

(146) A terrible ogre stepped out of the first door, and out of the second, a giant orc.

(147) a. * I gave a book to Mary, and to Sue, you.
b. * Natasha wants to try to write a novel, and a screenplay, Jack.

The fragment that is purportedly a gapped clause is also a possible answer to a question, where gapped clauses are not (as was shown in (48)):

(148) a. Who walked in? At 12, a fireman.
b. Did something come out? Out of the second door, a giant orc.

Examples like (145) also work even without a corresponding adjunct in the first conjunct:

(149) A policeman walked in, and at 12, a fireman.

As we saw above in (46), this is never possible in gapping.

I conclude that examples with changes in order are not gapping, they are some other kind of fragment. True gapping in coordination does not tolerate changes in order (see also Johnson 2019: 596).

Unfortunately, the gapping rule in (92/144) only captures this if a particular prosodic parse can be ruled out. Take an example like (147a). The two CPs might be parsed as follows:

(150) a. CP1: ($_{\phi 1}$ ⟨I⟩) ($_{\phi 2}$gave a book ⟨to Mary⟩)
b. CP2: ($_{\phi 1'}$ ⟨to Sue⟩) ($_{\phi 2'}$ ⟨you⟩ ~~gave a book~~)

If the string *gave a book* can be part of the phonological phrase with *you* here, then the conditions on gapping would be satisfied and deletion would be able to apply. One could argue that it is impossible for *gave a book* to be part of the same phonological phrase as *you* in this configuration, and must constitute its own prosodic phrase, but it is hard to see what would force that to be true.

I will have to leave further exploration of word order mismatches to future work.

[14] Abeillé et al. (2014) give more examples in French and Romanian, but all of their examples have the same character and involve an adjunct remnant.

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