

Deletion through Movement*

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What appears to be deletion is, in some cases, the result of syntactic movement out of a phonologically and semantically interpreted domain. Support for this conclusion comes from a phenomenon of question truncation that I call *aux-drop*. I show that *aux-drop* questions differ minimally from full questions in that their auxiliary, though present early in the derivation, moves to a position in which it is interpreted neither phonologically nor semantically. I also argue that this *deletion through movement* is not subject to a recoverability condition. The analysis finds a natural place in a theory where head movement is syntactic (not purely phonological) and spell-out is cyclic. This approach explains the emergence of the *factive effect*—a type of tense interpretation pattern found in “bare sentences” in, e.g., Haitian Creole and Fòngbè—in an obscure corner of certain languages that normally require full tense specification in finite clauses. My approach finds further support in the patterning of *aux-drop* questions with VP topicalization and pseudoclefts with respect to *morphological mismatch*, a pattern of verbal perfect interpretation in the absence of participial morphology.

1. Introduction

I argue that what appears to be deletion is, in some cases, the result of syntactic movement out of a phonologically and semantically interpreted domain, and that this type of deletion applies without a recoverability condition – that is, without a condition that limits deletion to items that are “recoverable” from context. Independent of this proposal, I show that, even in languages that normally require an explicit tense specification in finite clauses, tense can be computed, when no such specification is structurally present, from the internal aspect of the eventuality involved. Furthermore, my analysis predicts that deletion through movement patterns with other types of structures that allow a mismatch between certain types of participial morphology and semantic interpretation.

In pursuit of these goals, I describe and analyze questions where a fronted auxiliary is not pronounced (1). I call this phenomenon *aux-drop*.¹

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¹ This phenomenon has been discussed previously, but usually somewhat superficially (with the notable exception of Hendrick 1982 and other work cited below). However, to my knowledge, this is the first place the full range of facts discussed here has been analyzed.

- (1) a. Anybody want a hot dog? (cf. Does anybody want a hot dog?)
 b. Anyone seen John today? (cf. Has anyone seen John today?)
 c. Anybody going to the game? (cf. Is anybody going to the game?)

Aux-drop is also possible in alternative questions such as (2). However, I will focus on yes/no questions in the interest of expository simplicity.

- (2) (Do) You want chicken or beef? [Possible answer: chicken, please]

Though I have not investigated systematically the cross-linguistic distribution of aux-drop, the possibility of truncated questions is not unique to English, as the German examples in (3) show (M. Wagner, personal communication). I will return to aux-drop in Germanic in section 2.2 and address some challenges faced in fully assimilating truncated questions in German, and perhaps Dutch, with aux-drop.

- (3) a. (Hat) irgendwer gestern Spiderman gesehen?
 (Has) anyone yesterday Spiderman seen
 ‘(Did) anyone see Spiderman yesterday?’
 b. (Ist) irgendwer gestern nach Cape Cod gefahren?
 (Is) anyone yesterday to Cape Cod gone?
 ‘(Did) anyone go to Cape Cod yesterday?’

Aux-drop should not be confused with “rising declarative” questions such as (4a), which differ phonetically from their declarative counterparts (4b) only in intonation (Gunlogson 2001). These questions differ from aux-drop in that they contain an overt tense (here ’s). Moreover, raising declaratives cannot be used in the same contexts as aux-drop or full questions; among other differences, they are “unsuitable in contexts where the speaker is expected to maintain an attitude of neutrality or ignorance” (Gunlogson 2001, p. 22). Aux-drop questions do not have this restriction.

- (4) a. It’s raining?
 b. It’s raining.

The paper is organized as follows. I first discuss facts related to the syntactic environments that allow aux-drop (section 2) and the tense interpretation of aux-drop questions (section 3). Though these syntactic and semantic properties appear to be contradictory, the analysis in section 4 provides a way to reconcile these facts. In section 5, I show that the possibility of a mismatch between morphological and semantic interpretation in aux-drop questions supports the proposed analysis. Section 6 contains a summary.

2. The Syntax of Aux-Drop

2.1 Syntactic Restrictions on Aux-drop

Aux-drop is not simply a “sloppiness” or “fast speech” effect allowed whenever the content of the auxiliary can be inferred from the discourse or morpho-syntactic context. If it were, one might expect auxiliary deletion to be possible

in (5a), where a future meaning should be clear from the adverbial *tomorrow*, or in (5b), where *has* could in principle be recovered from the *-en* morphology on *be*.²

- (5) a. Someone *(will) go tomorrow.
b. Someone *(has) been in my office.

One might suggest, however, that both structural and semantic factors are at play, and that aux-drop is only possible when accompanied by *subject-aux inversion* (SAI). However, even with examples that contain both SAI and morphological or semantic context that might be expected to make the auxiliary recoverable, aux-drop is highly restricted (6).³

- (6) *Constituent Questions*
a. Who *(does) everyone like?
b. When *(did) everyone wake up?
Focus/Negative Inversion
c. Only Mary *(does) everyone like.
d. Not a single professor *(does) everyone like
VP Ellipsis Inversion
e. I don't like candy corn, and neither *(does) any one of you.
f. I like gazpacho, and so *(do) you.
Exclamative Inversion
g. Boy, *(are) you dirty!
Counterfactual Inversion
h. *(Were) he a better speaker, John would probably win the election.

A naïve approach to aux-drop under which the phonological material of an auxiliary can be deleted when “recoverable” would fail to account for the facts: Aux-drop is possible only when the missing auxiliary has been raised at the root level and would be left-most in the pronounced structure. The examples in (6) all fail to satisfy these descriptive conditions.

Hendrick (1982) reports that auxiliary omission is possible in some wh-questions (7), contrary to my claim in (6a,b).

- (7) a. What (are) ya doin' now? (also, *Whacha doin' now?*)
b. What (have) you been doin' lately? (also, *Whacha been doin' lately?*)

However, on the basis of the asymmetries in (8a-h), I follow Hendrick (1982) in arguing that this type of aux-omission is not the same phenomenon as aux-drop. Specifically, we see in (8) that while aux-drop is possible with *do*, third-person singular subjects, main verb (copular) *be*, and in passives, auxiliary omission in wh-questions is not possible in these cases.

² The data reported here hold only for some languages and dialects. These examples may be perfectly grammatical elsewhere, including in dialects of English such as AAVE/BEV (see Labov 1972).

³ As an anonymous *NLLT* review points out, (6e,f) might be ruled out independently since finite auxiliaries are generally stressed next to an ellipsis site, and in fact many other types of gaps (King 1970), and so we would not expect them to be omissible.

- (8) *Do-drop*
- | | |
|--|-------------------|
| a. (Do) you have a pen? | [aux-drop] |
| b. What *(do) you want? | [wh aux-deletion] |
| <i>3rd person singular subjects</i> | |
| c. (Has) anyone told Mary we're leaving? | [aux-drop] |
| d. What *(has) he done? | [wh aux-deletion] |
| <i>Main verb 'be'</i> | |
| e. (Are) you ok? | [aux-drop] |
| f. Where *(are) you? | [wh aux-deletion] |
| <i>Passives</i> | |
| g. (Was) anyone arrested yesterday? | [aux-drop] |
| h. What *(were) you arrested for? | [wh aux-deletion] |

Therefore, the differences noted in (8) between aux-drop and Hendrick's (1982) wh-question auxiliary omission can be maintained. Hendrick's (1982) suggestion that auxiliary omission in wh-questions is phonological deletion seems quite plausible.⁴ Since my analysis of aux-drop is not phonological, I will put this phenomenon aside.

The reader might have noticed, however, that all of the aux-drop examples so far, including those in (8), have contained subjects like *you* and *anyone*. In fact, many speakers judge as ungrammatical out-of-the-blue aux-drop questions that contain other types of subjects (e.g., names, as in *John want a hot dog?*). At first glance it seems that the subject of an aux-drop question must be the addressee.⁵ For example, even when asked to a history class in an out-of-the-blue context, (9) cannot help but mean "did any one of you (*the students*) conquer Rome?"

- (9) Anyone conquer Rome?

However, by making a subject *discourse-old* and including appropriate non-addressees in the conversational context, non-addressee subjects are permitted. In (10), for example, the question concerns whether there is anyone home at the neighbors' house, and yet the neighbors are not in the set of addressees.

- (10) [John and Mary like to keep tabs on their neighbors. Mary sees John looking out the window at the neighbors' house and asks ...]
Anybody home?

In fact, even (9) can have the more natural historical reading if the context is set up to allow for, e.g., *the Visigoths* as an answer (11).

- (11) [Professor: "Let's see what you know about the history of attempts to conquer Rome. Was Rome conquered in the 4th century A.D.? What about the 5th century..."]
Anybody conquer Rome then/in the 5th century A.D.?

⁴ Under this approach, contraction of auxiliary *have* and *be* feeds phonological deletion, yet phonologically deleted auxiliaries do contribute to semantic interpretation. Note that while in order to be deleted, a form must be contracted, not all contraction feeds deletion. Hendrick (1982, pp. 811–813) formulates various other phonological and morphological conditions on this rule.

⁵ In this way the set of possible aux-drop subjects would mirror the possible subjects of imperatives (Flagg 2002).

- (i) Everybody/*The students/*John leave!

In this case “yes, the Visigoths” is a possible answer because the series of questions makes groups in this time period part of the discourse. In a similar way, questions with definite subjects are possible in the right contexts.⁶

- (12) [Bill is racing home to meet with John, who was due there 5 minutes ago. He calls home and asks:]
John arrive yet?

It seems likely that this discourse-related restriction on the possible subjects of aux-drop questions is related to the discourse restriction on the use of aux-drop questions themselves. In general, aux-drop questions are somewhat infelicitous in completely out-of-the-blue contexts. It is perhaps unsurprising, then, that, without further context, aux-drop subjects are limited to the addressee (which is, presumably, present in any conversational context). With further context, however, other subjects become possible. For the remainder of this paper I will use subjects like *anyone*, but in all cases, given an appropriate context, a subject such as *John* would do equally well.

2.2 Evidence for structure above the VP

Due to their truncated nature and lack of (overt) tense, one might suspect that aux-drop questions involve smaller structures (e.g., bare VPs) than do full questions. Such an analysis would be reminiscent of proposals in the field of first language acquisition that children go through a stage of truncation. For example, Rizzi (1993) proposes that so-called root infinitives in child language are in fact matrix declarative clauses in which the root is a phrase below the TP level (where a [CP... [TP... [VP]]] hierarchy is assumed). But upon closer inspection it is clear that examples such as those in (1) behave syntactically much like their untruncated kin. I argue that aux-drop sentences cannot be bare VPs, but contain higher functional material, including TP.

Several factors support this conclusion. First, note that higher adverbs and negation, which Cinque (1999) situates above VP, are possible in aux-drop questions.

- (13) a. Epistemic: (Is) everyone **probably** coming tomorrow?
b. Tense: (Is) everyone **now** aware of the problem?
c. Habitual: (Do) you **always** talk like this?
d. Negation: (Does) anybody **not** like John?

One might object that, under assumptions that differ from those of Cinque (1999), these adverbs could be adjoined to VP. If this were true, the examples in (13) would fail to show that aux-drop questions contain super-VP material. However, note the ill-formedness of including the adverbs from (13) in topicalized VPs.

- (14) a. She said John is probably coming tomorrow, and
* probably coming tomorrow, he is.
b. She wanted everyone to be aware of the problem, and
* now aware of it, they are.
c. John hoped Mary wouldn't always talk like this, but
* always talk like this, she does.
d. John thought Mary would not like him, and
* not like him, she does.

Compare the examples in (14) to similar, but well-formed, examples in which the adverbs from (13) are not raised along with the VP (15).

⁶ Expletive subjects are also possible, given a context. For example, one can imagine a policeman asking, “*There (seem to be) a problem here?*”, or, in the same context as was given for (10), Mary could ask, “*There anybody over there?*”.

- (15) a. She said John is probably coming tomorrow, and coming tomorrow, he probably is.
 b. She wanted everyone to be aware of the problem, and aware of it, they now are.
 c. John hoped Mary wouldn't always talk like this, but talk like this, she always does.
 d. John thought Mary would not like him, and like him, she does not.

The difference between (14) and (15) can be explained if the adverbs in question cannot appear adjoined to the VP (or whatever verbal projection is fronted in these cases). Given that these adverbial elements cannot appear adjoined to or within the VP, and that these adverbs can appear in aux-drop questions (13), aux-drop questions cannot be derived from bare VP structures.

Secondly, if we assume that the type of interrogative meaning observed in aux-drop can only arise given a particular structural component (e.g., Karttunen's (1977) [?] morpheme), then the very fact that aux-drop questions are questions requires that they contain this component. If this element appears only in the left periphery, aux-drop questions must contain at least this much left-peripheral material.⁷

Thirdly, aux-drop questions do not behave like *Default Case* environments (16a,b), in which pronouns show accusative case in English (Schütze 1997). Instead, only nominative *he/she/they* is possible (16c). This suggests that though no tense is pronounced in aux-drop, the nominative case-assigner (T, by hypothesis) is present at some point in the derivation.

- (16) a. What? Me/*I worry?
 b. Who wants ice cream? Me/*I
 c. (Is) He/*Him here yet?

These observations provide strong arguments against a bare VP analysis of aux-drop questions. In particular, the last two arguments show that aux-drop questions contain [?], perhaps a type of C or other left-peripheral element, and nominative case-assigning T.

Further evidence suggests that aux-drop questions not only contain functional structure above the VP level, but a subject-aux inversion (SAI) as well. Two pieces of evidence support this claim. First, aux-drop questions behave just like full questions for what have been called *case adjacency effects*. In English declarative clauses, surface adjacency of the object to the verb seems to be necessary, at least descriptively (17a). This same effect does not arise with nominatives (17b), where a subject need not be adjacent to a tensed verb or auxiliary. But in matrix questions, an adjacency requirement emerges for the subject as well: The nominative subject must be adjacent to the raised auxiliary (18a). That this fact is not related to the interrogative nature of the clause is shown by the grammaticality of adverb-subject order in embedded questions (18b). Interestingly, (19) has the same degraded status as (18a).⁸ This fact suggests that aux-drop questions contain SAI.

⁷ This argument might be taken to suggest that all utterances must be "typed" as declarative, interrogative, imperative, etc. While I believe the evidence shows that aux-drop questions are full clauses, and so the argument applies to them, the broader conclusion that all utterances contain a C node may be debatable. Someone asking "John?" upon hearing the front door open, or a surgeon saying "Scalpel!" seem to be just single words. However, as pointed out to me by Marcel den Dikken, their intonational contour is clearly that of full questions and imperatives, respectively. This fact makes a single-word analysis less compelling.

⁸ Intonation must be strictly controlled for here. Certain adverbials may indeed appear before aux-drop questions, as in (i).

- (i) a. Honestly, (Does) Anyone believe Oswald did it alone?
 b. Now, (Is) Everyone aware of the problem?

These adverbials, however, arguably do not form part of the sentence; they are intonationally and semantically separate from the clause/proposition. In (ia), "honestly" means something like "reply honestly to what I am going to say." Compare this to the use

- (17) a. * Everyone loves clearly their job.
 b. Everyone clearly loves their job.
- (18) a. * Is now everyone aware of the problem?
 b. I wonder whether now everyone is aware of the problem?
- (19) * Now everyone aware of the problem? (cf. (13b) and (18a))

Another argument for the presence of an SAI-inducing head in aux-drop questions is based on the distribution of negative polarity items (NPIs). While I do not present a precise theory of NPI licensing in questions (see Guerzoni 2001 and Han & Siegel 1997, among others), some observations are crucial. First, while NPIs like *ever* and *anyone* are excluded from non-negative declaratives like (20a), they are licensed in full and truncated questions of the sort shown in (20b,c). This contrasts with raising declaratives like (20d) (cf. (4)), where an NPI subject is not possible (20e).

- (20) a. * Anyone wants a hot dog. (cf. Someone wants a hot dog.)
 b. Does anyone want a hot dog?
 c. Anyone want a hot dog?
 d. Someone wants a hot dog?
 e. * Anyone wants a hot dog?

Moreover, NPIs are licensed in (non-negative) matrix questions only if they contain SAI or wh-movement. For example, questions that contain *how come*, which is not accompanied by SAI, do not license NPIs like *anyone* and *ever* (21a), while apparently synonymous *why*, which is accompanied by SAI, does (21b).⁹

- (21) a. * How come you ever told anyone?
 b. Why did you ever tell anyone?

From this we can conclude that whatever is responsible for SAI in matrix yes/no questions such as (21b) (call it Z) is involved in the licensing of NPIs like *ever*.¹⁰ The fact that aux-drop patterns with full matrix questions in the licensing

of *honestly* in “(Does) anyone honestly believe Oswald did it alone?”. In (ib), *now* is a sort of conversational segue, different from the temporal adverbial with the same sound (cf. (13b)). Note also that in full questions these adverbs will appear before the fronted auxiliary. Therefore, these are not counterexamples to the analysis presented here. I treat them as essentially bi-sentential.

Pre-auxiliary adverbials that do not have this extra-sentential flavor can also occur in full questions, as in (iia). However, in these cases aux-drop is impossible (iib), as predicted by the analysis presented below, where all material left of the auxiliary is excluded from the structure. (Many thanks to Marcel den Dikken for drawing my attention to this point.)

- (ii) a. This morning, did you take your medicine?
 b.*This morning, you take your medicine?

⁹ Questions containing *how come* have further restrictions that may be related to the NPI facts. For example, they can have only matrix scope (i). A non-movement analysis of *how come* seems to me to be correct (see Collins 1991 and Culicover 1999, pp. 160-2).

- (i) How come [Mary said [John left *t] t]?

of NPIs suggests that aux-drop questions contain this element Z. Assuming that this element occurs high in the structure (i.e., in the “C domain”), aux-drop questions are not bare VPs.

Now that we have some facts about the syntax of aux-drop in English, we can ask whether the German examples from (3) are instances of the same phenomenon. The fact that pronouns are possible in English aux-drop, but are excluded in German (22a) might call this conclusion into question. The same is true for Dutch, where both expletives (22c; cf. 22b) and pronouns (22d) are excluded in truncated questions.¹¹

- | | | | |
|------|----|--|---------------|
| (22) | a. | (*Du) Johann gesehen?
(You) John seen
'You seen John?' | <i>German</i> |
| | b. | Heeft (er) iemand Jan gezien?
Has (there) anyone John seen
'Has anyone seen John?' | <i>Dutch</i> |
| | c. | (*Er) iemand Jan gezien?
(There) anyone John seen | <i>Dutch</i> |
| | d. | * Jij Jan gezien?
you John seen | <i>Dutch</i> |

An anonymous reviewer suggests that, from these facts, we might conclude that the Germanic truncated questions are in fact bare VPs, unlike English aux-drop. To come to this conclusion, we would assume, perhaps not unreasonably, that, for prosodic reasons, pronouns and expletives must rise out of the VP. These elements would then be excluded from bare VP truncated questions. While the explanation for the facts in (22) probably does lie with a prosodic requirement on pronouns, other facts make a strict bare-VP analysis of the Germanic questions less attractive. First, note that negation (23a) and some adverbs (23b) of the type observed with aux-drop in (13) can appear in German truncated questions (the same facts hold for Dutch, as well).¹² As argued for English, this suggests the presence of structure above the VP.

- | | | |
|------|----|---|
| (23) | a. | Irgendwer nicht die Hausaufgaben gemacht?
anyone not the homework done
'(Did) Anyone not do their homework?' |
|------|----|---|

¹⁰ NPIs are also licensed in embedded questions (ia), where SAI is not possible (ib). Therefore, the *why/how come* facts here cannot be used to argue that actual SAI is required for NPI licensing in questions. Rather, this shows that the element that triggers SAI in matrix clauses (but not in embedded clauses) is linked to NPI licensing and is present in aux-drop.

- | | | |
|-----|----|---|
| (i) | a. | I wonder whether anyone saw John. |
| | b. | * I wonder (whether) did anyone see John. |

¹¹ I thank an anonymous *NLLT* reviewer for bringing up these differences. Expletives are also excluded from German truncated questions, but this not surprising since expletives can only appear in first position before the auxiliary (expletives cannot appear in the *middle field*), and so would be expected to be absent in a truncated question. The same is not true of Dutch expletives. However, I believe their absence in aux-drop questions is due to the same prosodic explanation as pronouns.

¹² It is difficult to construct examples of the sort seen in (13) and (23). Often questions containing the relevant adverbs are simply implausible and therefore “sound weird.” However, the existence of at least some truncated questions that contain these elements is sufficient for the argument to have some force.

- b. Jeder **jetzt** das Problem verstanden?
 everyone now the problem understand
 ‘(Does) Everyone now understand the problem?’

But while I argue that aux-drop questions, including German truncated questions, are not bare VP structures, they are quite obviously missing at least some left-peripheral material – the normally present fronted auxiliary is not pronounced. Crucially, non-focused German pronouns like *du* are generally unable to stand on their own prosodically. Instead, they must either prosodically “lean” on a verb or complementizer to their left, or else appear in first position in a V2 sentence, where the pronoun receives some stress (M. Wagner, p.c.). Initial pronouns in truncated questions do not fulfill these prosodic requirements. Since they are phonologically initial in the sentence, they cannot lean on anything to their left. Furthermore, they do not immediately precede a V2 element. Further evidence that the data in (22) is prosodic in nature comes from the fact that the German and Dutch examples improve when the pronoun is focused (24). In this case the pronoun receives stress and can stand on its own prosodically.

- (24) a. DU Johann gesehen?
 b. JIJ Jan gezien?

Therefore, the examples in (3) could indeed be aux-drop structures. These structures, I have argued, are not bare VPs, but contain at least some elements in the T and C domains. The impossibility of pronouns seen in (22) can be attributed to prosodic differences between English and Germanic pronouns.

The question remains, however, if aux-drop questions are not bare VPs what are they? Drawing on the initial observations above, I propose that aux-drop sentences differ minimally from their untruncated kin: in aux-drop sentences the raised tensed auxiliary, though present early in the derivation, is interpreted neither phonologically (it is not pronounced) nor semantically (it does not contribute to the tense interpretation of the sentence). This analysis includes some real truncation at the root level, but does not posit bare VP questions. The remainder of the paper is devoted to providing evidence for this proposal and situating it in a theory where such a phenomenon finds a natural place.

3. The Factative Effect

In this section I will substantiate the claim made above that the unpronounced auxiliary in aux-drop questions does not contribute to the sentence semantically. I will also show how apparent limitations on the auxiliaries that can undergo aux-drop should be accounted for without a recoverability condition on deletion.

The impossibility of aux-drop when the auxiliary is somehow more “semantically contentful,” as with the modal auxiliaries in (25), might lead one to analyze aux-drop as auxiliary deletion limited by a recoverability condition. That is, an initial auxiliary can be unpronounced if its content can be “recovered” from material found elsewhere in the structure or context.

- (25) a. *(Can) anyone pick up John at the airport?
 b. *(Will) anyone play the piano at the party tomorrow?
 c. *(Could) anyone have picked up John at the airport yesterday?
 d. *(Would) everyone be happier if classes were cancelled?
 e. *(Should) everyone leave if the neighbors complain?

However, it is also possible to turn this logic on its head and ask: Without a tense/auxiliary in the structure, what interpretations are possible? That is, one might not “recover” the content of the auxiliary at all; a structure that

contains no explicit tense specification might be interpretable on its own. I argue here that comparison of aux-drop with tense interpretation in other languages lends support to the latter approach.

First note that the tense interpretation of aux-drop questions is not free. The examples in (26) must be interpreted as shown, and are ungrammatical under other meanings. For example, (26d) cannot be asked if my cat is dead, unless it is a question about the addressee's preferences regarding dead cats.¹³

- | | | | |
|------|----|-----------------------|------------------------------|
| (26) | a. | You sell your car? | (= Did you sell your car?) |
| | b. | You sell cars? | (= Do you sell cars?) |
| | c. | You like cats? | (= Do you like cats?) |
| | d. | You like my cat? | (= Do you like my cat?) |
| | e. | Anyone here a doctor? | (= Is anyone here a doctor?) |
| | f. | Anyone in the office? | (= Is anyone in the office?) |
| | g. | Anyone sick? | (= Is anyone sick?) |
| | h. | Anybody seen John? | (= Has anybody seen John?) |
| | i. | Anybody going home? | (= Is anybody going home?) |

The generalization governing tense interpretation in aux-drop seems to be that questions that contain stative predicates (e.g., *like cats*, *sick*) are interpreted as present, while non-statives (e.g., *sell your car*) are past.¹⁴ This limited range of tense interpretations is enough to make a deletion-up-to-recoverability analysis dubious. Luckily, this pattern is well attested in other languages, and comparison with these languages will lead to an understanding of how aux-drop works.

Some languages, e.g., Haitian Creole ((27); data from Déchaine 1991 and the present author's own fieldwork) and Fòngbè ((28); data from Avolonto 1992), allow "bare" or "tenseless" main clauses. Just as in English aux-drop (26), the tense interpretation of these sentences seems to be determined by a combination of factors including the inherent aspect of the predicate and the specificity of the object (or what Déchaine (1991) calls *specified quantity*), as summarized in (29). Eventive predicates (e.g., *sell* and *prepare*) receive a past or habitual reading, depending on the specificity of their object, while statives (e.g., *like*, *know*, as well as PPs, NPs, and APs) are interpreted as present.¹⁵ This is known as the *factative effect*.

- | | | | | |
|------|----|---|----|---|
| (27) | a. | Pyè vann bèf yo.
Pyè sell cattle DET
'Pyè sold the cattle.' | b. | Sisi renmen chat mwen.
Sisi like cat 1SG
'Sisi likes my cat.' |
| | c. | Pyè vann bèf.
Pyè sell cattle
'Pyè sells cattle.' | d. | Pyè ak Sisi.
Pyè with Sisi.
'Pyè is with Sisi.' |

¹³ See section 4.2 below for discussion of further interpretational possibilities in the presence of adverbials.

¹⁴ Assuming that perfects and progressives are stative (Katz 2003), it is not surprising, given the factative effect, that aux-drop questions that contain the relevant participles are interpreted as present.

¹⁵ In fact, as Déchaine & Manfredi (2001) discuss in detail, the West African Benue-Kwa languages can be divided into two groups with respect to "past" interpretations: those where a past reading alone is possible (e.g., Ìgbo), and those where both past and perfect are possible (e.g., Yoruba, Fòngbè). As we will see below, English is of the latter type. One would hope to explain this in the same way as Déchaine and Manfredi, by drawing on parallels between Yoruba and English with respect to their lack of verb movement, as opposed to Ìgbo, which contains verb raising.

- (28) a. Síká d̩à w̩ǎ. b. Lili t̩ùn Kòkú.
 Sike prepare paste Lili know Koku
 ‘Sike prepared the paste.’ ‘Lili knows Koku.’

(29)	<u>Object</u>	<u>Pred=Eventive</u>	<u>Pred=Stative</u>
	+specific	Past	Present
	-specific	Generic/Habitual	Present
	No Obj.	Past	Present

Déchaine (1991) argues that, despite the absence of overt tense, these sentences are not bare VPs. Instead, they contain a sort of null or “dummy” finite tense head. That is, while these sentences do contain structural finite T, this T has no specification for [±past]. In fact, the *phonological* nullness of T is not necessary for the factative effect to hold. Some languages have a phonologically overt morpheme whose presence co-varies with the factative effect (e.g., -rV in Ìgbo, glossed as FACT(ative) in (30); data from Déchaine & Manfredi 2001).¹⁶

- (30) a. Ó r̩ì -r̩ì ákpú áhùn.
 3SG eat -FACT bread the
 ‘S/he ate the bread.’
 b. Ó chò -rò ákpú áhùn.
 3SG want -FACT bread the
 ‘S/he wants the bread.’

Assuming that there is a uniform explanation for factativity in all of these languages, this is a key piece of evidence for the existence of a “semantically null” tense in phonologically bare cases as well (27-28). But why do some languages show the factative effect in declarative clauses (or indeed throughout the language), while this effect only arises in other languages (e.g., English) in aux-drop questions? I assume that languages like Haitian, Fòngbè, and Ìgbo contain a “null tense” morpheme as a lexical head, just as a language may contain a [+past] lexical item. The null tense head contributes finiteness, perhaps, but contains no [±past] specification. This head may or may not be phonologically null, according to the idiosyncrasies of the language. In the absence of an explicit tense specification, the tense interpretation for a finite structure is computed based on structurally present factors, as summarized in (29).¹⁷

Interestingly, aux-drop questions are one place where the factative effect appears in languages that otherwise require full tense specification in finite clauses – that is, in languages that do not have a “null tense” morpheme that would lead to factativity in declarative clauses. But the pattern of interpretation in (26) suggests that aux-drop should have something in common semantically with factative declarative sentences. If factativity in aux-drop arises in the same way as it does in “bare sentences,” the auxiliary, which we know is not pronounced, must be semantically inert. But we know that English does not contain a “null tense” morpheme like those in Haitian and Ìgbo, or else strings like *You kick Mary* would be grammatical (with the meaning of *You kicked Mary*). So why does factativity arise in aux-drop but not elsewhere in English? One explanation is that the auxiliary, though present at some point in the derivation to ensure the proper phrase structure and case, is not present in the representation that

¹⁶ Other examples of overt “null tense” morphology can be found in Vatà (Koopman 1984), Àkán, Èdó, and other Benue-Kwa languages (Déchaine & Manfredi 2001), and “Headlines” English (Stowell 1991), among others.

¹⁷ See Déchaine 1991 for further discussion of this type of analysis of factativity. (29) is, of course, just a summary, and not a fully worked out theory of the semantics that leads to this observation.

is submitted to phonological and semantic interpretation. Therefore, though English does not contain a null tense morpheme, the auxiliary (which does contain a tense specification) is removed from the structure before semantic interpretation, leaving the sentence structurally similar to a Haitian bare sentence. I flesh out this proposal more fully in section 4.

Since thus far we have no reason to believe that semantics can provide a modal reading for sentences that do not actually contain a modal element (that is, there is no *modal factative effect*), the lack of modal readings in (25) can be explained without appeal to recoverability conditions. Rather, given a particular structure, the semantic component does with it what it can. Under this approach certain auxiliaries will appear to be “recoverable” due to how the factative effect plays out, though there is no recovery *per se*, only semantic computation over structurally present material.

4. Deletion at the Root

The results so far show that the auxiliary in aux-drop questions is indeed present at some point in the derivation (section 2), but that it does not contribute to the tense interpretation of the sentence (section 3). This situation seems somewhat paradoxical. How can a tensed auxiliary be present in a structure to ensure, for example, that the subject has nominative case, but not contribute to its meaning? The solution lies in “deletion” of the auxiliary at a point in the derivation prior to semantic interpretation. I will first sketch a brute-force approach to auxiliary deletion in aux-drop and show how it fails, then turn to a more successful deletion-through-movement account.

4.1 Against Direct Syntactic Deletion

At this point, assuming an architecture of the grammar along the lines of Chomsky & Lasnik’s (1977) “Y Model” or subsequent modifications in the Minimalist Program (Chomsky 1995, 2000), one might simply posit an optional aux-drop rule that eliminates fronted, initial, root-level auxiliaries from the structure before spell-out. Even under this simple and perhaps unsatisfying solution, auxiliary raising must be syntactic, in the sense that it applies before spell-out to morpho-phonological computation. Thus aux-drop, under this analysis, is evidence against Chomsky’s (2000, 2001) suggestion that head movement is not syntactic, but purely phonological. If the hypothetical aux-drop rule were to eliminate only the phonological content of the auxiliary,¹⁸ leaving it intact to make a semantic contribution, we could not explain the restricted set of tense and modal interpretations possible under aux-drop; that is, we could not explain the observed factative effect. If aux-drop were purely phonological it could in principle apply to any auxiliary. If the auxiliary were only phonologically absent then, even excluding modals, (31) could be interpreted as (31a) or (31b), depending on the semantic content of the unpronounced T. Yet only (31a) is available. For example, if my cat is dead, (31) is infelicitous, as noted above.

- (31) You like my cat?
a. Do you like my cat?
b. Did you like my cat?

But a brute-force syntactic deletion rule provides no explanation for the context in which it applies (namely, to *raised*, *root-level*, and *initial* auxiliaries). The context *raised* is necessary to avoid both examples like (5), repeated in part as (32a), and, if they do not contain “T-to-C” movement, imperatives like (32b). *Initial* helps avoid cases like (6a), repeated as (32c), which does contain SAI. A *root-level* restriction would prohibit aux-drop in counterfactuals (6h), repeated as (32d), which contain initial, but not root-level auxiliaries.

¹⁸ Napoli (1982) proposes just such a phonological deletion account of aux-drop and several other “initial-deletion” phenomena. Wilder (1997) seems to favor a similar proposal.

- (32) a. Someone *(has) been in my office.
 b. * (Be) a good boy!
 c. Who *(does) everyone like?
 d. * (Were) he a better speaker, John would probably win the election.

A brute-force aux-deletion rule would leave unexplained the fact that aux-drop is possible only under this particular constellation of conditions. Why does aux-drop have these particular conditions and not others? In fact, even given this set of arbitrary stipulations, problems would remain. For example, the proper class of omissible things must be identified. “Undergoes SAI” is not quite the right characterization. Some British speakers allow SAI of possessive *have* as in (33a). However, while some of these speakers allow aux-drop in all of the cases noted above, they do not allow aux-drop of possessive *have* (33b) (P. Elbourne, personal communication).

- (33) a. Have you any candy?
 b. * You any candy?

Under the approach to be developed below, this fact follows from the factative effect (29), which cannot provide the meaning of possessive *have*. But with a brute-force auxiliary deletion rule, an arbitrary list of deletable auxiliaries would need to be included in the rule.

Having shown that a brute-force syntactic deletion approach would be problematic and non-explanatory, I will turn now to a more satisfactory analysis.

4.2 Deletion through Movement

The theory of cyclic spell-out developed in Chomsky 2000, 2001 and Nissenbaum 2000, among others, provides a natural context for my analysis of aux-drop. Under this approach, certain syntactic domains are submitted to the morpho-phonological¹⁹ and semantic components (PF and LF) during the course of a derivation. That is, successively larger structures are *spelled out* as the derivation proceeds. Chomsky (2000, 2001) suggests that *vP* and *CP* are the relevant domains (called *phases*).²⁰ When a phase is *spelled out*, the *complement* of the phase head is sent to PF and LF for computation. At the risk of some confusion I will call this operation *interpretation*. Thus, when the *CP* in (34a) is spelled out, only *TP* (sister of *C*) is interpreted. When *vP* in (34b) is spelled out, only the *VP* is interpreted (where interpreted material is shown in slanted font).

- (34) a. [_{CP} XP C [*TP* ...]]
 b. [_{vP} XP v [*VP* ...]]

The fact that the phase head and its specifier(s) are not interpreted (i.e., sent to PF and LF) at this point is crucial since items within the complement of a spelled out phase are not accessible for further movement (cf. Chomsky’s (2000) *Phase Impenetrability Condition*), and the left edge of the phase serves as an intermediate landing site for successive cyclic movement. This approach, while yielding interesting results, leaves us in a strange position at the level of the root *CP*. When a *CP* is spelled out, only the complement of its head is interpreted, leaving

¹⁹ I am assuming that morphology applies on the PF branch, along the lines of Distributed Morphology (Halle & Marantz 1993), rather than lexically.

²⁰ My analysis is compatible with any theory in which sub-trees are subject to independent semantic and morpho-phonological computation. That is, various approaches to cyclicity in semantic and morpho-phonological computation might provide a context for the current analysis, as long as they allow for sub-structure spell-out. I couch the present discussion in the model of Chomsky (2000) and Nissenbaum (2000) for concreteness.

the left periphery unaffected. Assuming matrix questions are root CPs, one would then have to add an extra stipulation that the root is interpreted as well. I would like to propose that this extra operation need not apply in all cases, and that aux-drop is one case where it fails to apply.²¹ The derivation of an aux-drop question would then proceed as follows, assuming a fairly standard head movement account of SAI.²²

- (35) a. Relevant pre-SAI structure: [TP ... AUX ...]
 b. Merge C: [CP C [TP ... AUX ...]]
 c. Move AUX (SAI): [CP AUX-C [TP ... (AUX) ...]]
 d. Spell out CP, interpret TP: [CP AUX-C [TP ... (AUX) ...]]

Just as lower positions of DPs can be interpreted as variables (Heim & Kratzer 1998), which are semantically empty relative to a full DP, I propose that the lower occurrence of AUX in (35d) is semantically empty in the relevant sense.²³ That is, though finite T is structurally present in the interpreted TP, it has no specification for [\pm past]. This renders aux-drop structures identical to Haitian and Fõngbè bare sentences. Haitian Creole bare sentences contain a semantically (and, coincidentally, phonologically) null T as a lexical item. The lower T trace in English aux-drop is semantically identical to this T, though it is derived through movement, not through inclusion of a lexical “null tense”. In the absence of an explicit tense specification, the grammar computes tense based on other structurally present factors, leading to the factative effect.

This explanation of factativity in aux-drop also explains a striking difference between aux-drop in English and factative sentences in, e.g., Haitian Creole. While English aux-drop is restricted to matrix clauses, Haitian bare sentences occur in matrix and embedded contexts. Since, by hypothesis, Haitian Creole contains an empty T(ense) lexical item, this lexical item can, barring independent restrictions, appear in any clause, matrix or embedded. But according to the present analysis, aux-drop arises only through auxiliary raising at the root, and so is restricted to matrix clauses.²⁴

One complication should be mentioned with respect to factativity in Haitian “bare sentences” and English aux-drop. The addition of certain adverbials and particles increases the range of possible interpretations for both aux-drop and bare sentences.²⁵

²¹ It may be that root spell-out need not apply if the sister of the root C is interpretable by itself. See discussion surrounding (38) below.

²² For clarity I have marked unpronounced positions of syntactic objects with parentheses.

²³ See Nissenbaum (2000, pp. 22–27 and ch. 5) for a discussion of the interaction of movement, spell-out, and “copy theory” with pronunciation. Basically, an element whose highest occurrence appears in an interpreted domain is interpreted semantically as occupying this highest position. Lower positions are interpreted as variables in the cases discussed here, and are not pronounced.

²⁴ Marcel den Dikken notes that in some cases matrix-like questions are seemingly embedded (ia). With some care, I believe comparable illocutions with aux-drop are acceptable (ib). This, along with other evidence, such as the pause written here as a comma, or the possibility of shifting indexicals (ic), could lead us to conclude that these are indeed cases of direct quotation, and not truly embedded questions.

(i) a. I asked myself, does anyone really like candy corn?
 b. I asked myself, anyone really like candy corn?
 c. I asked him_i, do you_j really need another car?

²⁵ Sentences like (36b) do seem to be acceptable to my informant without *te* in some circumstances, though this is reported elsewhere to be impossible.

- (36) a. (Did) anyone here sell cars before they joined the army?
 b. Pyè (te) vann machin anvan li te al nan lame.
 Pyè (ANT) sell car before 3SG ANT go LOC army
 ‘Pyè sold cars before he joined the army.’

However, there is one point at which aux-drop questions and bare sentences diverge. While a past reading for statives is possible in aux-drop when an appropriate adverbial is added (37a), no such reading is available in Haitian bare sentences (M. DeGraff and J. Theodat, personal communication). Rather, the anterior marker *te* must be added (37b).

- (37) a. (Was) anybody sick yesterday?
 b. Pyè *(te) malad yè.
 Pyè *(ANT) sick yesterday
 ‘Pyè was sick yesterday.’

We saw with (26d) that in aux-drop no past reading was available for statives, in the absence of a past adverbial like *yesterday*. This is also true for Haitian bare statives. Why, then, does the addition of an adverbial allow a past reading in English aux-drop, but not in Haitian bare sentences? A crucial difference between factative “bare sentences” and aux-drop might be exploited to explain this difference. In factative languages, a lexical tense is present in bare sentences, and so this lexical item can spell out various features, including past tense, which would be required in the presence of a past adverbial like *yesterday/yè*. However, this is not true for aux-drop, where the tense node is the empty trace of movement. In this case, the sentence is given tense interpretation based on whatever aspectual and temporal material is present. Therefore, when a past adverbial like *yesterday* is present in a stative aux-drop question, a past interpretation can arise without triggering different featural content on T, since T is not a lexical item, but rather a trace. In Haitian, the content of T is altered in the presence of statives with past adverbials, and so a different pronunciation (*te*, rather than \emptyset) is triggered in this case. Tense is, in this case, not a trace but a syntactico-morphological formative with a full set of features.

Importantly, this approach also sheds some light on the *initiality*, *root-level*, and *aux-raising* conditions on the brute-force rule mentioned above in section 4.1. *Auxiliary raising* (more correctly, movement out of the interpreted domain) is required to remove the auxiliary from the domain that is sent to PF and LF for further computation. The *initiality* and *root-level* conditions also have simple explanations: Aux-drop can only arise when a *matrix* clause fails to be fully interpreted (sent to PF and LF). A short proof of this is easy to construct. If a clause Z were embedded, it would be contained in an interpreted domain, and therefore Z would be interpreted as well. If Z were not embedded in another clause, but the auxiliary were still non-initial, as with constituent questions, a similar result follows. For example, if only the TP in (38) is sent to PF and LF computation, the structure is semantically uninterpretable.

- (38) What_i did [_{TP} John (T) see DP_i]?

Though some tense interpretation could be given to the sentence under the factative generalization above (29), it appears empirically true that semantics contains no default constituent question quantifier that could make some sense of the stranded, unbound variable DP_i. Further spell-out of the left-peripheral elements would render this sentence interpretable by providing a binder for this DP variable. In fact, one might suppose that it is semantic well-formedness that determines whether a matrix CP needs to be spelled out, as usually assumed, or may be left uninterpreted, as proposed here for aux-drop.

Notice that, given the arguments regarding question interpretation and NPI licensing from section 2.1, the question-making/NPI-licensing element(s) must be included in the interpreted domain. That is, the interpreted

constituent in (35d) must include question-forming and NPI-licensing heads (perhaps the same head). Therefore, assuming that this element is structurally above TP, the sister of the highest phase head cannot be TP. Given this result, it might prove fruitful to investigate which left-peripheral head(s) in a split CP (Rizzi 1997, 2004) is a phase head. I have not yet investigated this question, but (39) shows how the clause would have to look in an aux-drop question, where F is a head that contributes to the question interpretation of the sentence.²⁶

(39) [CP T-C [FP F [TP Subject (T) [vP ...]]]]

One might also be tempted to eliminate altogether the extra root interpretation operation mentioned above and propose that all “sentences” derive from structures in which the root phase periphery is not interpreted. This might explain, among other things, the lack of complementizers in English root declaratives. Furthermore, other root phenomena, such as topic drop in Germanic, might also be treated along the lines of deletion-through-movement.²⁷ However, I leave these speculations for future research.

We should now ask whether we can predict whether a given language has aux-drop. Assuming the analysis presented here is on the right track, the availability of aux-drop in a particular language will depend on (a) whether the language contains the appropriate type of subject-aux inversion, and (b) whether the possibility of aux-drop must be learned based on aux-drop sentences in the learner’s input or is immediately possible given that a particular grammar generates the appropriate SAI structure.

5. Morphological Mismatch

So far we have seen semantic evidence, in the form of the factative effect, for the lack of auxiliary contribution to tense interpretation in aux-drop sentences (section 3). We have also seen syntactic evidence that the auxiliary is present at some point in the derivation (e.g., case, adverbs, NPI licensing; section 2). The analysis developed in the last section attempts to find an account of these seemingly contradictory facts. The deletion-through-movement analysis predicts that the auxiliary should have no effects beyond the point of spell-out to semantic and morpho-phonological computation. While section 3 dealt in detail with the former (semantics), we have not yet investigated the latter (morpho-phonology). I turn now to morphological evidence that will help to pin down exactly when the auxiliary is present in the derivation and when it is not, and show that morphological evidence provides further support for the proposed analysis of aux-drop.

²⁶ A question arises if the element that provides the question interpretation (call it F, as in (39)) also licenses NPIs and is the landing site of SAI. If F does contribute to semantic computation and the raised auxiliary does not, and both are at the same level, there is a contradiction. An obvious solution is that they are not at the same level, either because the auxiliary raises to a higher head (as in (39)) or because head movement is in fact movement to a specifier position of F (where possibly F = C).

(i) [FP T [F F [TP Subject (T) [vP ...]]]]

This latter proposal is defended for all head movement by Matushansky (2002), as well as Fukui & Takano (1998) and Toyoshima (2001). Under this approach, if phase heads are interpreted with their complements, F would contribute to semantics but the raised auxiliary would not.

²⁷ I thank an anonymous *NLLT* reviewer and audience members at GLOW 26 (Lund) for pointing out this possibility.

In certain environments a sentence can be interpreted as (present) perfect despite the lack of participial morphology (Urushibara 1997, Oku 1998).²⁸

- (40) a. He said he would go, and **go** he has.
b. What he has done is **give** the book to Mary.

Morphological mismatch is exhibited in such cases: though participial morphology *-en/-ed* is missing, the clause is interpreted as perfect. An analysis of these cases should note that in the surface structure (i.e., the structure submitted to morphology) the bare verbs in (40) are not in the domain in which participial morphology would be required. This domain seems to be defined by clause-internal c-command. For example, with VP topicalization (40a), the VP, which excludes *has*, has moved out of the c-command domain of *has*. This is apparently enough to allow *go* to surface without *-en* morphology.²⁹ In a pseudocleft like (40b) *give* is not c-commanded by *has*, and probably was not c-commanded by it at any point in the derivation.

But without the corresponding *-en* morpheme, how is a perfect interpretation possible? Oku (1998) argues that *-en* morphology is not necessary at all for a perfect interpretation to arise.³⁰ If it is present, it has some effect; a sentence containing *-en* could not be interpreted as non-perfect. The *-en* element must therefore contain at least as much information so as to be incompatible with non-perfect interpretations. However, a perfect reading is also possible with a bare verb form.

Oku hypothesizes that in ellipsis a subset (i.e., not a superset) of the features (excluding person and number features) of an antecedent verbal form can appear in an elided verb. Thus (41a) is fine, where *leave* is a subset of *left* (*leave*+past), but (41b) is not possible since *leaving* (*leave*+ing) is a superset of *leave*.³¹

²⁸ For many speakers participial morphology may appear in contexts that usually allow morphological mismatch (i). Some speakers find examples of this sort awkward. Others find them preferable. There is, presumably, some influence of prescriptive grammar in judgments of this sort. See footnote 34 for more discussion.

- (i) a. He said he would **choose** by Friday, and **chosen** he has.
b. What he has done is **given** the book to Mary.

²⁹ I will refer to the past participle morpheme as *-en*, through it may surface variously as *-en*, *-ed*, *-Ø*, etc.

³⁰ The *infinitivus-pro-participio* (IPP) in Germanic languages, where an infinitive or unmarked participle form appears in a series of verbs in place of an expected participle form, seems to show something similar. Wolf (1996, abstract) argues that the unexpected form in IPP is “a morphologically unmarked verb form [...] assigned to a verb that [lacks some] morphological feature.” See Schmid 2002 for an overview of the literature on IPP and a recent analysis.

³¹ A reviewer points out, citing Potsdam 1997, that in some cases it is possible, at least apparently, to have an *-ing* form in an elided constituent when the antecedent does not contain and *-ing* form.

- (i) a. Why don't you sit quietly? I am [~~sitting quietly~~].
b. “I must see you alone,” she said. “You are [~~seeing me alone~~],” his uncle said.
c. John said that he would never take money on the side but I knew he was [~~taking money on the side~~].

It is indeed puzzling that some cases seem to be permissible while others are clearly unacceptable. It remains, however, that perfect participle forms are in general more acceptable than progressive participles in ellipsis with non-participial antecedents. Except for these, all of the examples in Potsdam (1997) support Oku's generalization. Due to these unclaritys, I rest my argument on the parallels between ellipsis and morphological mismatch, rather than the exact predictions of Oku (1998).

- (41) a. Mary left and soon John will [_{VP}leave].
 b. ?* Mary will not leave, but John is [_{VP}leaving].

And yet it appears the *-en* forms do not follow this generalization; (42) seems to contain an elided *left* (leave+en), which contains a superset of the features of its antecedent.

- (42) Mary will not leave, but John already has [_{VP}left].

In cases of ellipsis, however, a bare form that lacks *-en* morphology is acceptable since ellipsis saves the derivation from crashing in the morphological component. As noted above, *-en* forms are required under local c-command with *have*. However, in (42) the verb form is not pronounced, and so this requirement is vacuously satisfied. Thus the structure for *Mary will not leave, but John already has.* under these assumptions is as in (43).

- (43) Mary will not leave, but John already has [_{VP}leave]

From these facts we know that although a perfect interpretation is forced when *-en* is present, it is also possible without the presence of *-en*.

Progressive *-ing* morphology does not pattern with *-en*, however. Ellipsis does not save (41b) and no mismatch is possible in VP ellipsis and pseudoclefts with progressive (*-ing*) morphology (44).³²

- (44) a. * He said he is going, and **go** he is.
 b. * What he is doing is **give** the book to Mary.

Interestingly, this pattern also arises with aux-drop; morphological mismatch is possible in the perfect (45a-c), as shown by the occurrence of perfect adverbs like *lately*, which cannot co-occur with simple past (Iatridou et al. 2001). Mismatch is again impossible, however, in the progressive (45d).³³

³² This difference is presumably due to differences between *-en* and *-ing* morphology that also show up in, e.g., reduced relative clauses.

- (i) a. * The man [given the book to Mary] is my brother.
 b. The man [giving the book to Mary] is my brother.

This data suggests that *-ing* forms contain sufficient semantic content to license an active progressive interpretation. The data in (41b) and (44) suggest that *-ing* is also necessary for such an interpretation. But *-en*, on the other hand, cannot license an active perfect interpretation on its own (ib) (i.e., it is not sufficient). This lends plausibility to the idea that it might be unnecessary as well, as Oku suggests. See Iatridou et al. (2001) for further discussion of these differences and their connections to participle type and auxiliary selection.

³³ Though German allows aux-drop, as argued in section 2.2, it does not allow morphological mismatch in VP raising (ia,b) or aux-drop (ic,d). Pseudo-cleft examples are harder to construct, regardless of the choice of verb form.

- (i) a. Er sagte er würde springen und gesprungen ist er.
 he said he would jump-INF and jump-PART is he
 ‘He said he would jump, and jump(ed) he has.’
 b. * Er sagte er würde springen, und springen ist er.
 he said he would jump-INF and jump-INF is he
 c. * Irgendwer gestern Spiderman sehen? (cf. (3a))
 anyone yesterday Spiderman see-INF

- (45) a. Anyone play bridge lately? (= Has anyone played bridge lately?)
 b. Anyone play bridge since we last met? (= Has anyone played bridge since we last met?)
 c. Anyone sleep since we've been back? (= Has anyone slept since we've been back?)
 d. Anyone play bridge? (? Is anyone playing bridge?)

Given these facts, one must explain why aux-drop patterns with VP topicalization and pseudoclefts in allowing morphological mismatch. If aux-drop were the result of a purely surface-phonological deletion operation we would expect examples like those in (45) to be as unacceptable as (46).

- (46) * Has anyone play bridge lately?

I hypothesized above that the appearance of *-en* morphology is enforced in the morphological component. Movement (as in VP topicalization) or ellipsis is enough to obviate any contradiction between the auxiliary and participial morphology (or lack thereof). That aux-drop patterns with these cases suggests that the auxiliary does not enter morphological computation with the verb and its surrounding participial structure. My analysis of aux-drop provides a clear explanation for this fact. If the auxiliary moves out of the domain that is sent to PF for morpho-phonological computation and to LF for semantic computation, then the auxiliary should not have the morphological effect one would expect were it present. That is, one would not expect it to behave exactly as in (43).³⁴ In VP topicalization, the verb form is not c-commanded by *have* in the structure that is interpreted morphologically. In aux-drop, the same is true: the auxiliary is simply not contained in the structure that is sent to the morphological component, and so the auxiliary necessarily does not c-command the verb form within this domain.

In sections 2 and 3 I presented apparently contradictory facts: Aux-drop sentences appear to contain an auxiliary that undergoes movement (section 2), but this auxiliary does not contribute to the sentence phonologically or semantically (section 3). I proposed a solution to this problem in section 4 in the form of deletion-through-movement. Deletion-through-movement predicts that the auxiliary should have no effects beyond the point of spell-out to morpho-phonological and semantic computation. The appearance of the factative effect (section 3) confirms the latter predication. In this section I have confirmed this prediction on the side of morpho-phonology; not only is the auxiliary unpronounced, but it fails to enforce the appearance of participial morphology. Lack of participial

-
- d. * Irgendwer gestern nach Cape Cod fahren? (cf. (3b))
 anyone yesterday to Cape Cod go-INF

This suggests that German and English participial morphology may have slightly different properties. However, sentences of the type in (ia) also have a focus restriction that English VP topicalization lacks: (ia) requires that there be something the 'he' in question *didn't* do, as in 'He said he would jump, and jump he did, but only from the 1m board. He never even went up to the 10m board.' Thus English/German differences in VP raising are not limited to the properties of the participle. I thank Michael Wagner for lending me his linguistic and native-speaker knowledge in extensive discussions of these issues.

³⁴ The possibility of *-en* morphology in all of these cases (see footnote 28) suggests that, although *-en* must appear when *have* locally c-commands the verb, the appearance of *-en* is rather free when no such configuration is present. There is a sort of asymmetry in this case of agreement/selection: a structurally present auxiliary such as *have* requires a participle, while the participle has no particular requirement that *have* locally c-command it. We can also conclude that, at least for verbal morphology of the participial sort, agreement/selection can apply or be checked after SAI. Case, however, must be determined before SAI since the subject in aux-drop invariably appears in the nominative. If speakers do exist for whom the examples in (40) are impossible, they are presumably treating the requirements for *-en* morphology much like case morphology: both can be determined prior to the morphological component. As a reviewer points out, this could also account for the unacceptability of morphological mismatch in German as in the previous footnote.

morphology would not be expected if the auxiliary were present in the structure that is sent to the morphology, as under purely phonological deletion (Napoli 1982, Wilder 1997).

6. Summary

I have argued that omission of an initial auxiliary in questions is not due to phonological, or even syntactic deletion, but rather the result of the peculiar properties of the root, which allow an auxiliary to move outside of the domain in which it would be phonologically and semantically interpreted (47).

- (47) Pre-movement structure: [_{YP} Y Z]
Move Y: Y...[_{YP} (Y) Z]
Spell out YP, pronounced: Z

The special status of the root in the theory of multiple spell-out developed in Chomsky 2000, 2001 and Nissenbaum 2000, provides a natural framework for my analysis of this type of movement. However, given this analysis, head movement, at least in the tense domain, must be syntactic, rather than purely phonological (*contra* Chomsky 2001).

My proposal resembles at first glance “tree truncation” approaches to root infinitives in child language (Rizzi 1993). However, this resemblance is only skin-deep. First, I argued in section 2.2 explicitly against the idea that aux-drop questions could be bare VPs. Also, though the end result of the deletion-through-movement analysis is that aux-drop questions are not full CP structures, the small amount of tree pruning at the root is done not through an *ad hoc* truncation operation, but rather finds a more natural place in a theory of cyclic spell-out.

This analysis provides an explanation of the syntactic constraints that hold over aux-dropped auxiliaries, namely the *initiality*, *root-level*, and *raised* conditions. It also explains the observed nominative case marking of the subject, adverb possibilities, and licensing of NPIs. Furthermore, the analysis explains observed semantic parallels between the tense interpretation of aux-drop questions and “bare sentences” in typologically distinct languages like Haitian and Fõngbè.³⁵ I have also added aux-drop to a short list of environments that allow morphological mismatch. This type of semantics/morphology mismatch is predicted under the present analysis given the availability of morphological mismatch in VP topicalization. The analysis correctly incorporates the seemingly contradictory semantic, syntactic, and morphological facts surrounding aux-drop and deletion through movement, which would be paradoxical under a purely phonological account and non-explanatory under a brute force syntactic deletion approach.

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³⁵ In current work I am investigating the possibility that an aux-drop-like phenomenon may underlie certain aspects of root infinitives in child language, in which the effects of aktionsart are also observed (Gavruseva 2003).

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