Left-edge ellipsis and clausal ellipsis:
The division of labor between syntax, semantics, and prosody

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1 Introduction

Two (apparently) unrelated questions. First:

- The 'move-and-delete' analysis of fragments (Merchant 2004):

(1)   a.   What did John eat? — Chips.
        b.   [Chips$_1$ ~~[John ate t$_1$]~~]

- Fragments appear to have undergone an A$'$-movement step:

    - they must be phrases and cannot be heads (*what did John do to the car? — Wash it/*Wash*)
    - stranding generalizations (the underlying sentential source for the fragment must be one in which the fragment is not 'frozen' wrt A$'$-movement, e.g. P-stranding generalization (Merchant 2001, 2004), also D-stranding: *John gave every* STUDENT *a rose — No, every* PROFESSOR/??*No,* PROFESSOR (only 'metalinguistic' if good at all))

- But (in English) this sort of focus movement is not available outside of elliptical/fragment contexts:

(2)   What did John eat? — *Chips he ate.

- We can stipulate this behavior (e.g. say that an ellipsis-licensing [E] feature has strong Foc features that aren't otherwise present), but nicer to have something more explanatory if possible

- Intuition is that the fragment is 'escaping' the ellipsis site in (1) in order to feed the pronunciation of a focused element – i.e. the movement is 'exceptional', for interface requirements (Boone 2014, Weir 2014)

- But "how does the grammar know?" – lookahead issue. Why doesn't the derivation simply crash, if a focused phrase is within a domain marked for ellipsis?

And second:

- The grammar of 'left-edge ellipsis' (LEE) in (colloquial) English: deletion of unstressed utterance-initial material, often non-constituents (Schmerling 1973, Akmajian et al. 1979, Napoli 1982, Zwicky & Pullum 1983, Gerken 1991, Wilder 1997, Fitzpatrick 2006, Weir 2012):

(3)   a.   ~~Have you~~ seen the new Star Wars film yet?
       b.   I don't know. ~~I've~~ seen mixed reports. ~~The~~ newspaper didn't give it very good reviews. ~~Is the~~ new Marvel film maybe a better bet?

- NB: this is *not* the same thing as 'diary drop' (Haegeman 1990, 1997, 2007, Weir 2012), although there are similarities; written register allows some cases of 'drop' that spoken register does not

- Some subtle patterns to account for (most of which are noted in the literature, though I think (7) is a new observation):

(4)   Deletion is strictly left-edge:
       a.   ~~Have you~~ seen the new Star Wars film yet?
       b.   *Have ~~you~~ seen the new Star Wars film yet?
       c.   *John ~~has~~ seen the new Star Wars film.

(5)   In declarative sentences, if the (pronominal) subject is deleted, the aux obligatorily is as well (if not negated):
       a.   ~~I've~~ seen mixed reports.
       b.   ??~~I~~ have seen mixed reports.

(6)   Determiner drop (going 'into the subject') is optional:
       a.   Has the postman come yet?
       b.   The postman come yet?
       c.   Postman come yet?

(7)   In declarative sentences, if you do delete a determiner in the subject, you must cliticize the auxiliary verb (if not negated):
       a.   The film's/film is showing on Wednesday.
       b.   Film's showing on Wednesday.
       c.   ??Film is showing on Wednesday.

(8)   LEE is degraded in (certain) narrow-focus contexts, i.e. contexts where only the focused phrase is stressed and all other material is deaccented:
       a.   When are you leaving? – I'm leaving at four./??Leaving at four. (Zwicky & Pullum 1983[1])
       b.   What was it you bought?
           (i)   It was THIS COPY OF ASPECTS that I bought.
          (ii) *THIS COPY OF ASPECTS that I bought.

In Weir 2012, I suggest that left-edge deletion is driven by a desire to have prosodically strong material utterance-initially (Selkirk 2011's StrongStart constraint, see also Elfner 2012, Bennett et al. 2016) – but the ungrammaticality of (8b-ii) suggests that this is not the full story.

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[1] '??' is my judgment; Zwicky & Pullum mark this example '*'.

- **Leading idea:** (8) indicates a relation between fragment formation and LEE.

- Both are instances of the same process: deleting unstressed/deaccented material at the **syntax-prosody interface**, in order to satisfy **prosodic well-formedness constraints**.

- If this deletion happens at all, it's (almost) 'all or nothing': (8b-ii) is ruled out because you 'could have' deleted the deaccented tail – resulting in the fragment *this copy of Aspects*.

- There is still a 'strong start' effect, but of a more limited character, accounting for the variability in the deletion of initial determiners and the cliticization behavior.

But we know that fragments aren't *just* 'radical deaccenting' (Tancredi 1992) or governed by prosody, pace (e.g.) Bruening 2015 and Ott & Struckmeier 2018. There are syntactic and semantic constraints on fragments (e.g. the A′-movement facts) that go beyond constraints on deaccenting.

- Proposal: ellipsis as such takes place at the syntax-prosody interface (as in 'radical deaccenting' approaches). In this system, there is no direct syntactic implementation, or licensing (e.g. by an [E]-feature), of (clausal) ellipsis.

- But clausal ellipsis is **fed** by (independently available) LF movement of a fragment in order to create the right **semantic** object to ensure that the deletion is **recoverable**; hence the evidence for an A′-movement step in fragments.

First I discuss left-edge ellipsis and its interaction with the syntax-prosody interface; I then turn to how the system developed for LEE can be extended to the fragment case.

2 Left-edge ellipsis and prosody

2.1 Recoverability: what can go missing in principle

An (obvious) starting point: material can only be deleted if it is 'recoverable', in some precise sense (Fiengo & Lasnik 1972). In their investigation of LEE, Zwicky & Pullum 1983 suggest that certain listed morphemes are susceptible to deletion (at the level of morphophonology) in English:[2]

- certain auxes – roughly, those that are 'syntactic glue' rather than contributing real semantic content: (finite forms of) *have, be, do* (see also Akmajian et al. 1979)

- pronouns (given a suitable salient referent)

- *a, the*

Specifying these morphemes in a list as 'recoverable', though admittedly stipulative, captures the fact that not everything undergoes LEE, even if it is on the left edge, prosodically weak, and 'intuitively' recoverable:

(9) a. *~~In~~ Paris I ate a lot of baguettes.
  b. *~~At~~ four I'll start writing.
  c. ?*~~Will you~~ start writing at four?

In what follows I will assume that the things that can potentially undergo LEE are indeed just lexically listed in this way.

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[2]Zwicky & Pullum list some more, such as *as* and *if*, citing Thrasher 1973: *~~As~~ far as I can see there's nothing to his claim. ~~If~~ milk prices go down, I might start drinking the stuff again.* I am more comfortable with the former than the latter, but if the list of 'recoverable' morphemes is lexically listed, one might expect some individual variation. The present analysis can, I believe, extend to such cases.

2.2 Prosodic motivation for LEE

Goal for this section: show that the various properties of LEE can be accounted for prosodically.

Starting assumptions:

- Prosodic Hierarchy (Selkirk 1978 et seq., also Nespor & Vogel 1986, etc.)
  Intonational Phrase (ιP) > Major Phrases (MaP) (> Minor Phrases) > Prosodic Words (ω)

- Root clauses ('comma phrases') correspond to Intonational Phrases (Selkirk 2011's MATCH(Root, ιp))

- (All-new) sentences are split into two major phonological phrases, corresponding to the subject and the predicate; the subject receives a major phrase stress, as does the highest constituent within the predicate (e.g. the object, or the verb if there is no object[3], cf. Kahnemuyipour 2003, Adger 2006, Kratzer & Selkirk 2007 and refs therein)

(10)   (Kratzer & Selkirk 2007:101)

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(                      x   )                    intonational phrase
(x      ) (            x   )                         major phrase
(x      ) (   x    ) (     x   )                    prosodic word
Officers   escorted   ballerinas
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Suppose there is a principle like (11) (cf. Adger 2006, Kratzer & Selkirk 2007 and refs therein on phase-based spellout within the vP).

(11)   MAPPING
        The highest branching constituent(s) within a spellout domain (e.g. TP) correspond to maximal major phrases within that domain.

Given this constraint, the below tree will be prosodically parsed into the subject and the T':

(12)   a.

        b.   (ι ($_{\text{MaP}}$ the postman) ($_{\text{MaP}}$ is delivering the mail))

- MAPPING delivers the above parse, but this may be suboptimal by other prosodic measures.

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[3]I'm putting aside subtleties concerning the difference between eventives/statives or unaccusatives/unergatives here; see Kratzer & Selkirk 2007 and refs therein for discussion.

- In particular, it violates STRONGSTART with respect to the two MaPs:

(13) STRONGSTART-MAP
A MaP should not start with a prosodic constituent lower on the prosodic hierarchy than a prosodic word. (Selkirk 2011:470, Weir 2012 for the version parameterized to specific prosodic constituents)

- The parse in (12b) violates this twice, due to *the* and *is*, which (as function words) are not parsed into their own prosodic word (Selkirk 1995).[4]

- One way to improve this is to cliticize the verb – but this will violate MAPPING (as the TP is not properly mapped into an MaP)

- An alternative parse is to 'shrink' the MaPs and leave *the* and *is* as 'extrametrical' within the ιp, violating MAPPING twice.[5]

- Or *the* can be left extrametrical and the verb cliticized.

- Note that cliticizing the auxiliary entails leaving the initial determiner unparsed – (14d) is not favored under any ranking.[6]

(14)

the postman is delivering the mail	MAPPING	STRONGSTART-MAP
a. (the postman) (is delivering the mail)		**
b. the (postman) is (delivering the mail)	**	
c. the (postman's) (delivering the mail)	**	
☠ d. (the postman's) (delivering the mail)	*	*

- The above tableau captures the optionality of cliticization of the verb.

- But there is another potential way of dealing with StrongStart violations – deleting the offending material (assuming it is listed as Recoverable – here *the* and *is*). This will also violate MAPPING.

(15)

the postman is delivering the mail	MAPPING	STRONGSTART-MAP
a. (the postman) (is delivering the mail)		**
b. the (postman) is (delivering the mail)	**	
c. the (postman's) (delivering the mail)	**	
d. (postman's) (delivering the mail)	**	
e. the (postman)(delivering the mail)	**	
f. (postman) is (delivering the mail)	**	
g. (postman) (delivering the mail)	**	

- One of these deletion candidates is grammatical (d), but (e, f, g) are all ungrammatical.

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[4]That is, I assume a high-ranked constraint of the MATCH(ω, Lex) type (Selkirk 2011). That's also needed in the present analysis to avoid spurious repairs of STRONGSTART-MAP such as 'promoting' initial weak starts like *the* and *is* to PWd status.

[5]However, we want to preserve the fact that completely deleting the MaPs is not a possible repair, even if that would help STRONGSTART. Rather than MAPPING, the correct formulation may in fact be ALIGNL(highest constituent, MaP), but I have not yet explored the feasibility of that alternative.

[6]I assume that MAPPING is only violated once in (14d), by *delivering the mail*, but not by the cliticization of *'s* into the subject. See the Appendix for why I need to make this move – but for the present example it doesn't make a difference.

- There needs to be some restriction on when deletion is possible. Let's introduce a low-ranked constraint MAX, that penalizes any terminal in the input which goes unrealized in the output.

(16)

the postman is delivering the mail	MAPPING	STRONGSTART-MAP	MAX
a. (the postman) (is delivering the mail)		**	
b. the (postman) is (delivering the mail)	**		
c. the (postman's) (delivering the mail)	**		
☺ d. (postman's) (delivering the mail)	**		*!
e. the (postman)(delivering the mail)	**		*!
f. (postman) is (delivering the mail)	**		*!
g. (postman) (delivering the mail)	**		*!*

- That's accomplished too much – we've ruled out the bad candidates (e, f, g), but we've ruled out (d) also.

- One thing that (d) lacks but (e, f) have is extrametrical/unparsed material. Suppose, then, that MAX is freely ranked wrt an EXHAUSTIVITY constraint (Selkirk 1995) – which penalizes *i*Ps that are not exhaustively parsed into MaPs:

(17)

the postman is delivering the mail	MAPPING	STRST	MAX	EXHAUST
a. (the postman) (is delivering the mail)		**		
b. the (postman) is (delivering the mail)	**			*
c. the (postman's) (delivering the mail)	**			*
d. (postman's) (delivering the mail)	**		*	
☠ e. the (postman)(delivering the mail)	**		*	*!
☠ f. (postman) is (delivering the mail)	**		*	*!
☠ g. (postman) (delivering the mail)	**		**!	

- This set/partial order of constraints picks out all and only the attested outcomes.

- In particular, it captures the fact that deletion of the initial determiner forces cliticization of the verb.

2.3 Deletion of initial auxiliaries

Under subject-aux inversion, the aux can be deleted, and so can the determiner, but the determiner can't be deleted on its own:

(18)   a.   Has the postman delivered the mail yet?
       b.   The postman delivered the mail yet?
       c.   Postman delivered the mail yet?
       d.   *Has postman delivered the mail yet?

Given the tree below, MAPPING will map the subject and the TP into MaPs, but will leave the moved aux unparsed:

(19) a.

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                    CP
                   /  \
                  C    TP
                  |   /  \
                 has DP    T'
                    /  \   /  \
              the postman  delivered the mail yet
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b. $(_\iota$ has $(_{MaP}$ the postman) $(_{MaP}$ delivered the mail yet))

These outcomes are delivered given the above partial ranking of constraints; all of the below candidates are potentially optimal except (e):

(20)

has the postman delivered the mail	MAPPING	STRST	MAX	EXHAUST
a. has (the postman) (delivered the mail)		*		*
b. has the (postman) (delivered the mail)	*			*
c. (the postman) (delivered the mail)		*	*	
d. (postman) (delivered the mail)	*		*	
☠ e. has (postman) (delievered the the mail)	*		*	*!

The behavior of pronouns under LEE can also be handled, but requires some additional assumptions: I've left these to the Appendix for reasons of time.

3 Narrow focus and fragments

3.1 Clefts

Consider now the (un)grammaticality of cases like the below:

(21) What was it that you bought?
    a. It was this copy of *Aspects* that I bought.
    b. *This copy of *Aspects* that I bought.

- Omitting *it was* at the left edge is grammatical in general (*(A) lovely day yesterday. Thirty degrees all day!*), but is degraded in cases like (21). Why?

- Suppose that MAPPING wants to assign the below prosodic structure to a sentence like (21a):

(22) $(_\iota$ it was $(_{MaP}$ this copy of Aspects) $(_{MaP}$ that I bought))

- That, however, is an illicit structure for an independent reason: the phrase *that I bought* is entirely composed of Given material.

- Suppose there is a high (probably undominated) constraint of the form DESTRESS GIVEN: a Given constituent is prosodically non-prominent (Fery & Samek-Lodovici 2006)

- Nothing, then, in the phrase *that I bought* can receive a phrase-level stress; but then there is no potential head for the second MaP in (22). Assuming Headedness is an absolute requirement for prosodic categories, (22) is ruled out, and the only possible prosodic structure (before considering potential deletions) is (23):

(23)   ($_\iota$ it was ($_{\text{MaP}}$ this copy of Aspects) that I bought)

- This will violate MAPPING once (for *that I bought*), although unavoidably.

- It *doesn't* violate STRONGSTART-MAP (assuming *this* is a PWd).

- It does, however, violate EXHAUST. Is a deletion strategy available?

- I assume that the CP in the above examples meets a Recoverability condition on deletion (which goes beyond plain Givenness)

- CPs which denote certain lambda-abstractions are Recoverable – perhaps under LF-parallelism with an antecedent (Fiengo & May 1994, Fox & Lasnik 2003, Griffiths & Lipták 2014, Thoms 2015 a.o.), perhaps due to identity (or an identity-like relation) with (a categorial denotation for) the Question under Discussion (Weir 2017)[7]

(24) $\llbracket\text{CP}\rrbracket = \lambda x.$ I bought x

- Given this, I assume that deletion of the CP is a possible strategy to avoid the Exhaustivity violation:[8]

(25)

it was this copy of Aspects that I bought	MAPPING	STRST	MAX	EXHAUST
a. it was (this copy of Aspects) that I bought	*			*
b. (this copy of Aspects)	*		***	
☠ c. (this copy of Aspects) that I bought	*		**	*!

- The ungrammaticality of (21b) (=(25c)) is because if EXHAUST ≫ MAX, *all* non-exhaustively parsed material in the ιp must be deleted. STRONGSTART is not involved in the deletion of *it was*.

- A STRONGSTART effect *can* be observed with determiners internal to the DP (i.e. the MaP):

(26)   What was it that you bought?
   a.   A copy of Aspects.
   b.   Copy of Aspects.

(27)

it was a copy of Aspects that I bought	MAPPING	STRST	MAX	EXHAUST
a. it was (a copy of Aspects) that I bought	*	*		*
b. it was a (copy of Aspects) that I bought	**			*
c. (a copy of Aspects)	*	*	***	
d. (copy of Aspects)	**		****	

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[7]Note in passing that (some version of) this condition would also account for Collins 2015's examples of elided relative clauses: *At the party I saw three boys who I knew and one girl who I knew*.

[8]In (25b), I assume that MAX is violated three times: one for *it*, one for *was*, and one for the CP.

3.2 Extension to fragments

It seems, then, that a fragment-like structure can be derived from a cleft input.

- All that is needed is a semantic condition for recoverability of CPs, and the availability of the ranking EXHAUST ≫ MAX, both independently needed.

- Not all fragments can be derived from clefts, though; sometimes the interpretation is different (28) (cf. discussion of sluicing in Merchant 2001), and some constituents can be fragments that can't easily be clefted (e.g. VPs) (29).

(28)   Who left?

    a.   John left, and someone else (I can't remember who).

    b.   #John left, and it was someone else that left.[9]

(29)   What will you do then?

    a.   Go to the cinema.

    b.   *It's go to the cinema (that I will do).

How can we derive the general case of fragments?

- Suppose that focus phrases do move (or have the option of moving) at the narrow syntax in English.

- If this were possible, it would create a configuration like (30a) – which the combination of MAPPING and DESTRESS GIVEN would map on to the prosodic structure in (30b)

(30)   a.
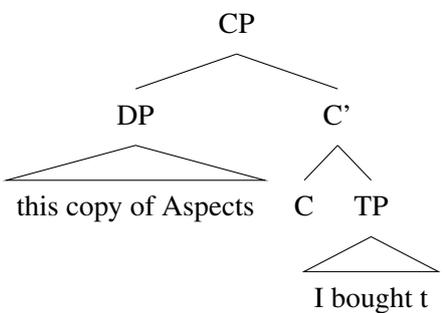
    b.   (ι (MaP this copy of Aspects) I bought)

- Suppose, though, that there is a relatively high-ranked constraint *MOVE (or LCA or PRONOUNCELOWERCOPY) – which militates against pronouncing moved elements in their higher position.[10]

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[9]Though maybe the fragment might be ~~there was~~ someone else ~~that left~~?

[10]Of course this raises the question of why other movements, e.g. *wh*-movement in English, are not 'undone'. One possibility is to say that *wh*-movement (in contrast to focus movement) is driven by a narrow-syntactic need to check features, and this either doesn't violate *MOVE or there is an even higher ranked constraint that enforces that linearization. Another is to say, as Richards 2010 does, that *wh*-movement is in fact driven by prosodic considerations (constraints that are presumably higher ranked than *MOVE). The latter seems more attractive (to me) given the general weight placed on prosody in the current account, but I have not compared these approaches closely.

This approach bears resemblance to linearization-based approaches to 'exceptional' movement and ellipsis (e.g. Fox & Pesetsky 2005, Thoms 2010, Boone 2014; cf. also Richards 2001, Temmerman 2013's 'weak focus feature' approach); with the difference that focus movement (in the absence of ellipsis) does not cause a crash in the current system, it's just 'undone' at PF.

- Then the movement will be 'undone' at PF, placing the moved focus back in its original position (this is essentially a means of encoding LF/covert movement[11]). (STRONGSTART is ignored in the tableau below.)

(31)

this copy of Aspects λx I bought x	*MOVE	DESTRESSGIVEN	MAPPING	MAX	EXHAUST
a. (this copy of Aspects)(I bought)	*!	*			
b. (this copy of Aspects) I bought	*!		*		*
c. (I bought) (this copy of Aspects)		*!			
d. I bought (this copy of Aspects)			*		*

- (d) is optimal in the tableau above, but violates EXHAUSTIVITY.

- The LF of the sentence is 'this copy of Aspects λx I bought x' – rendering deletion of *I bought* Recoverable.

- And so clausal ellipsis becomes a possible outcome, given free ranking of MAX and EXHAUST:

(32)

this copy of Aspects λx I bought x	MAPPING	MAX	EXHAUST
a. I bought (this copy of Aspects)	*		*
b. (this copy of Aspects)	*	*	

Note that (as before) we correctly predict STRONGSTART effects within (DP) fragments:

(33)   What did you buy?
    a.   A copy of Aspects.
    b.   Copy of Aspects.

(34)

a copy of Aspects λx I bought x	MAPPING	STRST	MAX	EXHAUST
a. I bought (a copy of Aspects)	*	*		*
b. I bought a (copy of Aspects)	**			*
c. (a copy of Aspects)	*	*	*	
d. (copy of Aspects)	**		**	

4   Conclusion

Main conclusions:

- Fragments look like they've undergone an A$'$-movement step because they have – a focus movement step at LF which creates the correct semantic object to be recoverably deleted (and which also creates the correct prosodic structure).

- But there is no special *syntactic* technology behind (clausal) ellipsis, e.g. an [E]-feature or syntactic diacritics encoding non-pronunciation

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[11]In Weir 2014:ch. 4, I claimed that fragments do not undergo movement at LF. I am less sure of the strength of those arguments than I was (and see Shen 2017 for counterarguments). In Weir 2017 I argue that the semantic condition on (clausal) ellipsis must make reference to the lambda-abstraction (i.e. access to Hamblin/Rooth style focus alternatives, à la Merchant 2001's e-GIVENness or Weir 2014's QuD-GIVENness, is not enough). Weir 2017 provides a way of accessing that lambda-abstraction without actual movement, but simply saying movement is involved is certainly easier.

- All the action is in the interfaces:

  - on the semantic side, a specification of what conditions a CP has to meet to be (formally) recoverable (independently needed)
  - on the phonological side, the option of deleting material that is not parsed into an MaP (also apparently independently needed, as this seems to be what's happening with left-edge ellipsis)

Avenues for the future:

- How does all this interact with sluicing, which seems to be essentially the same thing as the clausal ellipsis process which derives fragments? Could this analysis, if extended, help understand why *wh*-phrases under sluicing have to be stressed?

  - And what about other kinds of ellipsis e.g. VP ellipsis?

- Does jettisoning the [E]-feature go too far? Are there purely syntactic constraints on (the licensing of) clausal ellipsis? What about cross-linguistic variation?

  - In English, German, Dutch, Spanish and various other languages, only bridge verbs can embed fragments (*Who left? – I think John/??I found out John*): does this follow from anything? (Constraints on (covert) focus movement?)
  - What about the presence or absence of the complementizer? (English: *I think (*that) John*, but Spanish: *Creo *(que) John*)
  - I think, though, that the system does make the welcome prediction that overt focus movement (creating a deaccented propositional 'tail') should generally license clausal ellipsis – as in e.g. focus sluicing in Hungarian (van Craenenbroeck & Lipták 2006)

- What about LEE(-like) effects in other languages (e.g. 'pronoun zap' in Germanic and the 'empty left-edge condition', Sigurðsson & Maling 2010)? In languages where prosodic organization is different, do we see any 'right-edge ellipsis' effects?

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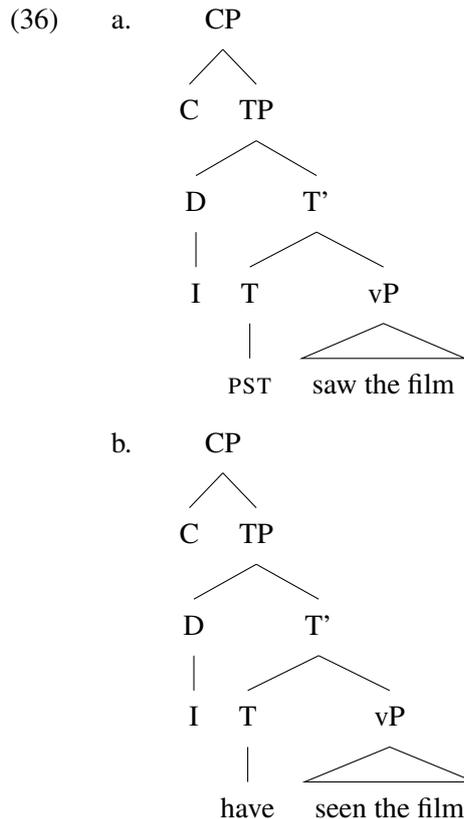Richards, Norvin. 2010. *Uttering trees*. Cambridge, MA: MIT Press.

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A   Appendix: pronouns and LEE

A.1   Pronouns and LEE: declarative case

(35)   a.   ~~I~~ saw the film yesterday.
       b.   ~~I've~~ seen the film.
       c.   ??~~I~~ have seen the film.

I assume that pronouns are not branching nodes. The syntactic structure is then:

(36)   a.

```
              CP
            /    \
          C       TP
                /    \
              D        T'
              |      /    \
              I     T      vP
                    |     /  \
                   PST  saw the film
```

       b.

```
              CP
            /    \
          C       TP
                /    \
              D        T'
              |      /    \
              I     T      vP
                    |     /  \
                  have  seen the film
```

The highest branching constituent within the spellout domain (TP) in each case is T', so that is what MAPPING parses into an MaP:

(37)   a.   ($_\iota$ I ($_\text{MaP}$ saw the film))
       b.   ($_\iota$ I ($_\text{MaP}$ have seen the film))

The example in (35a) then follows as *I* is extrametrical and is deleted under the ranking EXHAUST ≫ MAX. STRST doesn't play a role:

(38)

I saw the film	MAPPING	STRST	MAX	EXHAUST
a. I (saw the film)				*
b. (saw the film)			*	

The example in (35c) is more tricky: it looks like *have seen the film* should be an optimal form under the ranking MAPPING ≫ STRST, EXHAUST ≫ MAX:

(39)	I have seen the film	MAPPING	STRST	MAX	EXHAUST
	a. I (have seen the film)		*		*
	☺ b. (have seen the film)		*	*	
	c. I have (seen the film)	*			*
	d. (seen the film)	*		**	

To solve this, I have to assume that the pronoun can right-cliticize to the aux, and that this doesn't violate Mapping.

- Cliticization 'in' to a MaP doesn't violate MAPPING for that MaP, though cliticization 'out' does. (If cliticization 'out' didn't violate MAPPING, then cliticization of an aux would be obligatory – it would always be optimal as it would repair STRST violations at no cost.)

That provides a form that, like (39b), violates STRST once, but doesn't violate MAX or EXHAUST at all. It therefore harmonically bounds (39b):[12]

(40)	I have seen the film	MAPPING	STRST	MAX	EXHAUST
	☠ a. (have seen the film)		*	*!	
	b. (I've seen the film)		*		

A.2 Subject-aux inversion

(41) a. Have you seen the film yet?
b. You seen the film yet?
c. Seen the film yet?
d. *Have seen the film yet?

Again, in these cases the highest branching constituent is just T', so the MAPPING-compliant parse is:

(42) ($_\iota$ have you ($_{\text{MaP}}$ seen the film yet))

Again, in order for (43b) to be a possible outcome, I have to assume that the pronoun can right-cliticize to the verb without violating MAPPING– and that moreover this does not result in a weak start to the MaP (i.e. that the pronoun cliticizes in to the PWd *seen*)

(43)	have you seen the film	MAPPING	STRST	MAX	EXHAUST
	a. have you (seen the film)				*
	b. have (ya+seen the film)				*
	c. (seen the film)			*	
	d. have (seen the film)	*!		*	*

- This might seem like a bit of an unprincipled solution and certainly the precise formulation of MAPPING could stand to be scrutinized.

- But it's worth noting that there's some strange variation in which pronouns can 'survive' LEE like *you* does above. In particular, *I* can't.

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[12]It also harmonically bounds (39a), but that's not a problem given that (39c) is string-identical and is not harmonically bounded.

(44) a. ~~Am I~~ taking myself too seriously, d'you think?
      b. *~~Am~~ I taking myself too seriously, d'you think?

And note also the contrast in:

(45) a. What you making for dinner?
      b. *What I getting for dinner?

I hope that at least some of this variation might be attributable to idiosyncratic (lexical) differences in which pronouns can cliticize in English (e.g. *you* can but *I* can't – as witnessed e.g. by forms like *Y'alright?*, in my pronunciation [jOlr@IP]). I haven't attempted to work this out in detail, though.

A.3 Negated auxiliaries

These survive LEE:

(46) ~~I~~ don't think so.

This isn't very surprising as deleting them would be unrecoverable. Furthermore, I assume that negated auxiliaries have prosodic word status, following Tyler 2018: their vowels cannot be realized as schwa, and they receive a beat of stress at least as prominent as the verb in (47) (to my ear even more prominent than the verb):

(47) Jóhn dóesn't drink wíne.

They're then not weak starts for the relevant MaP, and the question of deleting them to satisfy STRONGSTART doesn't arise:

(48)

I don't think so	MAPPING	STRST	MAX	EXHAUST
a. I (don't think so)				*
b. (don't think so)			*	