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'Verb floating' and VP-ellipsis: towards a movement account of ellipsis licensing

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Abstract

In this paper I propose that ellipsis is licensed by overt movement. Examining variation in VP-ellipsis across English dialects, I show that movement is crucially implicated in whether or not a given element can license ellipsis. I discuss well-known restrictions on VP-ellipsis and present new data that shows that a movement-based account of these restrictions is superior to previous ones. I show that the proposed account can be extended to other cases involving A′ movement with empirical benefits, and I I conclude by sketching the technical implementation of the theory, arguing that ellipsis is a 'repair' operation that prevents a linearization failure following non-deletion of a lower copy. I suggest that types of movement that are unable to spell out lower copies (i.e. A-movement) do not license ellipsis, thus explaining ellipsis licensing in terms of general conditions on copy deletion.

1   Introduction

It is assumed in the literature that an ellipsis site is subject to two separate conditions: recoverability and licensing. An ellipsis site is recoverable if it has identity with a salient antecedent, and most of the work on recoverability has been concerned with clarifying the identity relation that holds between the deleted and antecedent

constituents (see e.g. Sag 1976, Chung et al 1995, Heim 1997, Merchant 2001, Takahashi & Fox 2006 among many others; see also section 3.5 for some discussion). Since recoverability shares a lot on common with other anaphoric relations in natural language, its analysis has been guided by the principles that have guided the study of anaphora, and indeed some versions of the recoverability theory have tried to reduce ellipsis recovery to general conditions on anaphora (e.g. Hardt 1993, Fiengo & May 1994 among others).

Licensing, on the other hand, is a more mysterious condition, and as such it only holds by definition: a recoverable constituent is licensed if it can be deleted. It is typically assumed that licensing is a syntactic condition, and some have tried to understand ellipsis licensing in the broader context of licensing of other empty categories like traces, PRO and *pro*. Lobeck (1995) is the classic work in this area, in which Lobeck proposes that an ellipsis site is licensed if it is "properly governed" by a "licensing head." By doing this, Lobeck brings together conditions on ellipsis licensing and conditions on the representation of elements in movement chains.

More recent work on ellipsis licensing in Minimalism has carried over the technology of licensing heads, and in an appropriate update of this technology Merchant (2001) proposes that ellipsis (as PF deletion[1]) is licensed by an E-feature on the licensing head; this feature marks its complement for deletion at PF, thus deriving ellipsis. In a more recent formulation of this idea, Aelbrecht (2009) proposes that ellipsis is licensed by an Agree relation between a licensing head (typically T or C, as in Lobeck 1995) and an E-feature on the deleted constituent. One problem with these feature-based accounts is that they adopt the notion of a licensing head in a context where it has been denuded of its wider theoretical justification. The move to Minimalism has effectively rendered the licensing head a ellipsis-specific stipulative

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[1]I assume throughout that ellipsis is PF deletion of full syntactic structure and not a form of pronominal anaphora or LF copying. See Merchant (2001) for extensive arguments in favour of this approach.

category, since notions like "government" have been dispensed with and representational conditions on the distribution of traces have been replaced by derivational constraints on feature-checking (Chomsky 1993 onwards). The elegance of Lobeck's account has thus been lost in transition, and the modern accounts of ellipsis licensing have been left to look somewhat stipulative in the context of Minimalist inquiry.

In this paper I seek to address this issue head-on by abandoning the stipulative category of the licensing head and developing a partly phonological theory of ellipsis licensing. Reviving a suggestion in Chomsky (1995: 125-126), I propose to derive ellipsis licensing – that is, the ability to delete a recoverable constituent – to general conditions on copy deletion, as understood within the copy theory of movement. I will argue specifically that ellipsis is licensed by A$'$ movement (defined broadly as non-A-movement), and that ellipsis is a "repair operation" that deletes the constituent immediately dominated by the target for movement in order to avoid a linearization failure. The proposal thus derives ellipsis licensing from general conditions at the syntax-pholonology interface and rehabilitates the intuition behind Lobeck (1995) tying ellipsis to the mechanics of movement.

A note in terminology: throughout this paper I use the descriptive terminology of "ellipsis licensing" for clarity, but, as will become obvious in section 5, I assume that this term stands in for a more derivational characterization of the process; that is, if I say "ellipsis is licensed," I mean "there is a legitimate derivation that PF-deletes the constituent at this point." We say, then, that an element X "licenses ellipsis" if the complement of X can be elided, at least in the situation where recoverability is also satisfied.

The paper is structured as follows. Section 2 discusses the phenomenon of 'verb floating' in dialects of English, and demonstrate that this phenomenon strongly implicates movement in the licensing of VP-ellipsis. Section 3 shows that, assuming

a particular model of the auxiliary system, a licensing theory of ellipsis can derive the options in English VPE and offer an explanation for some outstanding issues along the way. Section 4 shows that this theory can be extended to a number of other ellipsis constructions, sometimes with empirical benefits. Section 5 discusses the implementation of the theory and proposes an explanation for the generalization that only A′ movement licenses ellipsis. Section 6 sums up.

2 'Verb floating' in British English

A core characteristic of verb phrase ellipsis (VPE) across dialects of English[2] is that main verbs cannot license ellipsis unless they are able to raise to T. The standard word order tests in (1) shows that the verb *put* cannot raise to T, and (2) shows that *put* cannot license ellipsis.

(1) a. *Morag putn't a book on the table. *movement over negation*
     b. *Put Morag a book on the table? *Yes-no questions*
     c. *Morag put a book on the table, putn't he? *Tag questions*

(2) *Morag put a book on the table, and Rab put, too

This is in contrast with copular (or 'main verb') *be*, which is able to raise to T in all environments, and is also able to license ellipsis:

(3) a. Morag isn't a fool.
     b. Is Morag a fool?
     c. Morag is a fool, isn't she?

(4) Morag is a fool, and Rab is, too.

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[2]In what follows, data that is not introduced as being from one dialect or another should be taken as a representation of judgments from across standard dialects, i.e. both American and British English.

Let us call this phenomenon where main verbs survive ellipsis *verb floating*.[3] We can see, then, that the raising main verb *be* pattern with the auxiliary verbs with respect to both raising and ellipsis licensing.

A verb does not need to raise as high as T to float, as we can see in (5) that *be* can also float above ellipsis if it appear below modals or auxiliary *have* bearing the relevant affixes. In this respect, main verb *be* correlates with auxiliary forms of *be*, (6). As we might expect, non-raising main verbs like *put* never float in any of these situations, (7).

(5)　a.　Morag should be on time, and Rab should be, too.
　　　b.　Morag has been late every night this week, and Rab has been, too.
　　　c.　Morag might have been late last night, and Rab might have been, too.

(6)　a.　Morag should be fired this week, and Rab should be, too.
　　　b.　Morag has been fired for negligence, and Rab has been, too.
　　　c.　Morag should have been fired for negligence, and Rab should have been, too.

(7)　a.　*Morag should put a book on the table, and Rab should put, too.
　　　b.　*Morag has put a book on the table, and Rab has put, too.
　　　c.　*Morag should have put a book on the table, and Rab should have put, too.

What this data indicates is that there is a strong correlation between a verb's ability to raise and its ability to float, and that a verb does not need to raise to T (the position which provides us with our tests for the verb's ability to move) to float. At this stage, we might suggest that it is its ability to raise that allows a verb to float and license ellipsis: specifically, if a verb can raise, it will raise to some position in the inflectional layer and will thus float above the ellipsis site.

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[3]I use this term in preference to Goldberg's (2005) term *verb-floating* in order to avoid confusion with other 'stranding' terms in the literature. I return to the significance of Goldberg's 'verb-stranding' examples below.

One possible contention to this is that all that this data demonstrates is that auxiliary verbs license ellipsis; in the cases where *be* floats, it is allowed to do so because it can be analysed as its auxiliary verb homophone.[4] However, we can rule out this alternative by considering a well well-known floating phenomenon. (8) shows that variation across dialects in the availability of floating possessive *have* also tracks variation in the availability of raising: possessive *have* raises to T and floats in British English (BrE), but it does neither in American English (AmE). (Cliticization to the subject, given in (8a), provides an additional test to those above.)

(8)   a.   I've a copy of *Lolita* you can borrow.   OK*BrE*, *AmE
       b.   I haven't any money left.   OK*BrE*, *AmE
       c.   Have you any money left?   %*BrE*,[5] *AmE
       d.   Rab has a copy of *Lolita*, hasn't he?   OK*BrE*, *AmE

(9)   a.   Rab has a copy of *Lolita*, and Morag has, too.   OK*BrE*, *AmE
       b.   Rab should have a copy of *Lolita*, and Morag should have, too.   OK*BrE*, *AmE
       c.   Q: Do you think Martin Amis had a copy of *Lolita* when he wrote *Money*?
          A: I think he must have had.   OK*BrE*, *AmE

If floating was made available by an auxiliary homophone, we would not be able to explain the non-availability of floating possessive *have* in AmE, nor its correlation across the dialects with the ability to raise.

This point is demonstrated further by evidence from *eat-have*, a main verb form of *have* that is synonymous with 'to eat' or 'to consume':

(10)   I have steak for dinner on special occasions.

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[4]Another way to frame this objection would be to say that main verb *be* actually *is* an auxiliary verb in some sense, and that it is this 'being an auxiliary verb' quality that allows a verb to license ellipsis. Section 3.3 provides evidence against such an analysis.

[5]Raising of *have* to C seems to be less widely available in yes-no questions than in tag questions, but many speakers of British dialects still allow it. See Radford (1997: 235-240).

In both American and British English, *eat-have* does not raise,[6] (11). This verb also does not float, (12), contrasting strikingly with possessive *have*.

(11) a. *I've steak for dinner on special occasions.
      b. *I haven't steak for dinner on special occasions.
      c. *Has Rab steak for dinner on special occasions?
      d. *Rab has steak for dinner on special occasions, hasn't he?

(12) a. *I have steak for dinner on special occasions, and Rab has, too.
      b. *I will have steak for dinner on special occasions, and Rab will have, too.
      c. *Nabokov would have had steak for dinner on special occasions, but Orwell wouldn't have had.

We can see, then, that floating has nothing to do with auxiliary homophony; rather, it is crucially dependent upon verb raising, in that only verbs that can raise are able to float.

How, then, do we explain this correlation between raising and floating? One possible explanation is that verbs need to raise to float because they need to move out of designated ellipsis sites. This is how we would handle floating if we were to adopt the licensing theory of Aelbrecht (2009). In Aelbrecht's system, ellipsis is licensed by an Agree relation between an E-feature on little v and the licensing head T (the licensing head does not need to occur at the edge of the ellipsis). The ellipsis site is the complement of vP, and an element can escape that site if it raises before or as T is merged. Alternatively, we could propose that these verbs are able to float because they license ellipsis by raising; that is, when a verb raises, the complement of its target position can elide.

With respect to the issue of floating alone, the latter approach is less theoretically burdensome, since it does not require the notion of the licensing head or the

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[6] *Eat-have*'s inability to raise may be related to the fact that it has a full argument structure, unlike the other raising verbs in English.

stipulations that go with it. This isn't enough to decide between the two, however. In what follows, I will tease apart the two proposals by looking at how to derive the full VPE paradigm. We will see that the movement approach can deal with some issues which the Agree approach can only deal with by admitting further stipulation, and we will see that the movement approach makes specific empirical predictions that cannot be accounted for in the Agree model without significant alteration.

3   Options in VPE

In this section I show how the options in English VPE can be derived in the movement account, given a particular model of the auxiliary system (see Omaki 2007 for a similar model). I show how this account can derive the basic paradigm, and then discuss an additional benefit of this system with regard to a curious restriction on licensing with modals. Finally I discuss optionality in the size of VPE sites and how it indicates the superiority of the movement account to the Agree account.

3.1   Movement to affixes in the inflectional layer: the basic paradigm

It is typically assumed in the literature that auxiliaries start out low in the clausal structure and raise into positions in the inflectional layer (Emonds 1978, Pollock 1989, Chomsky 1993, Bobaljik 1995 and many others). Evidence for this comes from negation and adverb placement, as discussed in Pollock's seminal work and much work since. Roberts (1998) argues that deontic modals also raise from lower positions in the structure, since they are able to scope under negation even when
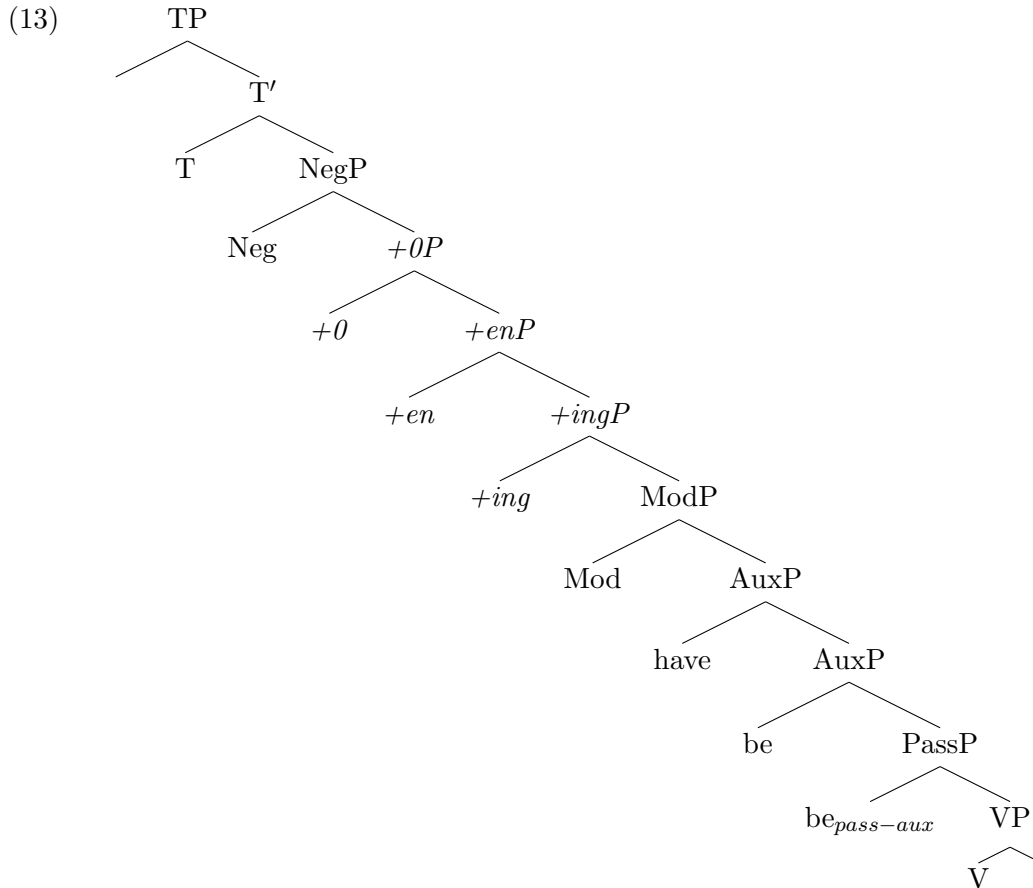
they appear above them; Roberts argues that this obtains after reconstruction,[7] which necessitates a base position lower in the structure for these modals. Here I assume a strictly non-lexicalist model of the syntax-morphology interface (i.e. Distributed Morphology, Halle & Marantz 1993, Embick & Marantz 2008). Such models propose that bound morphemes like T are the heads of projections, so it is natural to assume that the other bound morphemes in the affix hopping system, *+0*, *+en*, and *+ing*, also head projections in the inflectional layer (see for example Lasnik 2000 for a similar proposal). Thus, the operations involved in ensuring T is affixed to a verb will also be involved with the other inflectional heads: that is, verbs will either move to head-adjoin to these affixal heads in the overt syntax (as with raising verbs), or they will undergo some sort of post-syntactic combination with them in morphology (as with non-raising main verbs). The floating phenomena provide us with evidence for some sort of movement to these projections, since it shows that verbs that bear the particular lower affixes, and which also generally undergo movement to bear the higher affix in T, are capable of floating. Without the assumption that raising verbs undergo overt movement to bear the lower affixes, we could not explain how copular *be* and *have* survive VPE when they don't move as high as T.[8]

We may assume, then, that verbs that appear in the lower positions in the inflectional layer get to these positions by movement from base-positions further down: ModP, AuxP, VP in the case of copular *be* and *have*. In (13) I present a

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[7]The theory proposed here assumes that head movement is not PF-movement, as is claimed by some in the literature (see e.g. Boeckx & Stepanov 2001), but rather movement within the narrow syntax. See Matushansky (2006) and Lechner (2007) for arguments for this analysis.

[8] This is not strictly true. One explanation of the correlation between raising and ellipsis evidenced by the floating phenomena that I have not discussed is that the morphosyntactic feature that makes a verb a 'raising verb' always appears alongside the feature that allows a verb to license ellipsis of its complement. In such a system, a verb could license ellipsis in its complement even if it did not raise; thus, floating could involve ellipsis below base-generated auxiliaries and main verbs, perhaps within a lexicalist model of affixation. I ignore this option here for expository reasons only, but I believe it can be ruled out: see footnotes 12 and 14.

model of this system, where the affix projections are ordered to derive the affix hopping system in English:

(13)

```
TP
  \
   T′
  /  \
 T   NegP
     /  \
   Neg   +0P
        /   \
      +0    +enP
           /    \
         +en    +ingP
               /     \
             +ing    ModP
                    /    \
                  Mod    AuxP
                        /    \
                      have   AuxP
                            /    \
                          be    PassP
                               /     \
                         be_{pass-aux}  VP
                                        \
                                         V
```

We assume that non-raising verbs (main verbs) undergo merger with the dominating inflectional affixes in morphology, provided there are no intervening projections like negation. These morphemes will be merged with the verb successively, and the one on the outside (i.e. the last one to merge with the head) is the one that is spelled out on the verb; this is T in the case where there are no other intervening. The raising verbs, however, do not wait until morphology until they combine with the affixes, as they bear strong T-features that must be checked by the affixes under strict adjacency; adjacency obtains between two a verbal head and an affixal head either in the case of a head-head configuration (i.e. head-head adjunction after overt

movement of the verb to the affix), or when there are no intervening non-empty projections between them.[9]

We derive the affix hopping system, temporarily ignoring *do*-support,[10] in the following manner:

1. The T-feature on the modals is valued only by T, so modals always move directly to T.

2. The T-feature on *have* is valued only by *+0* and T, so *have* always moves to *+0P* to combine with that affix.

3. Whenever a verb moves to one of the inflectional affixes, and inflectional affixes above it can also value its strong T-feature, the verb must move further to these projections if it can. Thus *have* will raise further to T in the absence of a modal.

4. The T-feature on *be* is valued by *+en* and the affixes above it, so *be* always moves to *+enP* to combine with that affix. It will move further to *+0* and T in the absence of other elements in those positions.

5. The T-feature on passive *be* is valued by all of the affixes, and it is trivially valued in situ by *+ing*. It will, however, move through the other affixes all the way to T if it can.

6. Non-raising verbs thus absorb the unattached affixes successively in morphology, unless there is an intervening category (i.e. negation).

I will not give a detailed exposition of how this system derives all of the combinations in the system for reasons of space.

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[9]Here I assume, following Omaki (2007) and Lasnik (1995), that strong feaures can be on the attractor or attractee.

[10]See section 3.2 for some discussion, and Thoms (2010) for details.

The most important thing about this system, however, is that strict adjacency between one an affix and one of the verbal heads only obtains after movement in the case of T, *+0P* and *+enP*; however, with *+ingP* adjacency necessarily obtains *without* movement, because *+ing* is the lowest projection in the affixation system. Given general economy conditions, we may assume that, if a verb does not need to move, it cannot move. Thus, all raising verbs will raise from their base positions if they are to bear the T, *+0* and *+en* affixes, but they will not move if they bear the *+ing* affix; rather, the verbal head and *+ing* will combine by *m-merger* in morphology (Matushansky 2006).

If we assume this model of the auxiliary system, it follows that the options in English VPE correlate precisely with the presence of a moved constituent at the edge of the ellipsis, for auxiliaries and floated verbs.

Movement of verb to T: ellipsis possible

(14) a. Rab should arrive on time, and Morag should, too.
      b. Rab has arrived on time, and Morag has, too.
      c. Rab is running late, and Morag is, too.
      d. Rab was expected to arrive at 6pm, and Morag was, too.
      e. Rab is late, and Morag is, too.
      f. Rab has a slow watch, and Morag has, too. *BrE OK, *AmE*

Movement of verb to *+0*: ellipsis possible

(15) a. Rab will have arrived by 6pm, and Morag will have, too.
      b. Rab will be running late, and Morag will be, too.
      c. Rab will be expected to arrive on time, and Morag will be, too.
      d. Rab will be late, and Morag will be, too.
      e. Rab should have a copy of *Lolita*, and Morag should have, too. *BrE OK, *AmE*

Movement of verb to *+en*: ellipsis possible

(16) a. Rab has been watching television, and Morag has been, too.

12

    b. Rab would have been watching television at that time, and Morag would have been, too.

    c. Rab would have been fired for such poor timekeeping, and Morag would have been, too.

    d. Rab would have been a fine candidate, and Morag would have been, too.

    e. Rab would have had a copy of *Lolita* at home, and Morag would have had, too. *BrE OK, *AmE*

Non-movement (but m-merger) of verb to bear *+ing*: NO ELLIPSIS

(17)   a. *Rab is being bribed by a gang, and Morag is being, too.

      b. *Rab is being shrewd, and Morag is being, too.

      c. *Rab must be being bribed, and Morag must be being, too.

The fact that auxiliaries bearing the *-ing* affix cannot license ellipsis (in a head-head licensing account) was observed by Lobeck (1995) and Johnson (2001). This was dealt with by the stipulation that non-finite auxiliaries (but not infinitival *to*[11]) do not license ellipsis.[12] However, in the present account, where ellipsis is licensed by movement, this restriction follows naturally from the ordering of the affixes in the inflectional layer (as reflected by their appearance on the verbs in the affix hopping system).

3.2 The case of *do*-support

One potential objection that may be raised at this point is the case of *do*-support. As is well-known, *do*-support appears in T in VPE when there is no other verb that is able to raise to there.

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[11] See section 3.6.1 for discussion of the issues regarding infinitive VPE.

[12] This data presents evidence against the account of licensing mentioned in footnote 8. If simply bearing a feature that marks potential to move is enough to allow an element to license ellipsis, we would expect that the examples (17) would be acceptable, since we know that passive *be* is normally able to move to higher positions. The fact revealed here is that when it does not actually express its potential to move, it does not license ellipsis.

(18) Rab bribed Bill, and Morag did, too.

The classic analysis of *do*-support is that it involves Last Resort insertion of the dummy verb in T when there is no other element that can bear the affix (Chomsky 1957, Pollock 1989, Lasnik 2000). If the insertion analyses is correct, examples like (18) present a prima facie counter-example to the present account, since *do* does not move to its surface position and therefore should not license ellipsis.

However, the Last Resort account of *do*-support is particularly suspicious under Minimalist assumptions, since it involves a violation of Chomsky's (2004) Inclusiveness condition. Furthermore, it is know that the Last Resort account is empirically flawed, since a number of examples of *do*-insertion that are not Last Resort can be found from dialects of English (see Schütze 2004). One such example is 'British *do*,' a construction found in British dialects of English where a dummy *do* optionally appears below either a modal or auxiliary *have* in VP-ellipsis:

(19) a. Rab might bribe Bill, and Morag might do, too.
      b. Rab might have bribed Bill, and Morag might have done, too.

While Haddican (2008) suggests that British *do* is a proform like *do so*, in Thoms (2010a) I provide evidence against this analysis and show that arguments for keeping British *do* and *do*-support separate are not compelling. With this and other evidence in mind, I propose (partly inspired by the analysis of Embick & Noyer 2001) that *do*-support is raising of little v, and that the British *do* construction is another example of floating, specifically v-floating. This is motivated from evidence from binding, scope and distribution; most notably, we see that British *do*, like the other auxiliaries, cannot license ellipsis while bearing the *+ing* affix:[13]

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[13]Baltin (2007) provides data that reports that British *do* can sometimes license ellipsis in the *doing* form. However, I disagreed strongly with the reported judgments, and every speaker I consulted felt the same. I surmised that speakers who accept *+ing* forms of *do* would also allow for *+ing* forms of *be* in similar constructions; this is supported by the fact that the contexts that seem to allow for

(20)   *Rab is throwing a TV out the window, and Morag is doing, too.

This view of *do*-support thus provides us with a unified account of verb-floating, and it allows us to maintain that VPE is licensed by movement (see Thoms 2010a for the specifics of this account of *do*). In the next section, we will see that this analysis of *do* also allows us to understand another curious gap in the VPE paradigm.

3.3   An interesting gap: epistemic *must*

A benefit of the movement account of licensing in VPE is that it also explains another gap in the VPE paradigm that has been data reported in the literature: the restriction on ellipsis with epistemic modals as licensors (Ross 1969a, Gergel 2007).

(21)   Bob must wash his car every day, and Peter must, too.   * *on epistemic reading* (Gergel 2007)

It is often claimed that epistemic modals are merged higher in the tree than epistemic modals (Cinque 1999, cf. Nilson 2003). Similarly, Roberts (1998) posits that the modals that move to T from a lower position are those that scope under negation. He also points out that epistemics like *must* do not scope under negation, and thus surmises that such modals are base-generated in T. If we adopt Roberts' analysis, (21) follows from the present theory: epistemic *must* has not raised to T, so it does not license ellipsis.[14]

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quasi-acceptable being forms would also allow for quasi-acceptable doing forms:

 i. A: Why don't you sit quietly? (Quirk et al 1985: 875; judgments from Thoms 2010a)
    B: ??/?I AM doing!
 ii. A: Why won't you be quiet? (Thoms 2010a)
    B: ??/?I AM being!

[14] This data provides further evidence against the account mentioned in footnote 8, since we know that epistemic *must* does in fact possess the ability to raise, as it can undergo T-to-C movement in questions.

This account makes a clear prediction: if other verbs follow epistemic *must*, and these verbs have raised to their surface positions, ellipsis should be possible in the complement of these additional verbs. This prediction is borne out by the following examples, which are all acceptable on the epistemic reading:

(22) Bob must have washed his car every day, and Peter must have, too. *OK on epistemic reading*

(23) Bob must be late for work, and Peter must be, too. *OK on epistemic reading*

(24) Bob must have been fired ten times last year, and Peter must have been, too. *OK on epistemic reading.*

These examples are not in minimal contrast with (21), however, as the meaning of (22)-(24) strongly favour the epistemic readings and can bias these sensitive judgments. However, (21) does form a minimal pair with the following example of the 'British *do*' construction:

(25) Bob must wash his car every day, and Peter must do, too.

As mentioned above, in Thoms (2010a) I argue that the *do* in these constructions is another form of verb-floating, having moved to its surface position from within the vP; specifically, it is a spellout of little v. This means that British *do* is a potential licensor within the present account, and we would predict that (25) should be OK with the epistemic reading. This is indeed the case: all speakers who agree with the judgment reported in (21) agree that the epistemic reading is perfectly available for (25), and the overwhelming majority of those who find the judgments unclear report that the epistemic reading is more readily available in (25) than (21).

A Lobeck-style approach could explain this licensing restriction by stipulating that epistemic modals do not license ellipsis; since this system involves licensing in a local configuration, the data in (22)-(24) would be unproblematic. However, it is

not clear how an Agree model like Aelbrecht's (2009) would do this: if licensing is done by the head in T, we would stipulate that epistemic modals are not licensors and cannot agree with the E-feature for VPE; however, we would then be at a loss to explain (22)-(24), since in these situations the head in T must be able to value the E-feature that produces ellipsis. Thus the evidence from epistemic *must* indicates that the movement theory of ellipsis is empirically superior to the Agree account in the case of English VPE. Nevertheless, I do not take this particular phenomenon to be decisive, as the data is somewhat variable and Roberts' assumptions about the base-generation of epistemic modals might be called into question. The data in the following section, on the other hand, is more important, and I believe it shows decisively that the movement theory is to be preferred to the Agree theory.

3.4   Optionality in VPE

A major benefit of the movement theory of ellipsis (one shared by Lobeck's government approach) is that it can account for optionality in the size of VPE deletion sites. Although it is typically referred to as 'verb phrase ellipsis', it is well known that the ellipsis process in the finite clausal domain in English can target constituents of varying sizes, so long as there remains an auxiliary in T.

(26)   a. Rab might have been fired, and Morag might (have (been)), too.
        b. Rab should be fired, and Morag should (be), too.
        c. Rab will be late, and Morag will (be), too.
        d. Rab might have finished the essay, but Morag won't (have).
        e. Rab might have a copy of *Lolita*, and Morag might (have), too. *BrE*

(27)   a. Rab has been fired, and Morag has (been), too.
        b. Rab has been an idiot for years, and Morag has (been), too.
        c. Rab has had an unread copy of *Lolita* on his shelf for as long as Bill has (?had). *BrE*

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This all follows straightforwardly from the present account, as in all of these cases, the different options are marked by different potential licensors, i.e. verbs that have moved to bear their affixes. However, this optionality does *not* follow straightforwardly from Aelbrecht's (2009) Agree account; rather, it requires a litany of extra stipulations. Aelbrecht posits that the site of ellipsis in English is vP, and that little v bears the E-feature that Agrees with the licensing head in T. To get this to work, every auxiliary would have to be a little v that can bear an E-feature; alternatively, the E-feature would have to be borne on every AuxP. This is a serious problem for Aelbrecht's account, one that is not shared by the movement account proposed here.

3.5 A potential benefit: a non-lexicalist solution to Warner's problem

Here I would like to propose that the present model of the auxiliary system, combined with some version of the identity condition on ellipsis, can provide us with a non-lexicalist alternative to the lexicalist account of what I will call 'Warner's problem'. Warner (1993) points out that, while (non-raising) main verbs in an ellipsis site can differ in their morphological form from the antecedent, this is not possible for the raising verbs like *have* and *be*.

(28) a. Rab slept, and Morag will sleep, too.
      b. Rab slept, and Morag will sleep, too.

(29) a. Rab was here, and Morag will be here too
      b. *Rab was here, and Morag will be here, too
      c. Rab must be here, and Morag should be here, too
      d. Rab has left, but Morag shouldn't have left.
      e. *Rab has left, but Morag shouldn't have left.

Lasnik (1995, 2000) proposes a 'hybrid approach to verbal morphology' to account for this restriction. Since this approach relies upon an at least partially lexicalist view of the syntax-morphology interface, and I am convinced by the arguments against lexicalism from Marantz (1997), I believe an alternative account is required for this restriction.

Despite this theoretical difference, the nature of the explanation is similar to Lasnik's, in that the difference between raising verbs and non-raising verbs is that the former, but not the latter, move and combine with affixes in the overt syntax, and that the two thus behave differently with respect to the ellipsis identity conditions because they undergo affixation at different points in the derivation. Given this, (28b) has the (somewhat simplified) structure in (30) before spellout (assuming *will* is generated in ModP or some similar projection):

(30) $[_{TP}$ Rab $[_{T'}$ T $[_{VP}$ sleep]]], and

$[_{TP}$ Morag $[_{T'}$ will$_i$ + T $[_{ModP}$ t$_i$ $[_{VP}$ sleep]]]], too.

We can see that the elided VP constituent is effectively identical to the antecedent clause with respect to syntactic content. In Lasnik's analysis, the identity condition that holds between the antecedent is syntactic[15] (see also Merchant 2008), and under such a condition identity holds between the two clauses in (30) and hence ellipsis is well-formed.

Now consider (31), which represents the form of (29b) prior to spellout:

(31) $[_{TP}$ Rab $[_{T'}$ was$_i$ + T $[_{VP}$ t$_i$ here]]], and
$[_{TP}$ Morag $[_{T'}$ will$_i$ + T $[_{0P}$ be$_j$ + 0 [ModP t$_i$ $[_{VP}$ t$_j$ here]]]]], too.

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[15]Note that it might still be possible to account for this data with a semantic account of ellipsis identity. For example, Hartman (2010) argues that all forms of movement, including head movement, involve the creation of operator-variable chains that are visible to the calculation of possible parallelism domains for semantic identity in ellipsis. Since the present account proposes that the differences between the antecedent and ellipsis are due to different head movement patterns, it seems reasonable to assume that some version of Hartman's theory could explain these identity failures in terms of semantic parallelism.

In this example, we can see that there is no constituent in the antecedent that matches the ellipsis site syntactically, therefore ellipsis is not possible. A similar explanation extends to (29e).[16] It should be borne in mind that the account of Warner's problem provided here is not necessarily tied to this particular theory of licensing, and as such it is not decisive of its empirical validity. Nevertheless, it is interesting to note that this account, if successful, *does* lend weight to the model of the affix hopping system proposed above. That this affix hopping system also works with the (apparently) independent theory of ellipsis licensing thus indicates that it is a successful system, perhaps justifying the (necessarily) stipulative nature of that system.

3.6 Two potential issues: infinitive VPE and negation

I would like to finish this section by discussing two potential issues for the for the present account of ellipsis licensing and the challenges they raise: VPE in infinitives and negation.

3.6.1 Infinitival VPE

As is well known, English allows for deletion of VP-constituents in infinitives:

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[16]One case that this analysis does not easily extend to is the following, from Omaki (2007):

i. *John slept, and Mary was sleeping, too.

ii. John slept, and Mary has slept, too.

Omaki's system predicts this contrast due to the implementation of a slightly different 'feature-based affix hopping system,' in which *+ing* forces over raising of the verb and *+en* does not. While I acknowledge that (i) is a problem for the present account, it is worth noting that it seems plausible that some other semantic confound relating to tense is at work here. For example, (iii) also seems to be bad, even though the same form of the verb *sleep* is contained in the ellipsis:

iii. ??Rab was sleeping, and Morag is sleeping, too.

I leave this for future research.

(32) a. Rab wants to come to the party, and Morag wants to, as well.
      b. Rab expected to be fired, and Morag expected to be, as well.

In the literature, it is typically assumed that the missing VP phenomena we see in infinitives is the same as that which we see in tensed clauses; let us call this the 'uniformity supposition'. Uniformity is often assumed in spite of technical problems posed by bringing the two phenomena together. For example, Lobeck (1995) has to propose that infinitival *to* undergoes covert incorporation into the matrix verb at LF in order to license ellipsis; given that Lobeck's account of ellipsis is essentially a phonological one, it seems at least suspicious to explain the licensing behaviour of *to* by appealing to covert movement.

For the present account to work, we would have to propose that *to* moves to its position in T, and that the other auxiliaries also move to their surface positions. This is plausible in principle. If we are to carry on arguing that affix-hopping is derived from movement to projections of affixes in an inflectional layer, then such an account is motivated for infinitives, since these display a similar affix-hopping system. In addition, there are some arguments in the literature that *to* moves to its surface position: Radford (1997) argues that *to* moves to T since it sometimes appears above negation:

(33) a. I expect you to not worry about this.
      b. I expect you not to worry about this.

On the assumption that *to* appears in T, we would have to assume that *not* raises in (33b).

Nevertheless, at present I will remain agnostic on the matter of whether the deletion that we see in infinitives is in fact the same phenomenon as VPE in tensed clauses, since there are a number of restrictions on infinitive VPE that do not apply to finite clause VPE. These restrictions are not readily explained by any account

of ellipsis that I am aware of. First, as Levin (1986) notes, infinitives never allow for pseudogapping:

(34)   *Although I didn't expect him to eat steak, I did expect him to pizza.

On the assumption that pseudogapping can typically be derived from Heavy NP Shift followed by VPE (Jayaseelan 1990, Takahashi 2004,[17]) we would expect that pseudogapping would be available in infinitives, since they clearly allow for HPNS:

(35)   I want you to give to Rab that book you were telling me about the other day.

Second, we can see that infinitive VPE differs from finite clause VPE in the ability to optionally include auxiliaries in the ellipsis site (cf. Levin 1986 ch.4, which discusses examples just of *be*-omission). Compare (36) with (26)-(27) and the floating examples discussed above, which showed that finite clauses often allow for these larger ellipsis sites:

(36)   a. I expect Rab to be fired, and I expect Bill to *(be), as well.
       b. I want to be promoted, and Bill wants to *(be), as well.
       c. I would have expected Rab to have been promoted by now, and I would have expected Morag to ?*(have been), as well.
       d. Q: For this interview, do you think I will need to have prepared a presentation?
          A: I'm guessing they will expect you to *(?have), yes.

If VPE is able to target auxiliaries in matrix clauses, it's unclear why it cannot do so in infinitival clauses too.

Third, infinitives also do not allow for floating of *be*, *have* or *do* across dialects:

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[17]Takahashi (2004) discusses the arguments for and against the two competing analyses of pseudogapping, Jayaseelan's HNPS account and Lasnik's (1999) Object Shift account, and ultimately he argues that, to derive the full paradigm, pseudogapping must avail itself of both mechanisms. The important thing is that, on the assumption that HNPS allows us to derive at least some pseudogapping examples in infinitives. However, it seems that none are possible.

(37) a. *I expected Rab's friends to be fools, and I expected Morag's friends to be, well.

b. *I expected Rab's car to be red, and I expected Morag's car to be, as well.

c. *I would have expected Rab's friends to have been wise, and I would have expected Morag's friends to have been, too.

d. I expected Rab to have a red car, and I expected Morag to (*have), as well.

e. I expected Rab to buy a red car, and I expected Morag to (*do), as well.

Examples like (37a)-(37c) are particularly instructive, since they indicate that infinitive ellipsis is not always cured by including the main verb; rather, infinitival ellipsis with these examples seems to be entirely impossible. Compare these with (37d)-(37e), which are acceptable if the floating verbs are omitted. The difference between these two sets of examples is that the former set involve a raising verb which might plausibly be generated higher than vP, while the latter set involves verbs that are arguably base-generated within vP.

One conclusion we might draw at this stage is that infinitive ellipsis does not in fact involve PF deletion as triggered by movement, but rather it involves the generation of a verbal proform, *pro*. Many researchers studying ellipsis have concluded that it is necessary to assume that natural language has to make use of both null proform and PF deletion in order to account for the full range of ellipsis phenomena (e.g. Hankamer & Sag 1976, van Craenenbroeck 2004, Cecchetto & Percus 2006). While this is theoretically undesirable (see Baltin 2007 and Baltin & van Craenenbroeck 2008 for attempts to dispense with the proform-ellipsis dichotomy), it seems that the diversity of the phenomena still require both mechanisms. In the case of English infinitive VPE, the question is whether the empirical evidence provided by reliable diagnostics can decide between the two options.

A number of researchers have tried to develop diagnostics that distinguish null proforms from VPE, although the nature of these diagnostics vary depending on what is being separated from VPE. For example, in the analysis of 'short *do* replies' in Dutch dialects, van Craenenbroeck (2004: 141) proposes ten different diagnostics that distinguish Dutch *do* replies from VPE. Of these, only five can clearly carry over to the case here:

(38)   a. pseudogapping
           b. 'modals and auxiliaries'
           c. 'distribution'
           d. *there*-expletive subjects
           e. co-occurence with wh-extraction

(34) shows that infinitive VPE fails the pseudogapping test. Although the terms for the comparison are different, it seems fair to say that infinitive VPE would also fail a version of a 'modals and auxiliaries' test, since (36)-(37) indicate that it differs from standard VPE with respect to the distribution of associated auxiliaries. With respect to these two diagnostics, infinitive VPE seems to pattern with an overt *do so* anaphor in the same position.

The data in (37) also indicates that infinitive VPE also doesn't pattern with standard VPE with respect to distribution, since it cannot occur with copular *be*. Johnson (2001) also discusses a number of other restrictions on infinitive VPE that suggests that it also fails this distribution test, and he notes that the general condition seems to be that infinitive VPE cannot occur in islands (adjunct islands, subject islands, wh-islands, NP-islands), all contrasting with standard VPE (examples in(39) from Johnson 2001: 445):

(39)   a. *Mag Wildwood came to read Fred's book, and I also came to.
           b. *You shouldn't play with rifles because to is dangerous.
           c. ??Ron wanted to wear a tuxedo to the party, but Caspar couldn't decide whether to.

    d. *Lulamae Barnes recounted a story to remember because Holly had also recounted a story to.

(40)   a. Mag Wildwood came to ensure that Morag read Fred's book, and I also came to ensure that she did.

        b. Fred used to play with rifles all the time. That he did infuriated his father.

        c. Ron wanted to wear a tuxedo to the party, but Caspar couldn't decide whether he should.

        d. That story that Lulamae Barnes recounted might not have frightened you, but I know a story that definitely will.

While there is much more to say about these restrictions, they clearly indicate that infinitive VPE fails the distribution test.

The results of the other two tests are less clear, but they seem to indicate positive correlation between infinitive and standard VPE. Although it can sometimes seem forced (perhaps due to requirements of contrastive focus), (41) demonstrates that *there*-expletives can sometimes occur as subjects of infinitives that have undergone VPE:

(41)   a. Q: Will there be cake at the party?
          A: There will, yes.

        b. Q: Will there be cake at the party?
          A: ?Well I would expect there to be.

The data on wh-extraction is less clear, since the example sentences are somewhat cumbersome due to the contrivances required to make wh-extraction from VPE possible (Schuyler 2001). Nevertheless, we can see a contrast between infinitive VPE and *do so* anaphora with respect to wh-extraction, thus indicating that it is in principle possible with infinitive VPE:

(42)   a. Although I don't know who Rab will invite, I know who Morag will.

        b. ?/??Although I don't know who you expect Rab to invite, I do know who you expect Morag to.

      c. *Although I don't know who you expect Rab to invite, I do know who you expect Morag to do so.

      d. I expect Rab to invite lots of drunkards, and I expect Morag to do so, too.

This seems to indicate that infinitive VPE does indeed pass the wh-extraction diagnostic. Note however that this diagnostic has been taken not to be decisive of whether or not a putative ellipsis site is a proform or not. Aelbrecht (2009) notes that Dutch Modal Complement ellipsis does not allow for wh-extraction, but she derives this fact from a specific model of ellipsis where deletion occurs "in the over syntax," thus blocking the deleted site from further syntactic computations. Along similar lines, in Thoms (2010a) I show that the lack of extraction in British *do* constructions does not as such diagnose a lack of inner structure, but rather it diagnoses the non-availability of reconstruction into the ellipsis site; this is supported from independent evidence from the scope of quantified subjects and objects.

With all of these diagnostics considered, we are left with a rather unclear picture of the nature of VPE in English infinitives. Although the evidence seems to favour a proform analysis, the issue clearly requires further investigation. What this data does surely indicate, however, is that the 'uniformity supposition' in the literature that the availability of VPE in matrix clauses would precipitate its availability in infinitives is one that should be suspected.

I would like to end this subsection with evidence from Hebrew that indicates that this supposition might in fact be incorrect. Doron (1999) and Goldberg (2005) argue that Hebrew has a VPE construction in finite clauses; (43)-(44) provide examples of this:

(43)   Q: Šalaxt   etmol   et   ha-yeladim le-beit-ha-sefer?
          sent[Past2Fsg] yesterday ACC the-children to-house-the-book
      'Did (you) send the children to school yesterday?'

A: Šalaxti
   Send[Past1sg]

'(I) did.' (Doron 1999:)

(44) Ehud hizmin   otanu   le-mesiba, ve-ani xoševet še-Dani   gam
      Ehud invite[Past3Msg] ACC.us to-party   and-I think that-Dani also
      hizmin.
      invite[Past3Msg]

      'Ehud invited us to a party, and I think that Dani also did' (Goldberg 2005:

      34)

Noting that the verb moves to T in Hebrew, Goldberg (2005) calls this 'verb-
stranding VPE,' and she goes on to provide a number of arguments in favour of
analysing these constructions as VPE.

Preliminary investigations into Hebrew indicate that it provides a counter-
example to the 'uniformity supposition', as all the Hebrew speakers I have consulted
who allow for VPE[18] do not allow for ellipsis in infinitives. The data is in (45),
which contrasts minimally with its VPE counterpart, (46):

(45) *Dan ratza   lishlo'ach et   hayeladim le-beit-ha-sefer
      Dan want[Past3Msg] INF-send ACC children   to-house-the-book,
      mookdam, ve-ani   ratziti   lishlo'ach
      and-I   want[Past1Msg] INF-send

      'Dan wanted to send the kids to school early, and I also wanted to.'

(46) Dan ratza   lishlo'ach et   hayeladim le-beit-ha-sefer
      Dan want[Past3Msg] INF-send ACC children   to-house-the-book,
      mookdam, ve-ani   ratziti
      and-I   want[Past1Msg]

      'Dan wanted to send the kids to school early, and I also did.'

This data provides no real problem for an analysis of English infinitive VPE as a
proform, as we may surmise that the lexicon of Hebrew lacks the null proform that

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[18]It is worth noting that, while all of the speakers readily accept verb-only answers like that in (43),
not all found full clausal examples like (44) acceptable. I am unsure what to make of this variation.

is used for infinitive ellipsis in English.

The matter of infinitival VPE is clearly one that requires further attention, but at present I will tentatively assume that the quirks and problems of the infinitival VPE data do not necessarily present direct counter-examples to the theory of ellipsis defended here. It should be noted that these quirks are not just a problem for the present theory, but for all theories of ellipsis licensing that I am aware of.

3.6.2   Negation

The second issue to be dealt with here is the curious case of negation. Negation seems to present a real counter-example to the generalization that non-moving material does not license ellipsis, as it is typically assumed that clausal negation has a fixed position in the syntactic tree, and yet negation seems to license ellipsis both in full and reduced form.

(47)   a. Rab said that I should come, but Morag said I definitely should NOT.
       b. Rab isn't here, and Morag isn't either.
       c. Children should not eat paint, and adults should not, either.

We may note, however, that ellipsis with full negation is considerably poorer when it does not bear some degree of focal stress, as in (48), and we can see from (49) that this is not due to some general requirement for (contrastive or non-contrastive) focus on the element at the ellipsis edge.

(48)   ??Rab MIGHT not be late, but Morag definitely WILL not.

(49)   Rab MIGHT be late, but Morag definitely WILL be.

More generally, the natural tendency in natural speech is to prefer reduced negation to full negation, (50).

(50)   a. Q: Do you think Rab will object if I borrow his pen?
           A: He shouldn't.

b. Do you think Rab will object if I borrow his pen?
   A: ??He should not.

Zwicky & Pullum (1983) show that reduced negation has all the properties of an inflectional affix, rather than a clitic; on the assumption, adopted above, that inflectional affixes head projections in the inflectional layer, I assume that inflectional negation is a bound morpheme that heads a higher projection *ntP*, and that full negation heads a slightly lower *NegP* projection (see also Thoms 2009 for semantic evidence for this proposal). Specifically, I propose that in examples with inflectional negation, the verb has moved to bear the *nt* affix and the moved verb licensed ellipsis, whereas in examples with full negation the verb simply moves over *not* and the unmoved element *not* does not license ellipsis. In cases where *not* is focused, it is exceptionally allowed to license ellipsis because it has undergone focus movement to some higher projection such as ΣP (see also section 4.2). In cases like (47c), where *not* appears but is unstressed, we may assume that it has been analysed as the inflectional form or has cliticized to the verb. This 'fixes' the problem of negation and brings it into line with the present theory.

There are two pieces of independent evidence for this proposal. The first piece of evidence comes from Scottish dialects of English, such as Glasgow English. These dialects seem to have separate morphological realizations for the different negation projections, in that inflectional negation is spelled out as *-nae* while full negation is always spelled out as *no*.[19]

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[19]Note that the *no* in Glasgow English is not the same morpheme as the Standard English negative answer *no*, as Glasgow English has a separate word, *naw*, for Standard English *no*. We can see that the two are distinct by the fact that *naw* cannot appear in the position of clausal negation (i) and the fact that *no* and not *naw* appears in the Glasgow English version of the collocation *Why not?* (ii), which Merchant (2006) shows to be diagnostic of the clausal negation morpheme:

  i. Rab should no/*naw huv invited Morag.
 ii. (Rab can't come to the party). Why no?/*Why naw?/*Why nae?

(51)   a. Rab sis that ye shouldnae huv invited Morag.
         'Rab says that you shouldn't have invited Morag.'
       b. Rab sis that ye should no huv invited Morag.
         'Rab says that you should not have invited Morag.'

Interestingly, verbs bearing inflectional negation are incapable of moving to C^0 in Glasgow English; in such situations, only the full negation option is available.[20]

(52)   a. Should Rab no huv been invited?
         'Should Rab not have been invited?'
       b. *Shouldnae Rab huv been invited?
         'Shouldn't Rab have been invited?'

The effect in (52b) can also be seen in wh-questions and tag questions. We can see that *nae* is a bound morpheme, since it cannot occur without the verb:

(53)   *Should John nae huv been invited?

Finally, we can see in (54) that it is the morpheme *no* that occurs in constituent negation; this patterns with Standard English, which also does not use the inflectional negation morpheme in constituent negation.

(54)   a. Rab should huv no/*huvnae bothered turnin up. (Glasgow English)
         'John should have not bothered turning up.'
       b. John should have not/*haven't bothered turning up. (Standard English)

   We can thus see that Glasgow English has two separate morphemes for inflectional and full negation, and as such it would provide a good testing ground for the proposal that only inflectional negation standardly licenses ellipsis (when it is affixed to a verb). This prediction is borne out: Glasgow English typically prefers the inflectional negation option in ellipsis contexts, and full negation is only allowed with focal stress. It does not allow for the equivalent of (47c), where full negation is unstressed.

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[20]Thanks to Nigel Fabb for pointing this out to me.

(55) a. Rab shouldnae come, and Morag shouldnae either.
          'Rab shouldn't come, and Morag shouldn't, either.'
      b. *Rab should no come, and Bill should no, either.
          'Rab should not come, and Morag should not, either.'
      c. Rab sis that Morag should come, but Tam sis she should NO.
          'Rab says that Morag should come, but Tam says that she should NOT.'

The Glasgow English facts thus seem to indicate that the 'fix' proposed above is in some way correct.

The second, more tentative piece of independent evidence comes from the area of discussion in the previous section, infinitive VPE. As we saw, there is much cause to doubt that infinitive VPE actually involves ellipsis. Whatever the analysis, however, we can see that negation has a strange part to play in ellipsis licensing in that domain. (56) shows that negation can not license ellipsis in infinitive VPE, even though it would be licensed without negation in such cases. We can also see that negation itself doesn't cause unrelated problems for infinitive, as it can occur in the higher position when it isn't a licensor; however, the higher occurence of negation cannot license ellipsis either.

(56) a. *I expect Rab to not turn up, and I expect Morag to not, as well
      b. I expect Rab not to turn up, and I expect Morag not to, as well.
      c. I expect Rab to turn up, and I expect Morag to, as well.
      d. *I expect Rab not to turn up, and I expect Morag not, as well.

This coincides with the fact that infinitives do not allow for inflectional negation:

(57) *I expect you to'nt turn up.

Negation, then, seems to be an unreliable licensor, and it seems to be doubly so when it appears in an environment that doesn't allow for inflectional negation.

As with infinitive VPE, the picture with negation and ellipsis is far from clear, and it involves a large number of quirks that cannot all be dealt with in the context

of this article (see Potsdam 1997 and Johnson 2001 for many more of these quirks). However, I believe that the above-mentioned facts (particularly those from Glasgow English) do show that the proposed solution to the apparent problem posed by negation is correct, and that negation may not in fact present a full counter-example to the theory proposed here.

3.7   Summary

In this section I have argued that we can derive the full range of options in English matrix VPE from a movement theory of licensing. I show that a particular model of the inflectional layer derives verb movement in all of the cases except those that do not license ellipsis, exploiting the parallel with verb floating and the arrangement of affixes in the affix-hopping system. I show that independently motivated arguments for base-generating epistemic modals like *must* explains its inability to license ellipsis, and I then show that the model of movement to affixes can also provide a possible solution to Warner's problem. I conclude by discussing the prospects for accounting for infinitival VPE and negation with mechanisms compatible with this system.

4   Extensions: A′ movement licenses ellipsis

Ultimately, what the previous sections have shown is that movement is implicated in a domain of ellipsis where it is not typically taken to be important, and I have argued that we can build a movement theory of ellipsis licensing on the basis of this strong correlation. In this section I sketch prospects for extending the movement licensing theory to other ellipsis constructions, paying particular attention to a set of constructions that do in fact directly implicate movement. I first show that sluicing

and its related variants are perfectly amenable to this analysis, and that adopting it also enables us to solve a particular unresolved issue. I show that the analysis can also explain fragments and stripping, and that the contrasts with stripping and verb-less VPE strongly implicates that it is A′ movement in particular that licenses ellipsis. I then look at the possibility of extending the analysis to other constructions like NP-ellipsis.

4.1   Sluicing, spading and swiping

The ellipsis construction that is most obviously compatible with the movement licensing theory is sluicing, since it involves movement of a wh-phrase to {Spec,CP}, followed by ellipsis of its complement.

(58)   Rab bought something for Morag, but I don't know what.

Merchant (2001) provides a number of arguments in favour of a PF-deletion account of sluicing, showing that the wh-phrase that appears at the edge of the ellipsis must have moved to that position from within the deleted constituent. Previous analyses of ellipsis licensing in sluicing (i.e. Lobeck 1995, Merchant 2001) stipulate that the licensing head is $C^0_{[+wh]}$. In the present account, however, we do not require this stipulation. Rather, sluicing is always licensed because it necessarily involves movement; since the wh-phrase has moved to its surface position, it licenses the deletion of its complement.

The movement theory of ellipsis comes with one immediate benefit in the realm of sluicing: it provides a principled explanation for the fact that sluicing never preserves any of the elements that appear in $C^0_{[+wh]}$ when there is no ellipsis. Merchant (2001: 74-82) points out that the licensing head theory wrongly predicts that elements that are base-generated in $C^0_{[+wh]}$, such as complementizers in languages

that lack the Doubly Filled Comp Filter, should also survive sluicing.[21] Merchant shows this with data from Dutch, Frisian, Slovene and Irish; the following example is from Scottish Gaelic:

(59) Bhruidhinn thu ri tidsear air choireigin, ach chan eil   cuimhne
     Speak.past 2s to teacher on some.case but neg   be.pres.dep remember
     agamsa   cò   fear (*a)
     at.1s.emph who one wh-C
     'You spoke to some teacher, but I don't know which (*that)'.

These facts follow straightforwardly from the movement theory of licensing, since it involves deletion of the complement of the moved element, and this includes C^0 and any elements it may contain. Furthermore, this account dictates that elements base-generated in this position will never appear under sluicing, since they have not moved to their position and hence cannot license ellipsis in their complement.

Note, however, that this account does not rule out the possibility of *any* elements co-occuring with a wh-phrase in sluicing; rather, it predicts that an element should be able to survive with the wh-phrase so long as that element has moved to that position. Van Craenenbroeck (2004) identifies one such construction in Dutch, where a wh-phrase co-occurs in a sluice alongside a demonstrative pronoun, what has since become known as *spading* (for **S**luicing **P**lus **A** **D**emonstrative **I**n **N**on-insular **G**ermanic).

(60) Jef eid iemand gezien, mo ik weet nie wou da.
     Jeff has someone seen   but I know not who that$_{dem}$
     'Jeff saw someone, but I don't know who.' (Wambeek Dutch; van Craenen-broeck 2004: 1)

Van Craenebroeck demonstrates clearly that the *da* in these examples is a demonstrative and not its complementizer homophone, and he provides a number of ar-

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[21]Merchant (2001: 61-82) also discusses the fact that non-operator elements that normally move to $C^0_{[+wh]}$ do not appear under sluicing, such as auxiliary raising in English. His account of these cases appeals to the nature of feature-checking and economy considerations, and I find this account compelling.

guments for analysing this element as a demonstrative pronoun that has moved from an underlying cleft construction to a CP projection below the target of wh-movement. He also argues that the movement of *da* is an instance of focus movement; evidence includes the fact that *da* must bear focal stress. Given his analysis, we can account for spading within the current system, since the element that appears at the edge of ellipsis, the demonstrative pronoun *da*, has gotten there by movement.

Another example of a phenomenon where another element occurs alongside the wh-phrase in sluicing is what Merchant (2002) calls *swiping*, for **S**luiced **W**h-word **I**nversion **I**n **N**orthern **G**ermanic. As the name suggests, this is when the wh-element within a sluiced wh-PP undergoes inversion with the head preposition, as demonstrated by (61) for English.

(61)   Rab taught a class today, but I don't know what about.

This construction was first identified by Ross (1969b), and Merchant (2002) and van Craenenbroeck (2004) have recently developed analyses that derive these constructions from standard sluicing. While the two differ in the technical implementation – Merchant argues for head movement of the wh-word to adjoin to the P at PF, while van Craenenbroeck argues for subsequent movement of the wh-word from within the PP to a higher projection in the CP domain – they are both amenable to the present account, since they both hold that the preposition that inverts with the wh-phrase has gotten to its surface position by movement. As such, the PP can license ellipsis in its complement, and whether or not the wh-word and preposition subsequently invert does not alter this fact; indeed if we are to suggest that ellipsis is derived as soon as the moving element is merged in its new position, this is

obviously possible.[22] Thus swiping can be readily accounted for by the movement theory of ellipsis.

4.2   Fragment answers and stripping

If the focus-movement in spading can allow the demonstrative pronoun *da* to license ellipsis, we may expect that focus movement will generally license ellipsis in the complement of the moved element. Two ellipsis constructions that have been argued to involve focus movement to a left-periphery position followed by deletion of the full sentential complement of the moved phrase are fragment answers, (62), and stripping, (63):

(62)   Q: Who did she invite?
        A: Rab.

(63)   Abby speaks passable Dutch, and *Ben*, too.

Merchant (2003, 2004) and Depiante (2000) provide a number of arguments to support focus-movement-plus-PF-deletion accounts of fragments and stripping.[23] For example, in the case of fragment answers, Merchant shows that they are sensitive to complementizer deletion, like normal left-dislocated constituents:

(64)   a. A: What does no one believe?
            B: #(That) I'm taller than I really am.
        b. No one believes (that) I'm taller than I really am. (Merchant 2004: 690)
        c. #(That) I'm taller than I really am, no one believes.

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[22]Note that ellipsis licensed by the subsequently moved wh-phrase in swiping would be indistinguishable from a derivation where the wh-phrase has stranded the preposition in the base position; all the languages that allow for swiping are preposition stranding languages.

[23]Temmerman (2009) also presents several compelling arguments for this analysis of fragments, based on differences between Dutch and English with respect to the availability of embedded fragments and the alleviation of island effects.

In the case of stripping, Depiante (2000) and Merchant (2003) show that the element that appears in the second conjunct shows form-identity effects with an element that has been moved to its surface position. For example, in languages that do not allow for preposition stranding, the second conjunct in stripping must pied-pipe the targeted PP; this is in contrast with a non-P-stranding language in English, in which the stripping conjunct can appear without the preposition (as indicated by the translation):

(65) Milisa me ton Saki xthes,   kai *(me) tin Anna.
      I.spoke with the Sakis yesterday and with the Anna
      'I spoke with Sakis yesterday, and (with) Anna.' (Merchant 2003: 3)

Merchant (2003) also shows with a series of other tests that the second conjunct is not just a minimal DP coordinated with the matrix subject, thus ruling out a gapping analysis for stripping and favouring the PF deletion account.

As may be obvious by now, fragments and stripping can be easily subsumed by the present account of ellipsis licensing, since they involve focus movement of the licensing element to its surface position. What is important, however, is that these examples all involve instances of a kind of A′ movement. Examples like (63) are in minimal contrast with sentences like (66a), which would typically be analysed as an example of failed VPE (cf. its successful counterpart):

(66)   a. *Abby speaks passable Dutch, and Ben, too. *'Ben' lacks focal stress*
       b. Abby speaks passable Dutch, and Ben does, too. *'Ben' does not require focal stress'*

What distinguishes *Ben* in (63), which can license ellipsis of its complement, from *Ben* in (66a), which cannot? Under standard assumptions, both phrases have moved to the position in which they appear, so we might expect that they would both license ellipsis. However, they differ in the kind of movement which has taken place: A-movement in (66a), and A-movement followed by subsequent A′ movement

in (63). The difference, then, is the extra stage of A′ movement.

Given that all of the other examples of ellipsis licensing that have been discussed in this paper are examples of A′ movement, we might conclude that ellipsis is not licensed by movement, but specifically that it is licensed by A′ movement. This is stated as a generalization below:

(67) Ellipsis licensing generalization: ellipsis is licensed only by A′ movement.

In the final section I will discuss theoretical motivations for this generalization. For now, however, it is worth noting that, in addition to A-movement to subject positions, A-movement to object positions also does not license ellipsis:

(68) *I expect Rab to leave, and I expect Morag, too.

Whether any other kinds of A-movement within sub-clausal constituents do or do not license ellipsis is a subject for future study.

4.3   Ellipsis in DP

In section 3.6.1 I noted that researchers in the field of ellipsis have acknowledged the necessity of maintaining the "Duality of Ellipsis," a proposal that admits both PF-deletion and null proform accounts of ellipsis. Of all the ellipsis constructions in natural language, the one that seems most likely to receive a proform account is ellipsis within DP, which I will refer to as NP-ellipsis (NPE) for clarity. (69) shows some examples of the phenomenon in English.
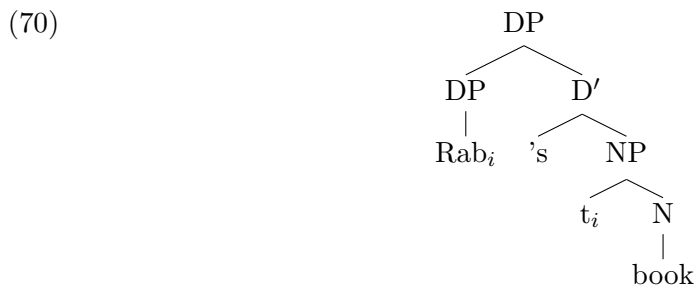
(69)   a. Rab's book was terrible, but Morag's was great.
       b. Rab is bringing some cakes. You should bring some, too.
       c. Rab told me to bring three cakes, but I thought it would be better if I brought at least five.

Studying variation in NPE across Germanic and Romance, Lobeck (1995) argues that the ellipsis site in DP is a null proform of the same ilk as the *pro* that is found

in *pro*-drop languages; she shows that the 'strong agreement' that is required for identification of null-subject *pro* is very similar to the restrictions on what kinds of elements can license NP-ellipsis.

In recent work a number of authors have called this correlation between *pro* and NP-ellipsis into question; for example, Sleeman (1996) argues that the possibility for NP-ellipsis is not tied to strong agreement, but rather a feature associated with partitivity, [+PARTITIVE], based on an in-depth study of Romance NPE. Much subsequent work has thus disfavoured the *pro* account in favour of developing PF deletion approaches to NPE, and as such these theories bring NPE into the purview of the present proposal. To explain NPE, then, we would have to identify a number of sub-types of A′ movement within the DP.

Of the English examples in (69), (69a) readily admits such an analysis. A standard analysis (e.g. Abney 1987) for the structure of a possessive like *Rab's book* is that the subject possessor *Rab* is generated in {Spec,NP} and moved into {Spec,DP}:

(70)

```
                    DP
                   /  \
                 DP    D′
                 |    /  \
              Rab_i  's   NP
                         /  \
                       t_i   N
                             |
                           book
```

Since *Rab* moves to its position and merges with the bound morpheme, we would predict that it licenses ellipsis, as is the case.[24] To be compatible with the licensing theory, the analysis requires that this is an instance of A′ movement (i.e. head movement), rather than A-movement. Although this not a wholly settled matter,

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[24]This analysis, as well as the others cited in this section, raise interesting issues with respect to the derivation of PF deletion with respect to morphological operations; the present account would require that the morpheme *'s* attaches to *Rab* before deletion applies.

it seems unlikely that possessor movement is A-movement, since it is often optional and dependent upon phonological factors like heaviness, unlike other forms of A-movement. These issues aside, (69a) seems to be a good candidate for an NP-ellipsis construction that is readily accounted for by the movement licensing theory.

This is all very well for possessives, since they clearly involve word order rearrangements that diagnose movement. However, what are we to do with examples like (69b)-(69c), which do not show any clear signs of DP-internal movement? As it happens, many proposals in the literature have tied various other kinds of NPE to movement within DP. For example, Corver and van Koppen (2009) show that NP-ellipsis in Dutch and Frisian involves a special morpheme that marks focus on the licensing element, and they argue that this morpheme is the head of a focus projection in DP to which the licensing element moves. Eguren (2009) presents a similar analysis for Spanish. Alexiadou and Gengel (2008) contest the focus movement analysis, arguing instead in favour of an analysis where classifiers license ellipsis, but their analysis still involves a set of DP-internal movements to classifier projections.

Preliminarily, then, we can note that consideration of the cross-linguistic picture indicates a movement-based analysis of NPE of examples like (69b)-(69c) has some promise. What is required, however, is that the predictive nature of the theory be sharpened, in that we should aim to show that situations where we would *not* expect movement coincide with situations where ellipsis is not licensed. This was the nature of the argument from VPE, and future research should aim to test the theory in a similar way with evidence from NPE.

5   Implementation and explanation

In what has preceded I have proposed that movement is required for the licensing of ellipsis by PF deletion. In particular, I have argued that ellipsis is licensed only by A′-movement, as stated in (67).

(67)   Ellipsis licensing generalization: ellipsis is licensed only by A′ movement.

Although it has not previously been made explicit, 'movement' here refers only to *overt* movement. This is a natural assumption on standard accounts of covert movement that propose that it is movement at LF, since covert movement operation would not be able to alter the phonology of the sentence. Note, however, that some theories of the syntactic interfaces reject the idea of LF movement, preferring instead to account for apparent LF movement phenomena like QR and reconstruction in terms of pronunciation principles and conditions on linearization (i.e. Bobaljik 1995, 2002; Richards 2001; Pesetsky 1998). In this section I derive (67) from general conditions on movement; the explanation developed here is compatible with both views of the syntax. The ultimate effect of the proposal is to collapse ellipsis and copy deletion into the one mechanism, reviving a suggestion from Chomsky (1995) that has tempted much of the work on ellipsis that has followed in its wake.

One of the core assumptions in Minimalist syntax (e.g. Chomsky 1993, 1995, 2004) is that what we call 'movement' is actually an instance of 'copy and delete', where the base-generated element in a dependency is copied and re-merged in the higher position to which it has moved, and the lower copy is deleted in the phonological component. This is known as the Copy Theory of Movement. One of the core issues for proponents of the copy theory is how to explain the fact that base copies are not pronounced, even though they do seem to be somehow 'present' at LF. The evidence for the presence of lower copies comes largely from reconstruction

effects, as demonstrated by (71)-(71), and such effects constitute the main empirical support for the Copy Theory (see e.g. Fox 1999; Sauerland & Elbourne 2002; Takahashi & Hulsey 2009; Thoms 2010b).

(71)   a. *Which of Rab's$_i$ friends does he$_i$ resent?
        b. *Which of Rab's$_i$ friends does he$_i$ resent which of Rab's$_i$ friends
           Condition C violated

    (71)   a. Which picture of himself$_i$ does Rab$_i$ like?
            b. Which picture of himself$_i$ does Rab$_i$ like which picture of himself$_i$
               Condition A satisfied

In most recent formalisms of the conditions on movement, such as Nunes (2004), copy deletion is required in order to ensure that a given syntactic structure can be linearized at PF. He assumes Kayne's (1994) Linear Correspondence Axiom, which dictates that if an element A c-commands B, A precedes B in linear order (and hence B follows A); deletion of one of the wh-phrases in (71b) is thus required since the wh-phrase in {Spec,CP} c-commands the one in the base position, and as such the structure is unlinearizable, since it cannot precede and follow itself.

Here I would like to propose that ellipsis is a reflex of this linearization requirement, namely that it is a 'repair strategy' that is required to save a linearization failure.[25] Specifically, ellipsis occurs at the edge of a moved element when the base element in the movement chain is not deleted locally, i.e. at the point when it is moved. When the element is moved into its new position, deletion of the entire complement is required to ensure that the structure can be linearized, since otherwise the higher copy will c-command the undeleted lower copy.

The notion of ellipsis as a repair strategy is not new, as Fox and Pesetsky (2005) develop similar proposals in their theory of Cyclic Linearization; specifically, they

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[25]Thanks to Jeremy Hartman for suggesting this approach.

propose to account for some of Merchant's (2001, 2008) 'PF islands' by proposing that the island repairs we see in sluicing involves ellipsis as a means of avoiding linearization failures (within the cyclic spellout system that they propose). However, their explanation only accounts for a specific set of derivations, where an element undergoes leftward movement into a higher phase (cyclic domain) from a non-edge position. The cases discussed here do not involve such derivations, although they would involve violations of the principles inherent in Fox and Pesetsky's system.

Under this proposal, then, the apparent optionality of ellipsis reduces to the optionality of leaving a lower copy unpronounced; consequently, the ability for a given movement process to license ellipsis is tied to whether the product of that movement process can ever allow pronunciation of lower copies. If this is the case, then we can arrive at a natural explanation for (67): A′-chains can sometimes allow for the pronunciation of lower copies, but A-chains never do. This may be stated as a generalization:

(72)   Copy pronunciation generalization: lower copies can sometimes be pronounced in A′-chains, but never in A-chains.

Generalizations of this kind are somewhat contentious, since the second clause is dependent wholly upon negative evidence. Nevertheless, (72) seems to have a flavour of truth to it. There are numerous attested instances of A′-movement that allow for pronunciation of the lower copy: Quantifier Raising and other examples of covert movement; partial and multiple spellout in wh-chains in Germanic and Brazilian Sign Language (e.g. McDaniel 1989; Nunes 2004; Fanselow 2006); verbal repetition constructions in Nupe (Kandybowicz 2007); covert wh-movement in non-multiple-wh-languages (Huang 1982; Pesetsky 2000); contrastive focus reduplication in English (Ghomeshi et al 2004); multiple spellout in focus movement in American Sign Language and Vata (Petronio & Lillo-Martin 1997; Koopman 1984);

demonstrative doubling in Michif and Cree (Rosen 2003); V-topicalization in Hebrew and Vietnamese (Trinh 2009); split topicalization in Germanic (van Riemsdijk 1989); and so on. Although not all instances of A′ movement allow for multiple spellout structures to be pronounced, it is clear that the possibility of non-deletion of lower copies is often available in A′-chains; indeed in some cases, it seems to be obligatory (see e.g. Trinh 2009 for discussion).

This can be contrasted with A-movement: to my knowledge, there are no empirically validated examples of pronunciation of lower copies of A-movement chains.[26] I use the qualification 'empirically validated' since there are some examples of proposals in the literature of examples of 'covert A-movement,' where there is A-movement to higher projections at LF that are proposed purely for theoretical reasons; for example, Chomsky (1995) assumes that object DPs undergo covert movement to Agr_OP in order to check Case features at LF, on the assumption that objects must move to an Agr projection to check Case at some point in the derivation if subjects also do so in the overt syntax. However, there is typically little or no evidence for such movements (see Wurmbrand 2006 an example of argument against covert A-movement in German), and this particular proposal has since been abandoned in more recent developments of the theory where covert movement can be dispensed with in place of in-situ Agree (e.g. Chomsky 2004).

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[26]One potential counter-example (brought to my attention by Jeremy Hartman and Jason Merchant) is 'copy raising,' a phenomenon which has received an A-movement analysis previously in the literature (i.e. Ura 1998) and which involves partial spellout of a pronominal in a lower position in a putative A-chain:

 i. John seems like he is happy.

However, more recent work on copy raising, such as Potsdam and Runner (2001) has shown that the A-movement analysis of copy raising is untenable for theoretical and empirical reasons, and instead they propose a base-generation account where the matrix and embedded subjects are not related by A-movement. Under such an analysis, copy raising does not constitute a counter-example to the proposed generalization.

The one potential counter-example to this generalization that I am aware of is Potsdam (2009), which argues that Malagasy has a backwards control construction and that this can only be dealt with under the copy theory of control, in which the element traditionally analysed as PRO is a copy of A-movement (Hornstein 1999). However, the movement theory of control is hotly contested, having generated a large literature in recent years (for rebuttals, see Culicover & Jackendoff 2001; Landau 2003; Bobaljik & Landau 2009; for defenses, see Boeckx & Hornstein 2006; Boeckx, Hornstein & Nunes 2010), so at the least the issue is far from settled. Furthermore, the pronunciation of the lower 'copy' in Malagasy control actually constitutes an outstanding theoretical issue for the movement theory control, as Boeckx, Hornstein and Nunes (2010) provide an account that predicts that only higher copies will be pronounced; indeed it is a stated assumption in their paper that "A-copies are not pronounced." What this shows that, whatever the analysis of backwards control turns out to be most viable, the unique property of allowing the lower element to be pronounced will be expected to follow on from independent principles. As such, then, Boeckx, Hornstein and Nunes seem to assume that the generalization in (72) is a correct one, and one that will be compatible with the right theory of control. What it is about A-movement that prevents it from ever leaving base copies undeleted remains an outstanding issue.

With this in place, I will end by briefly discussing an outstanding issue concerned with the typological perspective on ellipsis and its prospects within the present theory of ellipsis licensing. The core issue is this: why do some kinds of movement that license ellipsis in some languages not license ellipsis in other languages? In the context of the present paper, where I have argued that verb movement licenses ellipsis, we may wonder then why verb movement does license ellipsis in some cases (e.g. the English cases discussed above), we may wonder why verb movement

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does *not* license ellipsis in many other cases, such as main verb movement to T in Romance.

Lobeck (1995) sketches an account to deal with the difference between English on the one hand and French and German on the other. She notes Chomsky's (1993) suggestion that verbs in verb-raising languages like German and French bear strong features that must be checked at S-Structure, and that English verbs bear weak features that can be checked at LF. On the basis of this, she proposes that "only unchecked features can identify VP-ellipsis at S-Structure" (Lobeck 1995: 162), and thus concludes that this rules out ellipsis in German and French; on the other hand, since English could allow features to remain unchecked until LF, it would allow ellipsis. However, this analysis is problematized by the fact that English raising main verbs *be* and (British) *have* can bear strong features (on the contemporaneous analysis of Chomsky 1995, Lasnik 1995), and directly falsified by the evidence for 'verb-stranding VPE' discussed by Goldberg (2005) and others. Lobeck's attempt to derive the lack of VPE from general principles is well-motivated, but the cross-linguistic picture shows us that it is not yet possible. Other accounts of this kind of, such as Aelbrecht's (2009) account of modal complement ellipsis, have had to reply upon stipulations, such as the presence or absence of a given licensing head in the lexicon of a language.

The present theory has motivated a theoretical generalization about ellipsis with respect to variation across types of syntactic operations. Unfortunately, it seems that this theory cannot yet motivate an explanation of cross-linguistic variation with respect to the availability of ellipsis across instances of the same movement operation in different languages. Within the terms of the explanation provided in this section, we would assume that the ability for a particular movement operation (like head movement) to license ellipsis would be contingent upon whether that

operation can sometimes allow for non-deletion of base copies.

This would then lead us to consider the related question of what it is that prevents non-deletion of a base copy. There are some theories that relate to this in the literature; for example, Nunes (2004) ties obligatory deletion of base copies to economy conditions on feature deletion, appealing to the fact that base copies typically bear unchecked features, whereas higher copies would have their features checked by the higher attractor. We would expect that understanding what it is that systematically disallows non-deletion in the extreme case of A-movement would prove instructive for this line of inquiry; given that there are some proposals in the literature that A-movement is not motivated by feature-checking (Lasnik 2001), we may conclude that variation in feature-checking is crucial to understanding the variation in copy deletion potential that precipitates variation in ellipsis possibilities.

6   Summary

In this paper I have argued on the basis of evidence from dialectal variation in English VPE that ellipsis is licensed by overt A′ movement, and I have shown that this proposal can be adequately extended to a number of other ellipsis constructions. I have also shown that this proposal can be explained by more general conditions on movement and the syntax-phonology interface, and in doing so I have proposed that variation in the availability of ellipsis constructions is to be accounted for as variation in copy deletion.

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