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On Ellipsis in the Left Periphery: A View from Transfer

TOTSUKA Masashi

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1. Introduction

In this paper, I will focus on ellipsis phenomena in the left periphery in root CP clauses. I will assume that the head Force is a phase head, which triggers Transfer and sends its complement to the two interfaces: the semantic interface of the *conceptual-intentional system* (C-I or LF) and the phonological interface of the *sensorimotor system* (SM or PF). However, in root CPs, the highest projection ForceP remains untransferred. I will focus on the cases where the head Force and the specifier of Force in root CPs are not transferred at the point of the convergence of derivations. The untransferred head and edge are not sent to the two interfaces and specifically not sent to the SM interface, and therefore are not pronounced. In what follows, I will show that these cases do exist as two syntactic phenomena: Aux-drop and Gapping in English.

This paper is organized as follows. Section 2 is an overview of two previous approaches to Aux-drop: Fitzpatrick (2006) and Schirer (2008) and points out several problems. Section 3 shows that my proposal solves these problems. In section 4, my proposal gives an account of another syntactic phenomenon, Gapping in English. Section 5 is the conclusion.

2. Aux-Drop

In this section, I discuss two previous approaches to the phenomenon called Aux-drop: Fitzpatrick (2006) and Schirer (2008).

2. 1. Fitzpatrick (2006)

Fitzpatrick (2006) focuses on Aux-drop sentences like (1).[1]

(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?)

In these sentences, the fronted auxiliaries are not pronounced, but they have the interpretations of *yes-no* questions. Aux-drop has three properties: (a) it only

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[1] In this paper, I do not go into the details of Aux-drop targeting modal auxiliaries as shown in (i).

(i) 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? (Fitzpatrick (2006: 412))
f. *(Might) I ask a favor of you? (Schirer (2008: 27))

Generally, Aux-drop targeting modal auxiliaries is not allowed.

occurs in root CPs, (b) it is not always allowed whenever subject-aux inversion (SAI) is involved, as shown in (2).

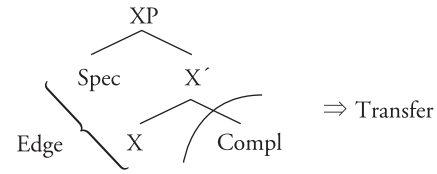
(2) *Constituent Questions*
a. Who *(does) everyone like?
b. When *(did) everyone wake up?
Focus/Negative Inversion
c. Only Mary *(does) everyone like.
d. Not a single professor *(does) everyone like.
VP Ellipsis Inversion
e. I don't like candy corn, and neither *(does) any one of you.
f. I like gazpacho, 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.
(Fitzpatrick (2006: 402))

Finally, (c) the recoverability condition, which limits deletion to items that are recoverable from context, does not guarantee its application, as shown in (3).

(3) a. Someone *(will) go tomorrow.
b. Someone *(has) been in my office.
(Fitzpatrick (2006: 401))

In (3), the deleted auxiliaries should be recoverable from the future adverb *tomorrow*, which indicates futurity, or the *–en* morphology on *be*, which indicates the perfect aspect, but Aux-drop cannot be applied.[2, 3]

Fitzpatrick (2006) derives these properties of Aux-drop from the cyclic transfer of the phase theory developed in Chomsky (2000, 2001). Syntactic objects (SOs) built by *Merge* are mapped onto the semantic interface of the conceptual-intentional system (C−I) and the phonological interface of the sensorimotor system (SM). The operation which maps SOs onto these two interfaces is called *Transfer* (in particular, mapping SOs onto the phonological side is called *Spell-Out*). Chomsky (2004, 2007, 2008) assumes that Transfer applies by syntactic derivational units which are called phases. In phase theory, syntactic computations proceed derivationally by the application of iterating Merge and Transfer phase by phase. The phases are assumed to be CP and *v*P, whose heads trigger Transfer.

(4)


[Phase Head＝C, *v*]

Under this theory, Fitzpatrick (2006) explains the derivation of Aux-drop as in (5).

(5) 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)…]]
no Transfer Transfer
(Fitzpatrick (2006: 419))

At the root CP, when the phase head C merges with TP, AUX moves into the head C from the head T. Then, C transfers its complement TP to the C-I and SM interfaces. At this point, the head C and Spec of CP are not transferred and remain in the syntactic derivation, and the derivation converges. Therefore, Aux in the head C cannot contribute to pronunciation at PF (the SM interface) and interpretation at LF (the C-I interface).

His proposal can account for the three properties of Aux-drop noted above because the raised auxiliary can remain untransferred only in the root CP. Furthermore, this 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.

However, there is a serious problem with this analysis. Fitzpatrick (2006) notes that only the TP is sent to PF and LF under his theory as shown in the standard *wh*-question in (6).

[2] An anonymous reviewer points out the possibility that the inverted auxiliaries in (2a−g) and (3) cannot be deleted because they are not in the left periphery of sentences. As I see below, I can account for these under my analysis.

[3] (3b) shows that when the sentence is declarative, the auxiliary *has* cannot be deleted. In *yes-no* questions, as shown in (1b), the auxiliary can be deleted.

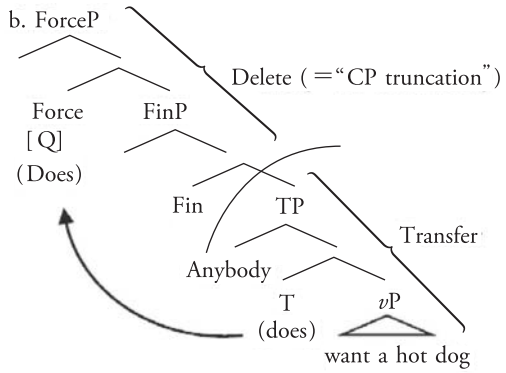
(6) What$_i$ did [$_{TP}$ John (T) see DP$_i$]?
no Transfer Transfer
(Fitzpatrick (2006: 421))

In this case, *what* and *did* in (6) are neither pronounced nor interpreted because these two SOs are not transferred to the two interfaces. However, the two SOs *are* pronounced and interpreted. Therefore, his theory incorrectly predicts that standard *wh*-questions are always uninterpretable.

2. 2. Schirer (2008)

Schirer (2008) proposes "CP truncation," by way of which all the projections above TP are deleted before the sentence is sent to PF (the SM interface). He claims that when this operation occurs, any elements which have moved to the left periphery in sentences will not be pronounced. In his proposal, the derivation of (1a) is as in (7), based on the Cartographic approach (Rizzi (1997)).

(7) a. Anybody want a hot dog?
(cf. Does anybody want a hot dog?)

b.


First, the auxiliary *does* moves into the head Force.[4] Second, the process of "CP truncation" occurs and the projections above TP, FinP and ForceP, are deleted as shown in (8).

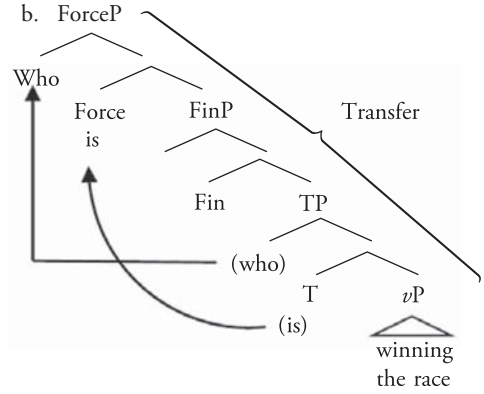
(8) [$_{ForceP}$ ~~Does~~[$_{FinP}$ ~~Fin~~[$_{TP}$ Anybody want a hot dog?]]]
Delete (= "CP truncation")

As a result, while FinP and ForceP are not sent to the PF interface and will not be pronounced, TP is sent to the PF interface and will be pronounced.

Schirer (2008) also argues that "CP truncation" cannot freely apply to root CP clauses. For example, standard *wh*-questions cause serious problems for "CP truncation." *Wh*-elements and auxiliaries normally move into the left periphery of sentences. These are in the CP domain and, therefore, are deleted by "CP truncation." In this case, when "CP truncation" applies, the resulting sentence becomes ungrammatical as shown in (9)–(11).

(9) a. [$_{CP}$ Who is [$_{TP}$ winning the race?]]
b. * [$_{CP}$ ~~Who is~~ [$_{TP}$ winning the race?]]
(10) a. [$_{CP}$ Who do [$_{TP}$ you like?]]
b. * [$_{CP}$ ~~Who do~~ [$_{TP}$ you like?]]
(11) a. [$_{CP}$ When do [$_{TP}$ you eat dinner?]]
b. * [$_{CP}$ ~~When do~~ [$_{TP}$ you eat dinner?]]
(Schirer (2008: 16))

In these sentences, subject *wh*-phrases, object *wh*-phrases, and adjunct *wh*-phrases cannot be deleted. Schirer (2008) claims that "CP truncation" is blocked when deleted elements are semantically contentful, as *wh*-elements are. These elements cannot be recovered from the context once they are deleted. The derivation for (9a) is shown in (12).

(12) a. Who is winning the race?
b.


In contrast to (7), in (12), the *wh*-element *who* and the auxiliary *is* cannot be deleted by "CP truncation" without inducing a recoverability violation. Transfer, then, applies to the whole sentence, and, therefore, these elements must be pronounced.

[4] Schirer (2008) assumes that an uninterpretable feature causes T to C movement and head movement is syntactic movement.

Schirer (2008) also explains that modal auxiliaries cannot be deleted by "CP truncation" because they are semantically contentful, same as *wh*-elements. The contrast between the modal auxiliaries *will*, *should*, and *can*, on the one hand, and perfect *have*, progressive *be*, and auxiliary *do*, on the other, is shown in (13)–(18).

(13) a. Will you go to the store?
b. *You go to the store?
(14) a. Should you feed the dog?
b. *You feed the dog?
(15) a. Can you read the book?
b. *You read the book?
(16) a. Have you finished your homework?
b. You finished your homework?
(17) a. Are you watching the game?
b. You watching the game?
(18) a. Do you like ice cream?
b. You like ice cream?

(Schirer (2008: 22))

The modal auxiliaries in (13) – (15) have semantic interpretations which cannot be recovered from the context, and, therefore, "CP truncation" is blocked.

However, there are some problems with this analysis. First, Schirer (2008) mentions that in standard *wh*-questions, *wh*-elements move into the specifier of ForceP, which is the highest projection in the Split CP structure. Given this, his theory predicts that no other elements can move over this projection ForceP because there is no projection above it. Furthermore, when topicalized elements and *wh*-elements co-occur, only the linearized order 〈Wh, Topic〉 is predicted to be grammatical. This prediction, however, is not borne out as shown in (19).

(19) a. *To Leonard* what should we say on his birthday?
b. *What *to Leonard* should we say on his birthday?

(Gelderen (2004: 43))

In this case, the linearized order 〈Topic, Wh〉, instead of 〈Wh, Topic〉, is grammatical, and, therefore, it is incorrect to assume that *wh*-elements move into the specifier of ForceP, which is the highest projection in the Split CP structure.

Second, he argues that elements which are semantically contentful, like *wh*-elements, cannot be deleted by "CP truncation" since these interpretations cannot be recovered from context. Given his theory, we predict that if these interpretations can be restored from context, "CP truncation" could be applied. However, Fitzpatrick (2006) points out that, in the case of Aux-drop, recoverability from context does not guarantee its application, as shown in (20).

(20) *(Will) anyone play the piano at the party tomorrow?

(Fitzpatrick (2006: 412))

In (20), the deleted auxiliary should be recoverable from the adverb *tomorrow*, which indicates future, but Aux-drop cannot be applied. The data show that Schirer (2008) has a problem with the application of "CP truncation."

2. 3. Interim Summary

In this section, we showed that for the analysis of Aux-drop, Fitzpatrick (2006) has a Transfer problem in standard *wh*-questions, and Schirer (2008) has landing site problems with *wh*-elements and problems with the application of "CP truncation." In the next section, I present a proposal that solves these problems.

3. Proposal

Following the Cartographic approach (Rizzi (1997)), I adopt the Split CP hypothesis, where CP is not a single projection, but several layered projections. In particular, I assume that CP has the following structure:

(21) CP=[$_{\text{ForceP}}$ Force [$_{\text{TopP}}$ Top [$_{\text{FocP}}$ Foc [$_{\text{FinP}}$ Fin [$_{\text{TP}}$ T ...

(21) assumes that each projection is unique and cannot be recursive in English.

Given the split CP structure, I propose that the functional head Force is a phase head, triggers Transfer, and forms Spell-Out domains. Force is the highest head of the C-domain and has the same function as standard C as a phase head.

Now let us see how the problem with Fitzpatrick (2006) that was noted at the end of section 2.1 is solved in our framework. The head Force merges with FocP (or other phrases) and transfers it as shown in (22).

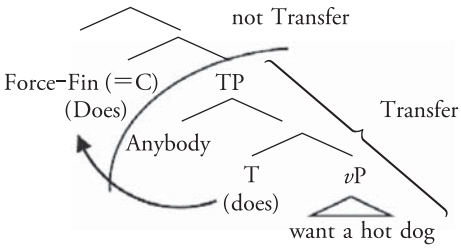
(22) $[_{ForceP}$ Force $\underbrace{([_{FocP}$ Foc$)$ $[_{FinP}$ Fin $[_{TP}}_{\text{Transfer}}$ ...

Under our analysis, the head Force and the specifier of ForceP in root clauses are not transferred to the C-I and SM interfaces. In other words, the SOs at the edge of ForceP are not transferred to the two interfaces. At the SM interface, these SOs on the edge of ForceP are not pronounced, and therefore Aux-drop occurs. At the C-I interface, these SOs on the edge are not transferred, but their copies are left in the transferred domain. These are interpreted at the interface, so Aux-drop has the interpretation of a *yes-no* question.

By way of illustration, let us first consider the derivation of Aux-drop in (23), illustrated in (24).

(23) Anybody want a hot dog?
(cf. does anybody want hot dog?)

(24) Force-FinP (=CP)



In this case, as in the case of (5) (repeated in (25) below), the auxiliary *does* moves into the head Force-Fin and then this head transfers its complement TP to the two interfaces. The auxiliary *does* is in the untransferred domain, and therefore it is not transferred to the two interfaces. Therefore, at the SM interface, it is not pronounced, whereas at the C-I interface, it is interpreted in terms of the copy in T.

(25) 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 $\underbrace{[_{TP}...(AUX)...]}_{\text{Transfer}}]$
no Tansfer

(Fitzpatrick (2006: 419))

Let us next consider the case (6) (repeated below as (26)), which is problematic for Fitzpatrick's (2006) proposal.

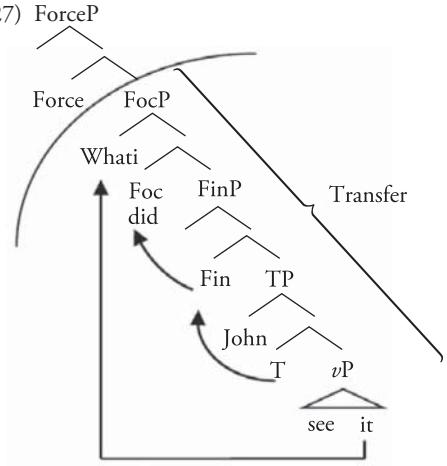
(26) What$_i$ did $\underbrace{[_{TP}$ John (T) see DP$_i]}_{\text{Transfer}}$?
no Transfer

(Fitzpatrick (2006: 421))

His proposal incorrectly predicts that standard *wh*-questions as in (26) become ungrammatical because *what* and *did* are not transferred to the two interfaces and, hence, are not pronounced.

Our analysis assigns to *What did John see?* the structure and derivation in (27).

(27) ForceP



What moves into the specifier of FocP and *did* moves into the head Foc. They are in the transferred domain, and they are sent to the two interfaces. Therefore, this sentence is correctly pronounced. Furthermore, the auxiliary *did* cannot move into higher positions because such movement would cause a criterial freezing effect (see Rizzi (2006)).

Let us next consider the two problems with Schirer (2008): the landing site of *wh*-elements and the application of "CP truncation." The first problem is that in standard *wh*-questions, *wh*-elements move into the specifier of ForceP, which is the highest projection in the Split CP structure, and his theory predicts that other elements cannot move over the projection ForceP because there is no projection above it. Therefore, when topicalized elements and *wh*-elements co-occur in the same sentence, only the linearized order < Wh, Topic > is grammatical, but his prediction is not borne out as shown in (28).

(28) a. *To Leonard* what should we say on his

birthday?

b. *What *to Leonard* should we say on his birthday?

(Gelderen (2004: 43))

Our analysis can account for the contrast in (28). As we saw above, following Rizzi (1997), we assume that CP has the structure in (21), where Top precedes Foc in linearized order. *Wh*-elements move into the specifier of FocP in the Split CP structure and topicalized elements move into the specifier of TopP. Therefore, the linearized order ⟨Topic, Wh⟩ in (28a), not ⟨Wh, Topic⟩ in (28b), is the only one allowed in this case.

Let us discuss the second problem with Schirer (2008): the application of "CP truncation." His theory assumes that "CP truncation" cannot be applied when the interpretation of deleted elements cannot be recovered from context. As we saw above, however, this operation is not guaranteed by recoverability from context.

Our analysis can solve this problem with the application of "CP truncation." Remember that in his theory, "CP truncation" deletes projections above TP and, therefore, all elements which move into the left periphery are not transferred to the PF interface. On the other hand, my proposal assumes that only elements which move into the specifier of ForceP and the head Force can be deleted in terms of the edge property in phase theory. This property is crucial for the Aux-drop phenomenon. In (9)–(11) (repeated below as (29)–(31), with slight modification), *wh*-elements move into the specifier of FocP and auxiliaries, the head Foc. These positions are not edge positions and must be transferred to the C-I and SM interfaces. As a result, Aux-drop is not subject to any special conditions such as recoverability.

(29) a. [$_{FocP}$ Who is [$_{TP}$ winning the race?]]
b. *[$_{FocP}$ ~~Who is~~ [$_{TP}$ winning the race?]]
(30) a. [$_{FocP}$ Who do [$_{TP}$ you like?]]
b. *[$_{FocP}$ ~~Who do~~ [$_{TP}$ you like?]]
(31) a. [$_{FocP}$ When do [$_{TP}$ you eat dinner?]]
b. *[$_{FocP}$ ~~When do~~ [$_{TP}$ you eat dinner?]]

(Schirer (2008: 16))

Before closing this section, let us consider the optionality of Aux-drop in the case of auxiliaries such as perfect *have*, progressive *be*, and auxiliary *do*. We have to wonder why their deletion is optional. I have no conclusive answer, but I suggest that these auxiliaries have two landing sites: the head of ForceP and the head of FinP. When they move to Force, they are not in the transfer domain in the root CPs and are not pronounced. On the other hand, when they move to Fin and stay there, they are in the transfer domain at the root and are pronounced.[5] However, I have to leave a detailed analysis of this issue for future research.[6]

In this section, I presented an alternative analysis which solves the problems with Fitzpatrick (2006) and Schirer (2008) pointed out in section 2.

4. Consequences

In this section, I demonstrate that our analysis can account for another syntactic phenomenon, Gapping in English.

Gapping is a type of ellipsis in which a verb is removed in the second conjunct of a clausal coordinate structure, as shown in (32).

(32) Pete has got a video and John __ a DVD.

Gapping has some interesting properties. First, Gapping is a root phenomenon:

(33) a. * Some had eaten mussels, and she claims that others __ shrimp. (Gapping)
b. Some had eaten mussels, and she claims that others had __ shrimp. (Pseudo-Gapping)

(Johnson 2009: 293)

Gapping cannot apply to the embedded clause of (33a), while Pseudo-Gapping, which is not a root phenomenon, can target the embedded clause of (33b).

Second, the remnants of Gapping must have

[5] I am grateful to an anonymous reviewer for suggesting this point to me.

[6] In contrast to the optionality of Aux-drop in the case of perfect *have*, progressive *be*, and auxiliary *do*, an anonymous reviewer asks why Aux-drop is always inapplicable to modal auxiliaries. For this problem, I have two possible answers. One is a recoverability condition on modal auxiliaries. The other is that unlike auxiliaries *have*, *be*, *do*, which can raise up to Force in *yes-no* questions, modal auxiliaries must stop at a lower head of head, such as Fin, with the result that they are always transferred and, hence, pronounced. I have to leave a detailed analysis of this issue for future research.

contrastive stress. If they do not receive contrastive stress, the sentence becomes unacceptable as the contrast between (34a) and (34b) shows.

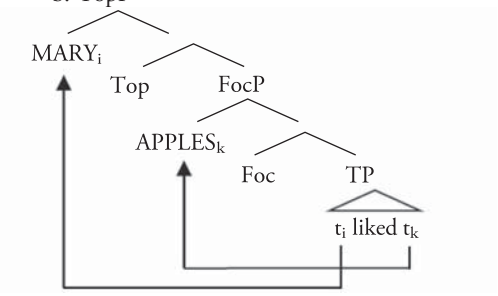
(34) a. John liked bananas and MARY __ APPLES.
b. *John liked bananas and MARY __ apples.

Third, the subject of an embedded infinitival clause can be the second remnant of Gapping, but the subject of an embedded finite clause cannot.

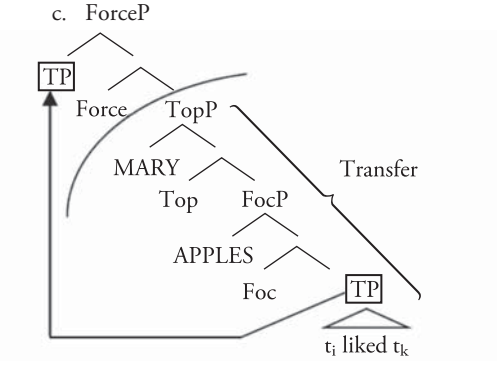
(35) a. John expected Bill to leave, and Bill __ John.
b. *John expected that Bill would leave, and Bill _ _ John.

These properties strongly suggest that Gapping exhibits the phase-edge property of root CPs, same as Aux-drop. Given these properties, I propose that the remnants of Gapping move into the left periphery of the sentence because they must be interpreted as contrastive topics and contrastive foci. This proposal gives Gapping the following derivation.

(36) a. John liked bananas and MARY __APPLES.
b. TopP



c. ForceP



Firstly, the remnants of Gapping (*MARY* and *APPLES*) move into the specifiers of TopP and FocP, respectively; the former is interpreted as a topic and the latter, as a focus. Secondly, as is proposed above, the remnant TP [t_i read t_k] moves into the specifier of ForceP.[7] Finally, Force transfers its complement TopP, and the head and specifier (that is, moved TP) of ForceP are in the untransferred domain. Therefore, since they are not sent to the SM interface, the TP is not pronounced but it is interpreted based on the copy.

My proposal can account for the three properties of Gapping we saw above. For the first property, in (33a), the remnants of Gapping, *others* and *shrimp*, move into the specifiers of embedded TopP and FocP, respectively. Then, the TP [t_i had eaten t_k] moves into the specifier of embedded ForceP as shown in (37), but the derivation continues until the end of the root clause. The embedded ForceP is transferred at the next phase, and must be pronounced. Therefore, Gapping cannot occur in embedded clauses.[8]

[7] Johnson (2001) and Funakoshi (2012, 2014) assume that VP ellipsis is derived from VP movement as shown in (i) and (ii).

(i) a. José Ybarra-Jaegger eats rutabagas, and Holly does [$_{VP}$ ~~eat rutabagas~~] too.
b. José Ybarra-Jaegger ate rutabagas, and Holly has [$_{VP}$ ~~eaten rutabagas~~] too.
c. José Ybarra-Jaegger is eating rutabagas, and Holly is [$_{VP}$ ~~eating rutabagas~~] too.
(Johnson (2001: 440))

(ii) a. Madame Spanella claimed that…
b. [$_{VP}$ *Eat rutabagas*], Holly wouldn't *t*.
c. [$_{VP}$ *Eaten rutabagas*], Holly hasn't *t*.
d. [$_{VP}$ *Eating rutabagas*], Holly shouldn't be *t*.
(Johnson (2001: 444))

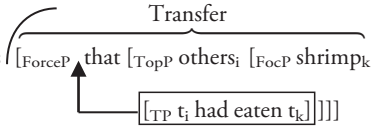
This appears to suggest that VP ellipsis and Gapping could be analyzed by the same approach that I propose in this paper. VP ellipsis, however, differs from Gapping in that it can target subordinate clauses. In this paper, I do not comment VP ellipsis any further.

[8] An anonymous reviewer asks why TP in Gapping does not have the option of being pronounced as shown in (i).

(i) Pete has got a video and *[$_{ForceP}$ [$_{TP}$ t_i has got t_j] Force [John$_i$ __ a DVD$_j$].

I have two possible answers. One is that there is no landing site other than the specifier of ForceP into which the remnant TP can move since both specifiers of TopP and FocP are independently filled by the two remnants of Gapping; as a result, TP is always unpronounced in Gapping. The other answer is that following Chomsky's (2013) *Labeling Algorithm* (LA), the label of ForceP in (i) cannot be determined because of the lack of φ-feature-sharing between TP and Force; here, non-↗

(37) sshe claims [ForceP that [TopP others$_i$ [FocP shrimp$_k$ [TP t$_i$ had eaten t$_k$]]]]



For the second property, the remnants of Gapping move into the specifier of TopP and FocP, respectively. The moved remnants are licensed and interpreted as contrastive topic and contrastive focus. For the third property, in (35b), the remnant *John* cannot move into the specifier of FocP, because of the *Phase Impenetrability Condition* (PIC):

(38) Phase Impenetrability Condition
In phase P with head H, the domain of H is not accessible to operations outside P and only H and its edge are accessible to such operations.
(Chomsky (2000: 108))

Therefore, the subject of an embedded finite clause cannot be a second remnant of Gapping, as illustrated in (39b) below. On the other hand, in (35a), the remnant *John* can move into the specifier of FocP, as shown in (39a), because the embedded clause is an infinitival TP and not a phase.

(39) a. [ForceP Force [TopP Bill$_i$ [FocP John$_k$ [TP t$_i$ [T [vP v [VP [expected [TP t$_k$ to leave]]]]]]]]]

b. [ForceP Force [TopP Bill$_i$ [FocP John$_k$ [TP t$_i$ [T [vP v [VP [expected [CP that t$_k$]]]]]]]]]

5. Conclusion

In this paper, I showed that the phase head Force and its specifier in root CPs remain untransferred at the point of the convergence of derivations. The untransferred head and edge are not sent to the two interfaces, one of which is the PF interface, and are not pronounced. I showed that this proposal provides a unified account of two phenomena: Aux-drop and Gapping in English.

↘ pronunciation of TP might be an option that turns such an unlabelable configuration into a labelable one. I need to look at the details of these analyses and leave this issue for future research.

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