To be or not to be elided: VP ellipsis revisited

Abstract

The main question that this paper addresses is: what happens to non-finite auxiliaries under English VP ellipsis (VPE)? Do they remain overt like finite auxiliaries, or do they disappear together with lexical verbs? Akmajian & Wasow (1975) and Sag (1976) observed the following pattern: non-finite *have* always stays overt, *being* is obligatorily elided, and *be* and *been* are optionally elided. We provide an analysis for this pattern. As preliminaries for our account we follow Chomsky (1993) and Lasnik (1995b) in assuming that English auxiliaries carry uninterpretable inflectional features which force the auxiliary to raise to the relevant inflectional head for feature checking at PF. As we argue that VPE includes the progressive projections in the ellipsis site, but nothing higher, the *have* and *being* data automatically fall out: *have* is base-generated outside the ellipsis site, so is never elided, whilst *being*'s landing site is inside the ellipsis site, so *being* is always elided. For *be* and *been*, which are base-generated in the ellipsis site and raise out of it to get their inflectional features checked, we take an optional raising approach: in non-elliptical sentences raising is obligatory, otherwise the derivation crashes at PF because of unchecked features. Ellipsis contexts, on the other hand, provide the option of not raising for *be* and *been*, because ellipsis then deletes *be* and *been* in their base positions, along with their unchecked features, avoiding the PF violation. We extend this account to other phenomena, such as VP fronting, pseudo-clefts and predicate inversion.

Keywords: VP ellipsis, PF deletion, auxiliary verbs, head movement

1. *Introduction: the puzzle*

VP ellipsis (VPE) typically involves non-pronunciation of the verb phrase. This phenomenon, which has already been widely discussed for English in the literature, is illustrated in (1). The second conjunct of this sentence is interpreted as "…*and Peter was hassled by the police, too*", but the verb phrase is omitted because there is a salient antecedent in the first conjunct that renders the verb phrase in the second conjunct recoverable for the hearer (in fact, repetition of the full verb phrase often feels redundant).

(1) Betsy was hassled by the police, and Peter was, too.

In English VPE it is quite clear that finite auxiliaries cannot be elided, as in (2)a,b. The lexical verb, on the other hand, cannot survive ellipsis.[1] Even

[1] Unlike with Verb-stranding VPE languages (see Goldberg 2005).

when finite, the English lexical verb is still elided under VPE, leading to insertion of the finite dummy auxiliary *do*, see (2)c,d.[2]

(2) a. An elephant can't fly, but maybe a rhino *(could) [~~fly~~].
b. I thought the auxiliary hadn't disappeared, but it *(had) [~~disappeared~~].
c. * The chicken didn't put the tuna on the table, but the penguin put [~~the tuna on the table~~].
d. The chicken didn't put the tuna on the table, but the penguin did [~~put the tuna on the table~~].

This is why it has been assumed that either finite auxiliaries or finite T act as the licensor for VPE, and that what is elided is VP, or more recently vP (Aelbrecht 2010; Gengel 2007a; Johnson 2001; Lobeck 1995; Merchant 2001; Zagona 1982, 1988), as is schematized in (3):

(3) Betsy was hassled by the police, and [$_{TP}$ Peter [$_{T^\circ}$ was [$_{~~vP/VP~~}$ ~~hassled…~~]], too.

The question this paper addresses is: what happens to non-finite auxiliaries under VPE: do they pattern with the finite auxiliary and survive ellipsis, or do they disappear just like the lexical verb? Consider the maximum range of auxiliaries that one clause can contain, as exemplified in (4)a with (4)b as a schematic summary of the auxiliary sequence.[3]

(4) a. Betsy must have been being hassled.
b. finite modal > perfect HAVE > progressive BE > passive BE > lexical verb

Akmajian & Wasow (1975) and Sag (1976) observed that when VPE is applied to such an auxiliary sequence, not all auxiliaries behave alike, as (5) shows (from Sag 1976:31). Specifically, they assume that perfect *have* cannot be elided (see (5)a), whilst *been* can be optionally elided (see (5)b,c).[4] *Being*,

[2] We indicate a VP ellipsis site with strike-through.

[3] The auxiliary types (perfect, progressive, passive), abstracting away from surface forms, are indicated with capitals, whereas the actual morphological forms (*have*, *be*, *being*, *was* etc) will be given in italics.

[4] There is some discussion in the literature on whether or not the non-finite perfect auxiliary *have* can be elided under VPE. We address this issue in more detail in section 3.2. As the results of our exploration will be that *have* generally cannot be elided, we agree with the pattern observed by Akmajian & Wasow (1975) and Sag (1976) though admit that some dialectal variation may be involved.

on the other hand, is obligatorily included in the ellipsis site, (see (5)d). The table in (6) below summarises this pattern.

(5) Betsy must have been being hassled by the police, and…
   a. * Peter must ~~have been being hassled by the police~~, too.
   b. Peter must have ~~been being hassled by the police~~, too.
   c. Peter must have been ~~being hassled by the police~~, too.
   d. * Peter must have been being ~~hassled by the police~~, too.

(6)

	modal/finite aux	have	be[5]	been	being	lexical verb
elided	*	*	✓	✓	✓	✓
remaining	✓	✓	✓	✓	*	*

Table 1: Deletion of verbal elements in VP ellipsis

Since this pattern was first discovered, it has received relatively little attention (compared to the vast literature on VPE in general), until recently.[6] The aim of this paper therefore is to account for this pattern. The puzzle thus consists of three parts which an adequate analysis of English VPE has to cover. It needs to explain why VPE (i) never deletes *have*, (ii) optionally elides *be/been*, and (iii) always elides *being*. Our main claims are that VPE targets the progressive aspectual layer (when present), and that optional auxiliary deletion is the result of optional auxiliary raising out of the ellipsis site and rescue by PF-deletion in the case of non-raising.[7]

It has been pointed out to us that the obligatory deletion of *being* could also be contested. Again, we keep the original pattern in mind as the one our analysis has to account for, and come back to the potential non-deletion of *being* in section 9.1 at the end of this paper.

[5] The data in (5) do not actually illustrate the behaviour of non-finite *be*. As is illustrated in section 3.1, this auxiliary patterns similar to *been* in that it can also be optionally elided.

[6] See, however, Akmajian et al. (1979) for an analysis, as well as Bošković (2014), Sailor (2012) and Thoms (2012). In sections 6, 7 and 9 we discuss these approaches and their major drawbacks.

[7] We purposely only discuss VPE in finite clauses and stay away from infinitival clauses and gerunds. The judgements we collected on such clauses were too inconsistent to draw any generalisations from. We do not go into this issue here, and refer the interested reader to Thoms (2011: section 3.5.1) for some discussion. Thoms notes as well that VPE in infinitivals behaves differently from finite VPE in some respects and similarly in others. Although we do not agree with his conclusion that perhaps infinitival VPE involves a null proform instead of PF deletion, we adhere to his suggestion that we might not want to capture all cases of VPE with one and the same analysis. One argument in favour of a different approach is that Hebrew only allows for VPE in finite clauses. As for VPE in gerunds, there too the data are not clear. Thoms (2011: footnote 23) already mentions some variation in judgements given in the

Section 2 discusses some preliminaries needed for our analysis regarding the structure of the English verbal domain. The analysis itself is presented in sections 3, 4 and 5. In section 6 we show ways in which this approach is superior to other recent analyses of the data. Section 7 extends this account to related phenomena, namely VP fronting, pseudo-clefting and predicate inversion. In section 8 we provide additional support for our analysis using cross-linguistic evidence. Section 9 tackles some remaining issues, and section 10 concludes.

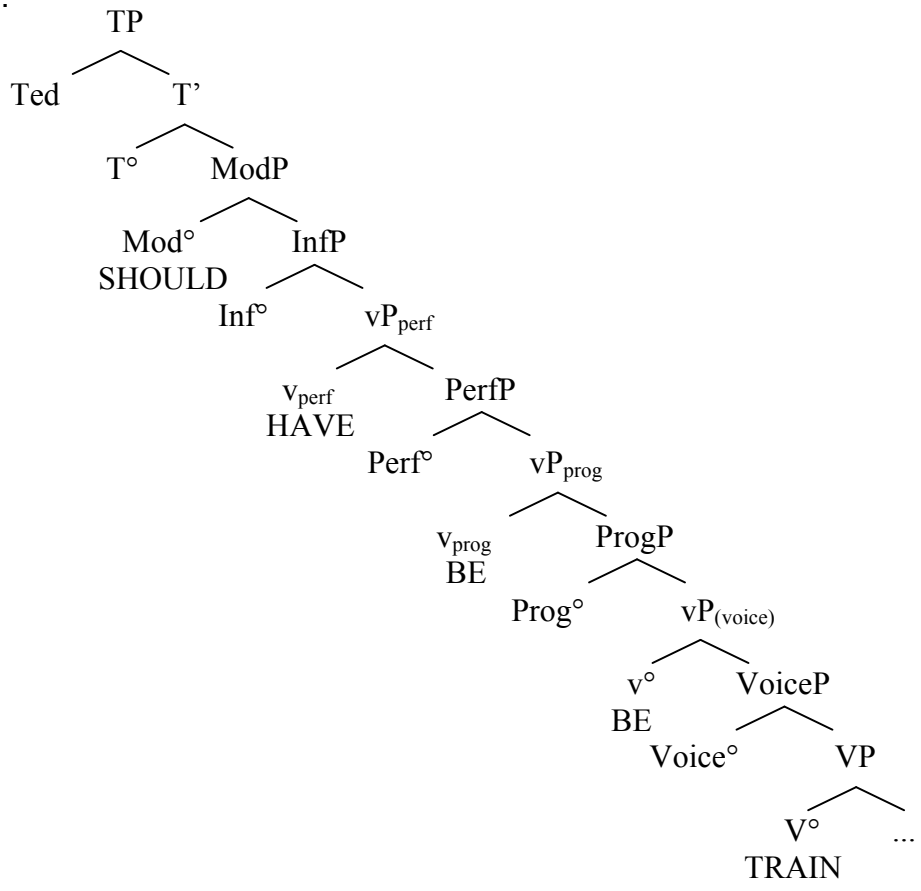
2. *Preliminary ingredients of the analysis*

2.1 The structure of the verb phrase

Following Bošković (2014), Cinque (1999), Harwood (2013, 2014b), Iatridou et al. (2001), Kayne (1993) and Tenny (1987) we take (7)a to have the structure in (7)b below. Here, only the subject occupies its surface position. The capitalised auxiliaries are the abstract, uninflected verb forms in their base positions.

(7) a. Ted should have been being trained by a lion tamer.

b.



literature (see also Aelbrecht 2010; Sag 1976). For this reason we stick to the finite clauses, as these are already proving to be complicated enough at this point.

Crucially, we assume a modal layer just below T°, which precedes the perfect aspectual layer, which itself precedes the progressive aspectual layer, which precedes the Voice layer, which precedes VP. We also assume a paired layering in which each layer is comprised of two projections. The higher of the two projections is headed by the relevant auxiliary verb, whilst the lower projection licenses the inflectional form of the following verb.

Concretely, we take modals to be merged in their own independent ModP, whose head selects an infinitival phrase (InfP) licensing infinitival verb forms. The aspectual auxiliaries (perfect *have* and progressive *be*) are inserted in their own vP_{perf} and vP_{prog} shells, which select an aspectual PerfP and ProgP, respectively, licensing perfect and progressive verb forms. We also assume that these aspectual projections encode aspectual interpretations.[8] In the next subsection we clarify the role of these projections in relation to verbal inflection.

Since they are in complimentary distribution, we assume that passive *be* and copular *be* are both base-generated in the lowest vP shell which – following our notation – could also be labelled vP_{voice} (see Baker 1997; Bošković 2004, 2014; Bowers 2002; Eide & Åfarli 1997; Harwood 2013, 2014b). VoiceP is situated below this, encoding the passive/active status of the clause.[9]

We take a 'What You See Is What You Get' approach (WYSIWYG) to the English auxiliary/inflection system in that the aforementioned functional projections are only present in the underlying derivation if the relevant inflectional meaning is expressed in the clause. Since auxiliaries are closely tied to the inflections they trigger, in the sense that when you get one, you always get the other, we assume that a certain inflectional projection is introduced (and selected) by the corresponding vP shell and can only occur when this shell is present in the derivation as well.

2.2 Verbal inflections

With respect to the question of how verb forms acquire their inflections, we adopt Chomsky's (1993) and Lasnik's (1995b) approaches to the inflectional system. We claim, as per Chomsky (1993) and Lasnik (1995b), that English auxiliaries enter the derivation already inflected, but bearing uninterpretable

[8] In other words, neither the auxiliaries themselves, nor the vP shells they head are where the inflectional interpretation is encoded. This differs from the modal layer, because there it is the modal itself, in Mod°, that triggers the modal meaning, and not the InfP selected by it. This is not a crucial aspect of our analysis, however.

[9] The analysis does not hinge upon the assumption that passive and copular BE are merged in the same position. It is entirely possible to have a slightly different structure, with, for instance, a separate vP_{voice} and VoiceP for the passive auxiliary and have copular BE introduced in vP proper, dominating VP.

inflectional features. These features need checking against the relevant inflectional head T°, Inf°, Perf°, or Prog°, which carry the matching interpretable inflectional feature. If the auxiliary fails to check its feature, the derivation crashes. Moreover, we take this checking of inflectional features to cause auxiliaries to overtly raise to the relevant inflectional head.

Concretely, finite auxiliaries are merged bearing a [*u*T] feature which causes them to raise to T° to be checked against T°'s interpretable feature. Infinitival *have* and *be* enter the derivation bearing [*u*Inf] and raise to Inf° to be checked against [*i*Inf]. *Been* bears a [*u*Perf] feature and raises to Perf° to be checked against [*i*Perf]. Finally, *being* bears a [*u*Prog] feature which must raise and check against Prog°'s [*i*Prog]. This is illustrated in the structure in (8) below.[10]

For completeness' sake we outline how the lexical verb behaves in this system. We assume, following Baker (2003) and Lasnik (1995b), that lexical verbs, unlike auxiliaries, enter the derivation uninflected and, consequently, without any kind of inflectional features. The lexical verb therefore stays in situ and receives its inflections via linearisation at PF.[11]

Finally, we take the overt raising of auxiliaries for reasons of feature checking to be a matter for PF rather than LF. This is assumed in Chomsky (1993, 1995) and especially also Lasnik (1995b), who takes the features responsible for verbal inflection to "not [be] legitimate PF objects", which would cause a crash at PF in the case of non-raising and hence, non-checking, "even though LF requirements would be satisfied" (Lasnik 1995b: 256). This implies that the movement and checking of auxiliaries should be construed as licensing of the auxiliary's form for PF reasons: if the feature is not checked overtly (in the syntax), it causes a crash at PF, though no such violation occurs at LF (see Lasnik 1995b).[12]

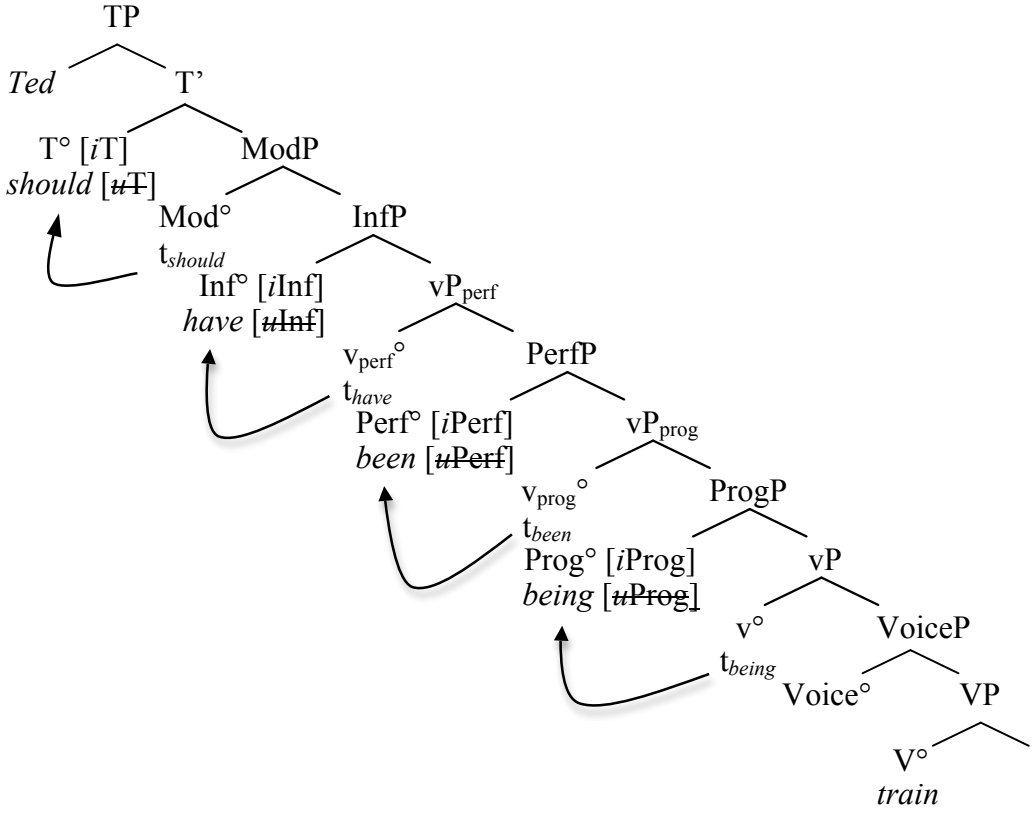
---

[10] We take this raising and checking of auxiliaries to take place in a manner consistent with Bošković's (2007) theory of foot-driven movement. Under this approach, raising is triggered by an uninterpretable feature on the moving item, whilst maintaining the requirement of c-command on Agree. We refer the interested reader to Bošković's paper for an understanding of exactly how this can occur under current Minimalist assumptions, and to Harwood (2014b) for the specific application of this idea to verbal head-movement.

[11] There are many ways in which one can implement the difference between auxiliaries and main verbs, and this is only one of them. Nothing hinges on the claim that lexical verbs receive their inflections through linearisation.

[12] Although the term 'uninterpretable' immediately conjures up a link with LF, we use it, for lack of a better one, for features that need checking in order to avoid a PF crash. It is of course possible that the uninterpretable inflectional features on the auxiliaries we propose must be checked at LF too, but this would inevitably take place in the covert (LF branch) part of the syntactic component. However, whether the uninterpretable features on auxiliaries are a concern for LF or not is relatively immaterial. The crucial point is that (overt) movement of the auxiliary is a concern for PF, not LF. See also Zeijlstra (2011) for a discussion on the nature of features.

(8)



Before proceeding further, we take a brief aside here to justify the model of the auxiliary-inflectional system that we adopt and compare it in particular to the more popular alternative at present, namely Bjorkman's (2011) Reverse Agree model. We have posited a model of the inflectional system which involves paired layering, i.e., each inflectional layer essentially consists of a vP shell in which the auxiliary originates, and an inflectional head below it which acts as the locus of aspectual inflections. In order for an auxiliary to have its inflectional form licensed, it raises out of its vP shell into the inflectional head above it, where it has its inflectional feature checked. For instance, *been* originates in v_{prog}°, but raises to Perf° in order to check its inflectional feature.

A number of authors (Adger 2003; Bjorkman 2011; Wurmbrand 2012a) alternatively argue that vP shells are not needed. Instead, auxiliaries are directly merged into their inflectional heads (for instance, progressive BE is merged directly into Prog°). They subsequently remain in their base positions and have their inflectional features checked/valued by the next inflectional head up via Reverse Agree (see Aelbrecht 2010, Baker 2008, Haegeman & Lohndal 2010, Merchant 2011, Wurmbrand 2011 and Zeijlstra 2008, 2010 for discussion and application of this mechanism in other domains). For instance, progressive BE, merged in Prog°, can have its features checked/valued in its base position by the inflectional head Perf°, causing the progressive auxiliary to be realised in-situ as *been*.

As Harwood (2013, 2014b) discusses, these two approaches lead to drastically different predictions with regards to auxiliary distribution. With the paired-layering/auxiliary raising model that we posit, auxiliary distribution is determined by the morphological form of the auxiliary. That is, infinitival *be*, irrespective of whether it is progressive, passive or copular in origin, should always surface in Inf°, *been*, irrespective of whether it is progressive, passive or copular, should always surface in Perf°, and *being*, irrespective of whether it is originally passive or copular, should always surface in Prog°. So we should potentially see distributional differences between *be*, *been* and *being*.

Under the Reverse Agree approach, however, auxiliary distribution should always be determined by auxiliary type. That is, perfect HAVE should always surface in Perf°, progressive BE, irrespective of its inflectional form, should always appear on Prog°, and passive/copular BE, irrespective of its inflectional form, should always appear on Voice°.[13] So we should potentially see distributional differences between, for instance, progressive and passive/copular BE.

Harwood (2013, 2014b) shows that auxiliary distribution in fact appears to be determined by its inflectional form, given that auxiliaries behave differently depending on their inflection. This is already illustrated in this paper with VPE – *being*, irrespective of whether passive or copular, is obligatorily elided, and *be/been*, irrespective of whether progressive, passive or copular, are only optionally elided.[14] Below we present additional data from Harwood (2013, 2014b), involving existential constructions, to further illustrate that auxiliary distribution is determined by inflectional form, and not auxiliary type.

Within passive existential constructions, Harwood (2013, 2014b) notes that the passive auxiliary must follow the associate when inflected for progressive morphology, i.e., *being*, but must precede the associate when inflected for perfect or infinitival morphology, i.e., *been/be*:

(9) a. There were many smurfs **being** arrested for anti-social behaviour.
b. * There were **being** many smurfs arrested for anti-social behaviour.
c. There will **be** many smurfs arrested for anti-social behaviour.
d. * There will many smurfs **be** arrested for anti-social behaviour.

[13] The exception is finite auxiliary verbs, which are standardly assumed to raise to T°. In order to explain how non-finite auxiliaries surface in their base-positions, and finite auxiliaries in T°, proponents of the Reverse Agree approach are forced to stipulate raising of the finite auxiliary to T°, usually through a verbal equivalent of an EPP feature.

[14] In section 7 it is also shown that auxiliaries behave different from one another depending on their inflectional form in VP fronting phenomena as well – *being* is obligatorily fronted, whilst *be* and *been* cannot be.

e. There have **been** many smurfs arrested for anti-social behaviour.
f. * There have many smurfs **been** arrested for anti-social behaviour.

(Harwood 2014b:(24))

Similarly, the copular auxiliary obligatorily follows the associate when realised as *being*, but precedes it when realised as *be* or *been*:

(10) a. There was a gang of smurfs **being** rather loud and obnoxious.
b. * There was **being** a gang of smurfs rather loud and obnoxious.
c. There will **be** a gang of smurfs in the garden tonight.
d. * There will a gang of smurfs **be** in the garden tonight.
e. There has **been** a lot of commotion in the street today.
f. * There has a lot of commotion **been** in the street today.

(Harwood 2014b:(25))

Finally, when realised as *be* or *been*, the progressive auxiliary patterns with the passive and copular auxiliaries of the same morphological form by preceding the associate:

(11) a. There will **be** a gang smurfs dancing in the garden tonight.
b. * There will a gang of smurfs **be** dancing in the garden tonight.
c. There has **been** a gang of smurfs dancing in our garden all night.
d. * There has a gang of smurfs **been** dancing in our garden all night.

(Harwood 2014b:(26))

Essentially the data demonstrates that the auxiliaries *be* and *been* uniformly raise to positions beyond the associate, whilst *being* does not. Therefore we can claim in this instance that the distribution of the auxiliary in relation to the associate is sensitive not to the specific type of auxiliary (passive, copular or progressive), but rather to the inflectional form it takes. This is correctly predicted by the inflectional model that we propose, and presents a serious problem for the Reverse Agree approaches, which wrongly predict the converse of this.[15]

[15] See Harwood (2013, 2014b) for a more thorough justification of the auxiliary system that we propose. There is also good reason to believe that there is a certain amount of cross-linguistic applicability of this model. In lexical verb-raising languages such as Portuguese, for instance, the distribution of the lexical verb is determined by its inflectional form. This is evidenced by

Admittedly, the existence of the vP shells within our own system are questionable since these heads tend to have little to no semantic motivation. However, Harwood (2013, 2014b) argues that, for the time being, such vP shells are necessary to allow for non-finite auxiliary raising. If auxiliaries were merged directly into the heads of their inflectional projections, a locality violation would arise (Rizzi 1990). That is, auxiliaries, in their quest to have their inflectional features checked, would inadvertently raise into higher aspectual heads, which are, however, already filled by either a higher auxiliary, or, at the very least, a trace of that auxiliary, causing a locality violation. For instance, if progressive BE was merged directly into Prog°, and then raised to Perf° for the purposes of inflectional feature checking, a locality violation would arise since this head would already be filled by perfect HAVE, or at least a trace of this auxiliary. In order to prevent this, we merge auxiliaries into their own vP shells, leaving the head of the aspectual projection itself free for another auxiliary to raise into. Of course, if auxiliary raising can be reconciled with a structure without split layers, this would be preferred.[16]

With these structures and implementations in mind, we proceed to section 3, which presents the first part of our approach: our view on the VP ellipsis site. We argue that the ellipsis site is as large as vP_{prog} (though no larger) when that projection is present, and in the absence of vP_{prog} the ellipsis site corresponds to the highest projection below this, namely vP. In order to explain the contrast between *be/been*, *being* and *have* in (6), we propose in section 4 that the forms *be* and *been* optionally raise from their base positions within the ellipsis site to positions outside of it, and that they thus optionally escape ellipsis, whereas the auxiliary *being* never raises high enough to escape. *Have*, on the other hand, is base-generated outside of the ellipsis site and so never has the opportunity to be elided.

3. The analysis, part I: a well-defined ellipsis site

behavioural differences between the finite, perfect, progressive and passivised forms of the lexical verb in VPE.

[16] In order for the Reverse Agree approaches to accommodate the facts outlined in this section they would similarly have to assume that auxiliaries raise out of their base positions to higher inflectional heads. The problems here, however, are twofold: the movement involved would be simultaneously unmotivated and structurally unfeasible. That is, (i) since the auxiliaries concerned have already had their inflectional features checked in their base-positions via Reverse Agree, they have no motivation to move to a higher inflectional head; and (ii), under the sparser structures that the Reverse Agree models utilise (which do away with vP shells), this movement would be structurally unsound as it would give rise to locality violations as discussed above. In order for the Reverse Agree models to solve these issues, they would essentially arrive at a model similar to that which we have proposed (though see sections 6.3 and 6.4 for critical accounts of analyses which attempt to account for some of the data discussed in this article under a Reverse Agree model).

Standardly, as the label suggests, VPE has been assumed to involve non-pronunciation of the verb phrase. Over the course of the last ten to twenty years, however, there has been some debate as to how big this missing verb phrase is exactly. Many accounts of VPE have claimed that the ellipsis site is either VP, vP or VoiceP (Aelbrecht 2010; Gengel 2007a; Johnson 2001, 2004; Lasnik 1995a; Merchant 2001, 2008a,b, 2013). We argue, contrary to more standard assumptions, that VPE targets a constituent which is larger than just VP, VoiceP or vP. According to us, when the progressive aspectual layer is projected, VPE elides as much as vP_{prog}, containing progressive BE, though nothing larger. This implies that the ellipsis site also contains ProgP, with the progressive inflectional feature. In the absence of the progressive aspectual layer, however, VPE targets vP, as standardly assumed.[17]

In this section we provide evidence for our claim that the progressive layer is included in the ellipsis site. This evidence comes from empirical data concerning ellipsis of auxiliaries: only auxiliaries which are merged inside the ellipsis site can ever be elided. We have seen that some auxiliaries are always elided under VPE, some never, and some only optionally. Several accounts have already been proposed to account for this pattern (see Akmajian et al. 1979; Sag 1976, or more recently Bošković 2014; Sailor 2012; Thoms 2012), but, irrespective of the analysis one chooses, the consensus about auxiliary deletion is that an auxiliary can only be elided if it is at some point in the derivation included in the ellipsis site.[18] We show that auxiliaries generated within and below vP_{prog} can be elided by VPE, whilst those generated above it cannot be. Consequently, this implies that the ellipsis site is as large as vP_{prog}. We first illustrate that all the different types of BE (copular, passive and progressive) can be elided, and then show that HAVE can never be deleted, even though this has been contested in the literature.

3.1 Instances of BE *can be elided*

The auxiliary BE can occur in several morphological forms (*been*, *be*, *being* or finite forms), but these forms can also have different origins: BE can be copular, passive or progressive. The first two instances are in complementary distribution and, as indicated in section 2.1, are taken to be base-generated in the little *v* head. Progressive BE can co-occur with passive or copular BE and is thus base-generated in a position higher than *v*, namely v_{prog}.

In order to determine which projections are included in the VP ellipsis site, we need to test which auxiliaries can be deleted. If an auxiliary can be elided, its base position (at least) is part of the ellipsis site. We show that all

[17] We come back to the question of what determines the size of the ellipsis site in section 5.

[18] This is with the exception of Akmajian & Wasow (1975) who posit auxiliary deletion in addition to VPE. See Sag (1976: 25-29), however, for counterarguments against this analysis.

instances of BE – copular, passive and progressive – can be elided, so VPE must (at least) target vP_{prog}. First, we illustrate that copular BE can be elided, whether it occurs as *be*, *been* or *being*, see (12). The first two forms are deleted optionally, and *being* is elided obligatorily. Second, passive BE can be deleted too, see (13).

(12) a. Ted has been in the garden, and Robin has (been), too.
b. Ted will be in the garden, and Robin will (be), too.
c. Ted was being noisy, and Robin was (*being), too.

(13) a. Ted has been arrested, and Barney has (been), too.
b. Ted will be arrested, and Barney will (be), too.
c. Ted was being arrested at that time, and Barney was (*being), too.

Progressive BE poses more of a problem. It seems like it can be elided when it occurs as *be* or *been* (progressive BE never occurs as *being*):

(14) a. Ted has been questioning our motives, but Robin hasn't (been).
b. Ted will be questioning our motives, but Robin won't (be).

However, one could argue that the presence of progressive BE in the antecedent does not necessarily imply the presence of the progressive in the ellipsis site. In other words, when the progressive auxiliary is elided, the sentences in (14) could allow for a mismatch reading where the ellipsis clause does not actually contain progressive aspect, but is interpreted as in (15):

(15) a. …but Robin hasn't [~~questioned our motives~~].
b. …but Robin won't [~~question our motives~~].

Sailor (2012) has even claimed that in such cases, an interpretation with the progressive is ungrammatical. From his claim it would follow that progressive BE is never elided. Because these interpretation-based arguments are hard to convincingly draw conclusions from, however, it is necessary to find contexts showing whether the progressive auxiliary can genuinely be elided by VPE. Two such contexts are existential constructions and idiomatic expressions. Using these contexts we show that progressive BE can be optionally elided.

We look at existential constructions first. English existentials display aspectual restrictions (Aissen 1975; Deal 2009; Harwood 2011; Milsark 1974):

unaccusative verbs can occur in existentials with all kinds of aspect ((16)), but unergative verbs are only allowed with the progressive, see (17).[19]

(16) a. There arrived a crocodile in the mail. [unaccusative]
b. There has arrived a crocodile in the mail.
c. There will be a crocodile arriving in the mail.

(17) a. * There danced a crocodile in the garden. [unergative]
b. * There has danced a crocodile in the garden.
c. There was a crocodile dancing in the garden.

This means that when ellipsis is applied to an unergative existential, we can be certain as to the presence of progressive aspect in the ellipsis site.[20] It turns out that all our informants unanimously accept deletion of progressive BE in this context:

(18) a. He says there will be a clown dancing at his birthday party, even

[19] Transitive and ditransitive existentials are subject to the same aspectual restrictions. See Deal (2009) and Harwood (2011, 2013) for explanations of this restriction.

[20] It has been argued in the literature (Law 1999; McNally 1992; Moro 1997; Williams 1984) that all the material following the associate in progressive existentials is actually contained inside a reduced relative clause (RRC) and is not part of the main clause (cf. (i)).

(i) [$_{TP}$ There was [$_{DP}$ a crocodile [$_{RRC}$ (who was) dancing in the garden]]]

If this is correct, we cannot use existentials to make any claims about VPE in main clauses: the supposed optional ellipsis of progressive BE that we have uncovered would simply be optional ellipsis of copular BE.

However, although an RRC structure for existentials is possible, transitive and unergative existentials may also behave as full-clausal constructions, and moreover, so can the cases involving ellipsis. This is evidenced by the fact that these progressive existentials exhibit properties which RRCs do not. For instance, Chomsky (2001) has observed that existential constructions permit idiom chunks, whereas existential constructions containing a relative clause do not:

(i) There was all hell breaking loose downstairs.
(ii) * There was all hell which was breaking loose downstairs.

In conjunction with VPE, existentials behave according to the mono-clausal structure:

(iii) Barney said there would be all hell breaking loose downstairs, but I didn't think there would (be) ~~all hell breaking loose downstairs~~.

Other differences between progressive existentials and RRCs involve the order of RRCs and full RCs (Deal 2009) and eventive copular constructions (Caponigro & Schutze 2003; Milsark 1974; Rezac 2006), indicating that progressive existentials can not only be formed from RRCs, but also have an underlying full-clausal structure available to them. In the contexts presented in these works as well, VPE can be applied, suggesting that our observations regarding ellipsis of the progressive auxiliary in existentials are genuine. That is, (18) is a genuine case of main clause VPE with the progressive auxiliary being optionally included within the ellipsis site.

436 though we all know that there won't (be).
437 b. He said there had been a clown dancing at his party, even though
438 we all knew that there hadn't (been).
439
440 In other words, (17) indicates that an existential with an unergative verb
441 cannot occur without the progressive. This implies that the hearer cannot
442 interpret (18) without the progressive and therefore that progressive BE is
443 genuinely included in the ellipsis site, just like passive and copular BE.
444 A second context that can show whether progressive BE can genuinely
445 be elided involves idiomatic expressions. There are certain idioms which
446 depend upon progressive aspect: only the sentence in (19)a with the
447 progressive aspect has the idiomatic reading.
448
449 (19) a. Bob is pushing up daisies. = Bob is dead.
450 b. # Bob pushed up daisies. ≠ Bob died/was dead.
451 c. # Bob will push up daisies. ≠ Bob will die/will be dead.
452 d. # Bob has pushed up daisies. ≠ Bob has died/has been dead.
453
454 If VPE is applied to such an idiom and the idiomatic interpretation is retained
455 even without the overt presence of the progressive auxiliary, this implies that
456 progressive aspect and, crucially, the progressive auxiliary, are present in the
457 derivation. All our informants still interpreted (20) as an idiom, which means
458 they accept ellipsis of the progressive auxiliary:
459
460 (20) a. Lola told us that Bob has been pushing up daisies for a while now,
461 and indeed he has (been).
462 b. Lola told us that Bob might be pushing up daisies by now, and
463 indeed he might (be).
464
465 Irrespective of how one accounts for the optional ellipsis of *be/been*, whether
466 it be optional auxiliary raising (as we argue in section 4.2, but see also Sailor
467 2012 and Thoms 2012), or optional extension of the ellipsis site (Akmajian et
468 al. 1979; Bošković 2014), the consensus is that for an auxiliary to be elided, it
469 must be included in the ellipsis site at some point in the derivation. Thus, for
470 the progressive auxiliary to be optionally elided in (18) and (20), the ellipsis
471 site must be as large as vP_{prog}.
472
473 *3.2* HAVE *cannot be elided*
474 Akmajian & Wasow (1975) and Sag (1976) noted that the non-finite perfect
475 auxiliary *have* is never elided. However, there has been some debate about
476 this claim in the literature, and it is only fair that we explore this issue properly
477 before building our analysis.

Although many authors agree with the original pattern concerning *have* (Bošković 2014; Johnson 2001; Lobeck 1987; Sailor 2009, 2012; Wurmbrand 2012b; Zagona 1988), some linguists argue that this is not true, and that perfect *have* can indeed be elided (Akmajian et al. 1979; Lasnik 1995b; Thoms 2011, 2012). This is evidenced by the following sentence in which *have* appears to have been elided:

(21) John might have called, and Bill might, too. (Wurmbrand 2012b:10)

However, Johnson (2001) and Wurmbrand (2012b) contest the claim that *have* can be elided, and argue that what causes the acceptability of this sentence is the fact that there is a mismatch reading available which lacks perfect aspect altogether. According to them, the ellipsis site is not [~~*have called*~~], but [~~*call*~~], which in the right context will be interpreted appropriately by the hearer. Wurmbrand (2012b) rules out this interfering mismatch interpretation by using conflicting time specifications forcing a perfect aspectual interpretation in the second conjunct. In these instances, her informants judged ellipsis of *have* to be unacceptable (Wurmbrand 2012b:10, example (36)b'):

(22) * John might have called yesterday, and Bill might, two days ago.

This therefore constitutes some evidence towards the claim that the perfect auxiliary cannot be elided. In what follows, we look at further contexts which can show us whether the perfect auxiliary can genuinely be elided or not, namely fixed expressions, identity requirements and *before*-clauses. We conclude from these that *have* cannot be elided, conforming to the original findings, although we do not exclude idiolectal or dialectal variation, and offer some speculations below on how to capture this variation in our system.

First, we discuss fixed expressions. There are expressions that are dependent upon perfect aspect, such as in (23). Without the perfect aspect, these sentences are unacceptable.

(23) a. Ted has been to Rome.
b. * Ted is to Rome.
c. * Ted will be to Rome.
d. * Ted is being to Rome.

If VPE is applied to these cases, no mismatch interpretation without the perfect aspect is available. Thus, this expression provides us with a test context to determine whether *have* can be elided or not. As it turns out, 80%

of our (British English) informants reject (24) when perfect *have* is included in the ellipsis.[21] This suggests that *have* cannot be deleted under VPE.

(24) This time next year Ted will have been to Rome, and Barney will *(have), as well.

Another context, involving identity requirements, provides even clearer results regarding ellipsis of *have*. It has been noted that auxiliaries in English can only be elided when they have a formally identical antecedent (Johnson 2001; Lasnik 1995b; Warner 1986).[22] This is illustrated in (25) for *be* and *been*: if the antecedent contains the auxiliary in a different morphological form, the normally optional ellipsis of *be* and *been* becomes impossible. If the antecedent contains the same form, on the other hand, ellipsis is fine.

(25) a. Sue has **been** eaten by cannibals, and now Rob might *(**be**).
b. Sue will **be** eaten by cannibals, and Rob will (**be**), too.
c. Sue **was** eaten by cannibals after Rob had *(**been**).
d. Sue has **been** eaten by cannibals, and Rob has (**been**), too.

This implies that in the following sentence (based on Thoms 2011), the ellipsis site and its correlate in the antecedent clause must display morphologically equivalent instances of BE for VPE to be licensed:

(26) Bob might have been fired, and Morag might have (**been**) ~~fired~~, too.

Thus, the elided passive auxiliary depends on perfect aspect in order to be realised as *been* and fulfil the identity requirement. If perfect aspect were absent from the second conjunct, the elided auxiliary would be realised as *be*, which is non-identical to its antecedent. It would not be recoverable, and therefore would lead to illicitness. In short, this gives us another context that depends on perfect aspect. No aspectual mismatch interpretation is available

[21] We tested these sentences with 20 British English speakers, from all over Britain. Even though 80% of these speakers reject deletion of *have*, it is true that some speakers still accepted it. We suspect this is due to some dialectal or idiolectal variation. We note, however, that from the people we tested, the few speakers who did accept deletion of *have* did not come from the same geographical area. Moreover, the next context we use to test *have* deletion gives us clearer results: none of our informants accepted deletion of *have* in that context, not even the speakers who were fine with the deletion in the fixed expressions.

[22] See Potsdam (1997), however, for a discussion of examples where such mismatches are allowed, under specific circumstances. The examples we use here have been judged by several native speakers and do not fall into the category of such 'acceptable contexts'.

548 to mask potential ellipsis of *have*. As it turns out, all our informants rejected
549 deletion of *have* in this context.[23]
550
551 (27) * Ted might have been fired, and Barney might, too.
552
553 A final context, taken from Sailor (2012), involves temporal clauses that are
554 sensitive to aspect, such as *before*-clauses. As Sailor observes, these result
555 in ungrammaticality if *have* is included in the ellipsis site, and without *have* the
556 sentence does not get a sensible reading:
557
558 (28) Mary could have studied harder for the exam. Before finally taking it
559 yesterday…
560 a. …she really should have.
561 b. */#…she really should. (Sailor 2012:(36))
562
563 Summing up, we build our analysis on the fact that *have* generally cannot be
564 elided. If *have* is merged in $v_{perf}°$, this implies that the perfect aspectual layer
565 is not included within the ellipsis site.
566 We acknowledge, however, that there might be some dialectal/idiolectal
567 variation regarding deletion of perfect *have*. As already mentioned, 20% of our
568 informants accepted deletion of *have* in (24). Moreover, Wurmbrand (2012b)
569 noted a number of dissenting judgments regarding *have*-deletion in (22), and
570 Sailor (2012) found some Canadian English speakers to accept deletion of
571 *have* in (28). Also, whilst none of our informants accepted *have*-deletion in
572 (27), this has been reported as acceptable in Thoms (2011). The system we
573 develop in the next section cannot straightforwardly capture this variation.
574 Therefore, before continuing, we offer some speculations on how *have* can be
575 deleted for some speakers.[24]

---

[23] Note that the ellipsis site can be interpreted in one of two ways: the hearer can interpret the ellipsis site as containing *have* (see (i)), or they can accommodate with a mismatch interpretation without *have* (as in (ii)):

(i) * Ted might have been fired, and Barney might [~~have~~ ~~been fired~~], too.

(ii) * Ted might have been fired, and Barney might [~~be fired~~], too.

Both options lead to ungrammaticality: option 2 is illicit because of the identity requirement on *be* (i.e., there is no *be* present in the antecedent, so *be* cannot be elided), and option 1 is unacceptable because deletion of *have* is disallowed under VPE. Either way, the data demonstrates that *have* cannot be included in the ellipsis site.

[24] Of the 20% of informants who accepted ellipsis of *have* in (24) above, some still regarded the sentence as degraded in comparison to cases in which *have* has not been elided. This is a notable contrast with ellipsis of *be* and *been*, for which speakers notice no difference in acceptability between sentences in which *be* or *been* have been elided, and sentences in which they have not. Moreover, it should be noted that no speaker consistently accepted ellipsis of *have* across the various tested phenomena. Again, this contrasts with ellipsis of *be* and *been*, in which all informants consistently accepted ellipsis of these auxiliaries. The fact

Because deletion of *have* appears to be somewhat restricted and unstable in comparison to *be/been* deletion, we argue that *have* can never be truly elided as part of the VP ellipsis site, but that some speakers allow for it to go missing in certain contexts due to some additional mechanism. Because it is not yet predictable which speakers allow for apparent ellipsis of *have*, nor in which contexts, it is difficult to ascertain exactly what this additional mechanism should be. In the following paragraphs, we elaborate on what these factors could be. One possibility involves cliticisation (see also Harwood 2013, 2014a). Finite auxiliaries in English – except for modals – can undergo cliticisation:

(29) a. He's/They've gone home.
b. I'm/We're/He's going home.

Perfect *have* is unique in being the only non-finite auxiliary that can cliticise as well. This is illustrated by the fact observed by Johnson (1988) and Kayne (1997) that *have* can cliticise to the modal and subsequently be pied-piped along with it under subject auxiliary inversion, whilst *be* cannot:

(30) a. Shouldn't've Pam remembered her name?
b. * Shouldn't be Pam remembering her name?
(Adapted from Kayne 1997:51)

Auxiliaries that can cliticise in English appear to be susceptible to ever-more extreme forms of cliticisation in which their phonological forms may be reduced to the point at which they are not pronounced at all. One such instance of this is with finite auxiliaries in *wh*-questions (see also Fitzpatrick 2006 for auxiliary omission in other contexts):

(31) a. % Where you been?
b. % What you doing?

Furthermore, as noted by Kayne (1997), non-finite *have* can cliticise in increasingly reduced forms. For instance, the more traditional *'ve* cliticisation can be replaced by the significantly reduced form of *-a*:

(32) a. You should've closed the door behind you.

---

also remains that there are many speakers who indeed outright reject ellipsis of *have* in all contexts, whereas there don't appear to be any exceptional speakers with regards to *be/been* deletion – all native speakers of English accept ellipsis of *be* and *been*. Given the general tendency of the literature and judgements collected to date, we assume that the default option for English is that *have* cannot be elided.

b. You shoulda closed the door behind you.

It seems possible therefore that non-finite *have*, like its finite counterpart, could cliticise in certain linguistic environments to the point at which it is not pronounced at all. We conjecture that one context in which such extreme cliticisation applies is in the context of VP ellipsis. That is, the apparent ellipsis of non-finite *have* could in fact be attributed to extreme cliticisation of *have* to the point of non-pronunciation, adjacent to an ellipsis site.[25]

(33) a. John might not have called, but Bill might've [~~called~~].
b. John might not have called, but Bill mighta [~~called~~].
c. John might not have called, but Bill might -- [~~called~~].

As an alternative analysis for apparent *have*-deletion, Kayne (1997:49) has claimed "some [varieties of] English are able to embed participial phrases directly under modals, without the intermediary of an auxiliary verb *have*." This is directly observable in other Germanic languages such as Swedish, Norwegian (Julien 2002; Taraldson 1984), Icelandic and Faroese (Einarsson 1945; Lockwood 1977). We illustrate this with examples from Norwegian:

(34) Vi skulle gjort det før.
we should done it before
'We should have done it before' (Kayne 1997:50)

It may thus be possible that what looks like ellipsis of non-finite *have* in the English of some speakers is in fact an instance of the modal introducing perfect aspect without the intervening auxiliary verb. This particular phenomenon may have died out in certain varieties of English, but exists in others in the context of ellipsis when *have* is apparently elided.

A third possibility for *have*-deletion, suggested by an anonymous reviewer, is that the cases that appear to delete *have* along with the rest of the ellipsis site do not involve actual VPE at all, but rather have a completely different source, for instance a null verbal proform. Although the reviewer agrees with the judgement in (27) above, they provide an additional example in which deletion of *have* is allowed for them:

[25] Kaisse (1983), King (1970), Pullum (1997) and Zwicky (1970) discuss the different conditions on auxiliary contraction, and observe that contraction is impossible in English when preceding an ellipsis site (among other restrictions). However, whilst this is true for finite auxiliaries, it is crucially not the case for non-finite auxiliaries:

(i) * I will finish work at 5 and you'll too.
(ii) I will have finished work by 5 and you will've too.

See Pullum (1997) also for contraction to infinitival marker *to*, and see also Fitzpatrick (2006) on auxiliary omission of a different kind.

(35) a. % I would/could have been promoted, I really would/could; but I won't be now.
b. % A: I would/could have got(ten) away with it.
B: Yes, you would/could. But you won't now.

The reviewer points out that inclusion of the proform *so* in (35)b improves the example still and makes an overt *have* even a bit degraded: *Yes, **so** you would/could* (?*have*). This opens the possibility of a silent proform in the contexts where *have* is missing, instead of actual VPE.

To conclude this discussion, we assume that the default option in English is that non-finite *have* cannot be elided and that those speakers who do allow for such apparent ellipsis might utilise an additional mechanism to obtain this effect.[26] We have shown in section 3.1 that all instances of BE, on the other hand, can be elided, whether it is copular, passive or progressive. Recall that for any auxiliary to be able to undergo ellipsis, it has to have been included in the ellipsis site at one point in the derivation, irrespective of the exact analysis one chooses. Therefore, in order for the progressive auxiliary to be elidable, VP ellipsis in English must target as much as vP_{prog}, and not only vP or VP. Since perfect *have* generally cannot be elided, the perfect aspectual layer must be excluded from the ellipsis site.

Since we assume a WYSIWYG approach to the syntactic structure, however, it is implied that VPE cannot uniformly target vP_{prog}. In the absence of progressive aspect, we assume that VPE targets vP. Next, we show how the claims made so far capture the deletion paradigm.

4. The analysis, part II: the auxiliary paradigm

The pattern we try to capture is summarised in (6), repeated as (36): the finite auxiliary and non-finite *have* always escape ellipsis, *be* and *been* are optionally deleted and both *being* and the lexical verb are always elided.

(36)

	modal/finite aux	have	be	been	being	lexical verb
elided	*	*	✓	✓	✓	✓
remaining	✓	✓	✓	✓	*	*

Table 1: Deletion of verbal elements in VP ellipsis

[26] The problem remains, however, of why certain speakers have these additional mechanisms available to them and others do not.

Recall furthermore that we take the ellipsis site to be vP_{prog}, and that auxiliaries raise to check their inflectional PF features against the relevant aspectual head.

In the following sub-sections we explain how this deletion paradigm can be captured with the claims and assumptions made so far. We first tackle the easiest patterns: the auxiliaries that are always overt or always elided, namely *have* and *being* (and the lexical verb), respectively. Section 4.2 turns to the optionally deleted auxiliaries *be* and *been.*

4.1 Being *and* have

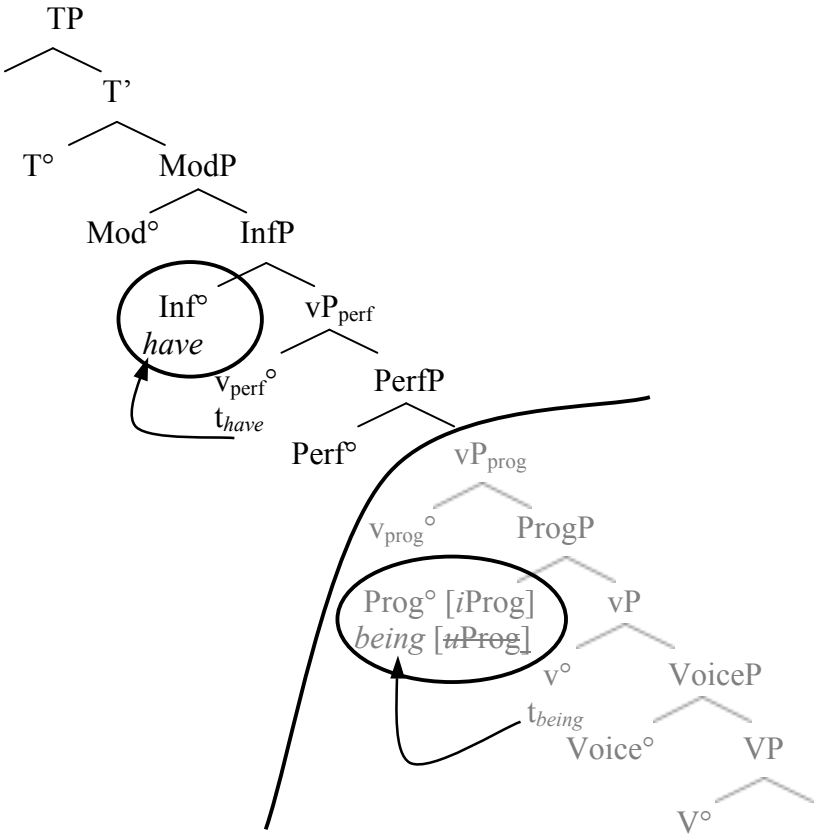
The first piece of data we wish to capture with our analysis is the obligatory deletion of *being*:

(37) a. Ted was being eaten by a gorilla and Robin was (*being) too.
b. Ted is being difficult and Robin is (*being) too.

Under our view of verbal inflections, *being* raises from v° to Prog° to check its inflectional feature, as in (38). This landing site of *being* is still included in the vP_{prog} ellipsis site, meaning *being* never escapes ellipsis.

The illicit ellipsis of non-finite perfect *have* can be explained as the opposite of this: both the landing site and – crucially – the base position of *have* are outside of the vP_{prog} ellipsis site and therefore *have* obligatorily escapes ellipsis.

(38)



The lexical verb in English never raises for inflection if we follow Baker (2003), Chomsky (1993, 1995), Emonds (1978), Kayne (1993), Lasnik (1995b) and Pollock (1989), and so it never moves out of the ellipsis site and is always elided. It should also be clear by now why modals and the finite perfect auxiliary HAVE are never elided: both the base position and the landing site are outside of the ellipsis site.[27]

4.2 Be/been

We have seen earlier that *being* is obligatorily elided, while *have* never is. *Be* and *been*, on the other hand, are optionally elided. The relevant data are repeated in (39).

(39) a. Ted has been eating a sandwich and Robin has (been) [~~eating a sandwich~~], too.
b. Ted will be eating a sandwich and Robin will (be) [~~eating a …~~], too.

Our approach, in a nutshell, is that optional ellipsis of *be/been* results from their optional raising out of the ellipsis site. In the case of raising, the auxiliaries move out of the ellipsis site, surviving ellipsis, and have their inflectional features checked against the relevant aspectual heads. In the case of non-raising, the auxiliaries remain in the ellipsis site and are deleted, along with their unchecked inflectional features. In other words, there are two derivational paths available, raising and non-raising, both of which result in a grammatical sentence, and so give rise to optionality.

More specifically, recall that for us, the ellipsis site is vP_{prog}. To surface as *be*/*been*, the progressive auxiliary – or passive or copular – should raise to the respective inflectional heads Inf° or Perf° in order to check its inflectional feature. This causes it to raise out of the ellipsis site, surviving ellipsis.

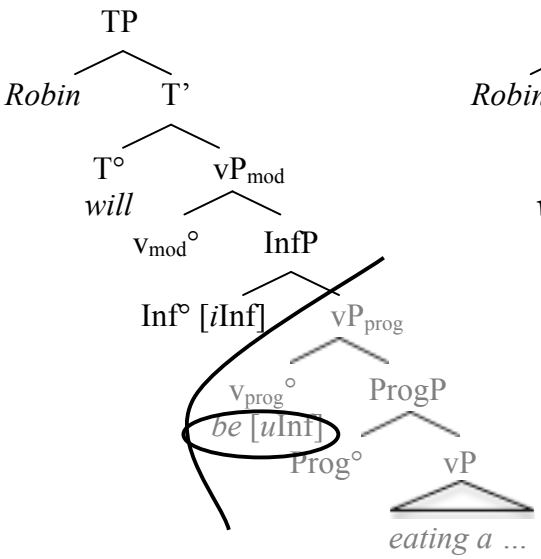
However, this raising does not have to occur under ellipsis. When *be* and *been* are elided, it is because they have failed to raise out of the ellipsis site. This implies that the unraised auxiliaries have not had a chance to check their inflectional features on Inf° or Perf°. Still bearing unchecked features, our derivation would be in danger of crashing at PF. However, ellipsis, being a PF-deletion operation, saves the derivation from crashing: if we delete the material in the ellipsis site at PF, the auxiliary, including its offending

[27] In the next sub-section it will become apparent, following discussion of optional *be/been* deletion, that finite BE might, at first glance, appear to present a problem for our analysis. Because this issue is only obvious once *be/been* deletion has been explored, we defer discussion of finite BE until footnote 32, at the end of the next sub-section, in which the problem is easily solved.

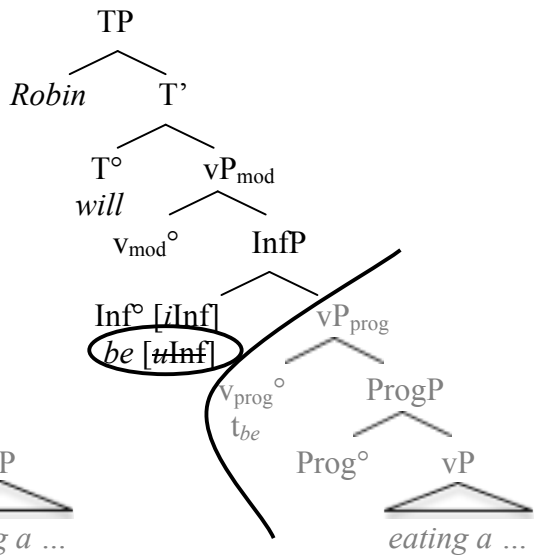
unchecked feature, is deleted too. Consequently, it is no longer a problem for PF, and the derivation is rescued.[28] The structures in (40)b and (40)c illustrate what happens in the sentence in (40)a with optional deletion of *be*.

(40) a. Ted will be eating a sandwich and Robin will (be), too.

b. Deletion of *be*



c. Non-deletion of *be*



This proposal is generally reminiscent of a number of rescue by PF-deletion analyses for various other phenomena (Lasnik 1999, 2001; Merchant 2001; Müller 2011; Ross 1969).[29, 30, 31]

---

[28] For the purposes of this paper we only address the need for the features to be checked at PF, not at LF. Generally head movement is taken to have little to no semantic effect (Chomsky 1993, 1995, 2001; Lasnik 1995b). It has been claimed by various authors, however, that head movement does have a semantic effect (Hartman 2011; Iatridou & Zeijlstra 2012; Lechner 2006; Matushansky 2006; Roberts 2010). This is most directly observable with T-to-C movement, and is debatable with regard to v-to-T (or Asp) movement. Regardless, if one wishes to claim that all types of head movement have a semantic effect, the analysis can be easily adapted to conform to this: the unraised auxiliary's inflectional feature is deleted at PF but still exists on the LF branch of the syntax after ellipsis and must be checked before arrival at the LF interface so as to prevent a derivational crash. In this case, the inflectional feature covertly raises, thereby correctly converging at LF. Due to the covert nature of this raising and checking, however, such movement of the auxiliary would not be observable. See Harwood (2013) for this view.

[29] Roughly, there are two main types of rescue by ellipsis (see Merchant 2004): cases where ellipsis feeds an operation (i.e., where an operation takes place under ellipsis, but not in the non-elliptical counterpart), and cases where ellipsis bleeds the operation (i.e., where an operation that normally occurs, does not happen under ellipsis). The current case is one where ellipsis bleeds the head movement of a verb, parallel to what has been argued in pseudogapping by Lasnik (1995a, 2001) and in matrix sluicing (Lasnik 2001; Merchant 2001).

Admittedly, the cases mentioned above have also received analyses not involving bleeding of the movement, and more importantly, the difference between our analysis and these other bleeding cases is that the auxiliary movement is optional, whereas in sluicing and

Recapitulating, we propose that the ellipsis site is maximally vP_{prog}, which includes the base position of all instances of BE (progressive, passive and copular). *Being* never raises beyond Prog°, so is always contained within the ellipsis site, explaining why this form is always elided under VPE. HAVE and modals on the other hand, are always merged outside of the ellipsis site, and can never be elided. *Be* and *been* are merged within the vP_{prog} ellipsis site, but raise out of it to check their uninterpretable inflectional features. This captures their optional deletion: if they raise out of the ellipsis site to check their features, they survive ellipsis, and if they remain in the ellipsis site, they are deleted along with their uninterpretable features, preventing a derivational crash at PF.[32]

---

pseudogapping the head movement is obligatorily bled (for the approaches assuming bleeding). This means that our proposal does not sit in line directly with the existing repair literature, but given the contrast between the ellipsis cases and the VP fronting data discussed below, we feel confident that the optionality is due to ellipsis repair.

See also section 8, in which we support the analysis advocated here with data from European Portuguese.

[30] An alternative analysis from the one we propose would be one inspired by Lasnik's (2001) approach to pseudogapping: the uninterpretable feature could also be checked by feature movement only, leaving the auxiliary behind. In non-elliptical sentences, feature movement is not an option, as this turns the auxiliary into a deficient PF object, and causes the derivation to crash. Ellipsis, on the other hand, avoids such a violation by removing the auxiliary. Therefore, no crash occurs at PF.

[31] Note that it is not the case that just any unchecked features can be repaired by ellipsis. Crucially, the unchecked features of the auxiliaries must be situated in the ellipsis site. Any unchecked features outside of the ellipsis site will cause a violation. For instance, wh-movement is generally taken to check a [Q]-feature on the wh-element, and a [wh]-feature on C. The same holds for subject movement: this is also triggered by an EPP-feature on T. These features are situated outside the ellipsis site and so cannot be deleted by ellipsis. Therefore movement is obligatory in these cases, not optional, even under ellipsis.

Note additionally that if the features situated outside of the ellipsis site are satisfied by alternative means, then movement will not take place out of the ellipsis site and the relevant item will be deleted. For instance, in existential constructions the EPP on T° is satisfied by the expletive *there*, causing the subject to remain low:

(i) There was an army of gorillas dancing the waltz.

When ellipsis is applied in these instances, the subject is deleted since it remains within the ellipsis site:

(i) In my dreams there was an army of gorillas dancing the waltz, but in reality there wasn't.

[32] This implies, however, that finite BE, which originates within the ellipsis site and raises out to T°, would also have the possibility of optionally remaining within the ellipsis site and being deleted by the ellipsis. This is not the case, as VPE can never elide the finite auxiliary.

It has been claimed, however, that T° must be filled, either by *to* or by a finite auxiliary, in order for VPE to be licensed (Aelbrecht 2010; Gengel 2007; Johnson 2001; Lobeck 1995; Zagona 1982, 1988). This independently rules out ellipsis of finite *be*, since this auxiliary would be required to raise to T°, outside of the ellipsis site, to actually license the ellipsis in the first place.

This implies that the option of not raising is only possible for auxiliaries under ellipsis. We predict that raising is obligatory in all other contexts since no ellipsis occurs to delete the unchecked PF features on the auxiliary otherwise. As we show in section 7 below, where we extend our analysis to VP fronting and other related phenomena, this prediction is borne out. Before we show how exactly these other contexts are captured, however, the next section formalises how the ellipsis site is determined. We claim that the maximal ellipsis site is vP_{prog}, but if the clause does not express progressive aspect, vP_{prog} and the ProgP selected by it are absent from the structure. This would make the ellipsis site smaller: VPE elides vP in that case. In other words, we do not assume a variable ellipsis site to account for the optionality of *be/been* deletion (unlike other proposals, such as Akmajian et al. 1979 and Bošković 2014), but because we only take those aspectual projections which are expressed to be present in the syntax, the actual projection targeted by VPE does vary depending on what is present in the structure, that is, either vP or vP_{prog}. This makes it difficult to pin down exactly what the ellipsis site for VPE is, in a generalising statement. Whilst the principle aim of this paper is simply to capture the auxiliary ellipsis paradigm of English, the next section presents a tentative formalised solution for how the ellipsis site is determined.

5. Phasal ellipsis

In section 3 we claimed that vP_{prog} is the maximal ellipsis site: when the clause contains progressive aspect, VPE targets vP_{prog} (see (41)a). When there is no progressive aspect in the clause, vP_{prog} and ProgP are absent, and VPE targets vP, as in (41)b. This implies that the projection that is elided differs depending on what is present in the clause, making it harder to formalise how the ellipsis site is targeted.

(41) a. [$_{TP}$ *Ted should* [$_{vPmod}$ t_{should} [$_{InfP}$ *have* [$_{vPperf}$ t_{have} [$_{PerfP}$ *been* [$_{vPprog}$ t_{been} [$_{ProgP}$ *being* [$_{vP}$ t_{being} [$_{VoiceP}$ *–ed* [$_{VP}$ *train*]]]]]]]]]].

b. [$_{TP}$ *Ted should* [$_{vPmod}$ t_{should} [$_{InfP}$ *have* [$_{vPperf}$ t_{have} [$_{PerfP}$ *been* [$_{vP}$ t_{been} [$_{VoiceP}$ *–ed* [$_{VP}$ *train*]]]]]]]]].

The unsolved question of how the ellipsis site is determined is common to almost all approaches to VPE: although it might be empirically demonstrable which constituent is included in the VP ellipsis site, it remains a mystery *why* a specific projection is targeted. Our solution is that VPE always targets the clause-internal phase.[33]

[33] An anonymous reviewer pointed out that the use of '**the** clause-internal phase' might be confusing, as there might be other phases present within the clause. For simplicity's sake, we will keep using this term, but want to make explicit that we mean the phase corresponding to the verbal/predicational layer of the clause, the one that in Chomsky's (2000) original

836
837 *5.1 The progressive phase*
838 The vP domain is traditionally assumed in the generative literature to form a
839 discrete unit of structure (see for instance Bowers 2002; Chomsky 2000)
840 separate from the temporal domain which is typically comprised of tense and
841 aspect. Harwood (2013, 2014a), Ramchand & Svenonius (2013) and
842 Wurmbrand (2012b), however, have argued that the verbal domain in English
843 is actually somewhat larger than vP and in fact extends as far as progressive
844 aspect when the progressive projections are present, although perfect aspect
845 remains external to this domain.
846 Ramchand & Svenonius (2013) define this lower domain as the event
847 zone, whilst Harwood (2013, 2014a) defines it as corresponding to the
848 predicational domain of the clause, similar to Bowers (2002).[34] Harwood

---

proposal was considered to be vP, but which we show in this paper to be larger than that (as does other work).

[34] Harwood (2013, 2014a) supports this assumption by a number of intriguing facts regarding progressive aspect in English. Firstly, progressive aspect is sensitive to lexical restrictions. Not all lexical verbs can occur with progressive aspect, while all verbs do allow perfect aspect. This suggests that the former is much more closely tied with the lexical verb than the latter.

(i) a. I {*am knowing/am learning} French.
[stative: *prog/dynamic: prog]
b. I have known/loved/sung that song for years.
[stative: perf/dynamic: perf]

Another indication involves its morphological form in many languages: progressive formation (on the verb following the progressive phrase) seems to have more nominal properties than other verbal inflections. In English the *–ing* suffix makes clear the link with gerunds, which can be seen as nominalisations (to different degrees, see Chomsky 1970), as in (ii)a. Also in other languages the progressive inflection has nominal properties, such as in Gungbe (see iib) (Aboh 2005), Dutch and German: in Dutch (see iic) for instance, it comes with a definite article. Thus, it seems that in languages that express the progressive, its form is quite different from how verbal inflections normally behave in these languages, and seems to have some nominal properties.

(ii) a. Ted('s) growing (of) a beard was the worst idea ever.
b. *Kòjó tò àmì ló zân*.
Kojo IMPERF oil DET NOMINALISER
'Kojo is using the oil.' (Aboh 2005:140)
c. *De krokodil was aan het dansen*.
the crocodile was on the dance.INF
'The crocodile was dancing.'

A third possible indication that progressive (and passive too) is part of the predicate, is that it uses BE as its auxiliary in English (and Dutch and other languages). This is identical to copular BE, which occurs with AP, NP and PP predicates. It is thus possible that progressive BE is simply another instance of a copular appearing alongside a verbal predicate, suggesting once again the predicational nature of the progressive. The perfect auxiliary in English on the other hand, is HAVE, which is rather distinct from the copular auxiliary, suggesting that the use of auxiliary BE instead of HAVE for the progressive but not the perfect might reflect a sensitivity to predicate structure.

specifically argues that this lower domain of structure corresponds to the clause-internal phase (Chomsky 2000, 2001) on the basis of syntactic evidence from existential constructions, idioms and various facts associated with VPE and VP fronting. We present the evidence from existential constructions here.

Consider the distribution of the derived subject of a passive existential:

(42) There were **several men** arrested for drunkenness.

In this sentence the expletive *there* occupies Spec-TP, preventing the derived subject from raising to this position. However, the derived subject occurs pre-verbally, and is thus not occupying its base, post-verbal position. Some form of intermediate raising must have taken place. Essentially, Chomsky (2001) claims the derived subject raises to the clause-internal phase edge so that it can enter into Case checking relations in the higher phase. However, merger of expletive *there* into Spec-TP satisfies the EPP on T° and blocks further raising of the subject, which must then have its Case features checked through non-local Agree (Chomsky 2000, 2001). The derived subject is thus stranded on the edge of the clause-internal phase where it precedes the lexical verb.[35]

Consider now the distribution of the derived subject in light of a more articulated structure:

(43) a. There were **many people** being arrested for drunkenness.
b. There have been **many people** arrested for drunkenness.
c. There will be **many people** arrested for drunkenness.

The crucial fact here is that the subject must precede *being* but follow *be/been*. If *being* surfaces in Prog°, the subject must be occupying a position higher than Spec-vP in order to precede this auxiliary. The question then is which position has the subject raised to, and why? Since the subject follows *be*, which occupies Inf°, and *been*, which surfaces in Perf°, we can rule out the subject occupying Spec-InfP or Spec-PerfP. Given the structural hierarchy we posited in (7) and (8), the only two other positions available are Spec-ProgP and Spec-vP_{prog}. If vP_{prog} projects the clause-internal phase when present, as Harwood (2013, 2014a) argues, Spec-vP_{prog} acts as the clause-internal phase edge. This potentially gives us a position for the subject to raise to that would automatically explain its distribution, and furthermore provides a motivation for this movement. Following Chomsky's basic analysis the subject, driven by a

[35] Despite postulating raising to the edge of this phase, Chomsky (2001) actually assumes the clause-internal phase in passive constructions to be a weak phase, though Legate (2003) has shown the clause-internal phase to always be strong, even with passives and unaccusatives.

need to check its Case feature, raises to the Spec-vP_{prog} phase edge so as to escape spell-out and ultimately get its feature checked in the higher phase. Obviously the subject in existential constructions does not raise any higher than this since merger of *there* in Spec-TP blocks any further movement of the subject and strands it on the clause-internal phase edge. Finally, with the subject occupying the Spec-vP_{prog} position, it correctly precedes *being*, but follows *be* and *been*.

Thus, the claim that vP_{prog} projects the clause-internal phase when present correctly explains the distribution of existential subjects without having to resort to any additional mechanisms.

This data also provides direct evidence against the possibility that the perfect aspectual layer also constitutes part of the clause-internal phase. If the perfect aspectual layer were to project the clause-internal phase when present in the derivation, we would expect the subject to raise to the edge of this layer, incorrectly predicting existential subjects to precede *been* as well as *being*. This suggests therefore that perfect aspect, unlike progressive aspect, is not contained within the clause-internal phase.[36]

Along with other purveyors of the dynamic phase approach (Bobaljik & Wurmbrand 2005; Bošković 2014, to appear; Wurmbrand 2012a, to appear), Harwood's (2013, 2014a) claim implies that the size of the clause-internal phase is not rigid as Chomsky (2000) originally proposed, and instead can vary in size depending upon the syntactic context. That is, in the presence of progressive aspect, vP_{prog} is the clause-internal phase, and in its absence, vP is the phase.[37]

(44) a. [$_{TP}$ *Ted should* [$_{vPmod}$ t_{should} [$_{InfP}$ *have* [$_{vPperf}$ t_{have} [$_{PerfP}$ *been* [$_{vPprog}$ t_{been} [$_{ProgP}$ *being* [$_{vP}$ t_{being} [$_{VoiceP}$ *–ed* [$_{VP}$ *train*]]]]]]]]].

b. [$_{TP}$ *Ted should* [$_{vPmod}$ t_{should} [$_{InfP}$ *have* [$_{vPperf}$ t_{have} [$_{PerfP}$ *been*

[36] See Harwood (2013, 2014a) for more in-depth discussion on the evidence for progressive aspect being part of the clause-internal phase. See also Ramchand & Svenonius (2013) for additional arguments from British English *do* and temporal modification.

[37] We follow Harwood (2013, 2014a), who creates this variable phase boundary by claiming that the completion of a phase is not dependent upon merger of a specific head, such as v°, but upon merger of the last item from a sub-numeration, *irrespective of what that item is*. By including the progressive aspectual material (v_{prog}° and Prog°) within the first sub-numeration of the clause, along with v°, V° etc. this would entail that v_{prog}°, when present, would be the last item to be merged from this sub-numeration, and so would project the phase, instead of v°. In the absence of the progressive aspectual material, v° would be the last item to be merged from the first sub-numeration, and so would project the phase in such instances. Harwood (2013, 2014a) furthermore claims that the perfect aspectual material is not included within the first clausal sub-numeration, rather the second. Therefore, the perfect aspectual projections cannot act as the first phase. See also Bošković (2014) for an alternative approach to establishing variable phase boundaries involving extended projections.

916 
917
918 This claim obviously parallels our own claims regarding the structural
919 domain that VPE targets in English. Indeed, it has been claimed by Aelbrecht
920 (2012b), Bošković (2014), van Craenenbroeck (2010), Fox & Pesetsky (2003),
921 Gallego (2010), Gengel (2007b, 2008), Harwood (2013, 2014a), Holmberg
922 (1999, 2001), Rouveret (2006, 2011, 2012), Sailor (2012) and Wurmbrand
923 (2012b) that ellipsis is constrained by phases, and specifically that VPE
924 targets the clause-internal phase. Therefore, following Harwood's (2013,
925 2014a) claim that vP_{prog} acts as the phase when present, and the above-
926 mentioned authors' claim that VPE targets the clause-internal phase, we
927 argue that VPE in English targets as much as the progressive aspectual layer
928 because this layer corresponds to that of a phase.[38] In the absence of
929 progressive aspect, vP acts as the phase, and so vP is targeted in such
930 instances.[39]

[38] Following Grohmann's (2003) notion of prolific domains, one could divide the clause into the discourse domain, the agreement projections and the thematic and lexical projections (the predicational domain), roughly corresponding to CP, IP and VP respectively. Moreover, the arguments from Harwood (2013, 2014a) above indicate that the progressive is likely to be included in the lexical domain, unlike perfect aspect (see also Coon & Preminger to appear, Phan 2013, Ramchand & Svenonius 2013 and Wurmbrand 2012b for a split between progressive and perfect). Instead of linking the VPE target to phases, one could also posit that VPE targets the predicational layer of the clause (i.e., VPE is predicate ellipsis).

[39] Harwood (2013) cites evidence from various other languages, however, to show that the size of the clause-internal phase is not universally consistent. Whilst languages such as Taiwanese, Irish and European Portuguese appear to pattern like English in including as much as progressive aspect within the clause-internal phase, Brazilian Portuguese, Belfast English, Icelandic, Dutch and Welsh appear to behave contrary to this by including the perfect aspectual layer within the first phase. Indeed, this might be expected given that languages such as Welsh select perfect aspect using the copular auxiliary BE rather than HAVE, potentially indicating that perfect aspect is contained within the predicational layer in these languages (see footnote 34).

This would lead one to expect that VPE, if licensed in such languages, is able to target as much as the perfect layer. Rouveret (2012) shows that this is potentially the case for Welsh: the particle realising perfect aspect can be elided under VPE, suggesting that as much as perfect aspect is included in the ellipsis site (examples from Rouveret 2012:(44)):

(i)	*Mai*	*Siôn*	*wedi*	*bod*	*yn*	*gweithio*	*am*	*awr*	*rwan…*
	is	Siôn	Perf	be	Prog	work	around	hour	now
	a.	*…a*	*mae*	*Mair*	*hefyd*.				
		and	is	Mair	too.				
	b. *	*…a*	*mae*	*Mair*	*wedi*	*bod*	*hefyd*.		
		and	is	Mair	Perf	be	too.		

'Siôn has been working for an hour now and Mair has been too.'

Of course, these are not perfect examples since (i)b strands the progressive auxiliary as well, so we do not know whether the perfect particle is obligatorily or optionally elided: the

931
932 *5.2 Ellipsis targets the entire phase*
933 The task now is to implement this claim that VPE targets the clause-internal
934 phase, which extends as far as the progressive projections. The question that
935 must be raised at this point is, exactly which part of the phase does VPE
936 target: the spell-out domain or the entire phase? Traditionally it has been
937 claimed that VPE targets the complement of the phase head, i.e., spell-out
938 domain (van Craenenbroeck 2010; Gallego 2010; Gengel 2007b, 2008;
939 Rouveret 2006, 2011, 2012; Wurmbrand 2012b). However, Bošković (2014)
940 and Harwood (2013, 2014a) have shown, using arguments from existential
941 constructions, argument ellipsis and certain extraction facts, that this might
942 not necessarily be the case and that ellipsis might in fact apply to entire
943 phases. Indeed, Aelbrecht (2012b), Fowlie (2010), Fox & Pesetsky (2003,
944 2005), Richards (2011) and Svenonius (2004, 2005) have all argued that
945 spell-out domains should be dispensed with and replaced by full phasal spell-
946 out. Given this, Aelbrecht (2012b), Bošković (2014), Fox & Pesetsky (2003),
947 Harwood (2013, 2014a) and Holmberg (1999, 2001) have all claimed that
948 ellipsis in fact targets entire phases. We follow this claim: when progressive
949 aspect is present, VPE targets the entire vP_{prog} clause-internal phase rather
950 than the ProgP phasal complement; and in the absence of progressive
951 aspect, VPE targets the vP phase rather than the VoiceP phasal
952 complement.[40]

---

ungrammaticality of (i)b could stem from the presence of the progressive auxiliary as well. Further investigation is required.

Other languages to investigate in this respect are Serbo-Croatian, which has VPE and uses the same auxiliary for perfect sentences as for progressive, copular or passive ones. Even certain dialects of English, such as Hiberno-English, Shetland English and Newfoundland English use BE as the perfect auxiliary. This is an avenue for further research.

[40] Claiming that VPE targets the entire clause-internal phase gives rise to a number of additional issues. The first such issue is that if ellipsis targets entire phases, and therefore that entire phases are spelled out, how can items raise out of the phase if there is no escape hatch for movement? We do not elaborate an answer for this here, but instead refer the reader to Fox & Pesetsky (2003, 2005) or Richards (2011) for two potential solutions to this problem. The second issue, which was also raised by an anonymous reviewer, is how the claim that VPE targets the clause-internal phase can be extended to other ellipses, such as TP ellipsis, for instance in sluicing (i):

(i) Robin ate something horrible, but I don't know [$_{CP}$ what [$_{TP}$ ~~Robin ate~~]].

Traditionally TP is not considered a phase, so it is difficult to see how the approach developed here can be applied to sluicing. One relatively simple answer to this problem could be to either follow Branigan (2005), van Craenenbroeck & Van Koppen (2012) and López (2009) in saying that FinP – which can count as the highest projection in the IP-domain, right below the CP-domain – is in fact a phase (in this case, the vP_{prog} phase would no longer count as *the* clause-internal phase, but just the lowest phase of the clause). Or one could argue that ellipsis always targets prolific domains (see Grohmann 2003 and the discussion in footnote 38 above), and that VPE targets the predicational/lexical domain, whereas sluicing targets the

To summarise, we follow Harwood (2013, 2014a) in assuming that vP_{prog} in fact constitutes the clause-internal phase when present in the derivation, and vP otherwise. We furthermore assume, following Aelbrecht (2012b), Bošković (2014), Fox & Pesetsky (2003), Harwood (2013, 2014a) and Holmberg (1999, 2001), that VPE targets the entire clause-internal phase. This explains why VPE targets as much as vP_{prog} when this projection is present.[41]

The next section presents some alternative accounts from the literature for the auxiliary ellipsis paradigm, and outlines some of their problems.

6. Previous accounts of the auxiliary deletion pattern

The majority of the ellipsis literature avoids the behaviour of non-finite auxiliaries under English VPE, particularly regarding the optional deletion of *be* and *been*. However, some proposals have been made, especially more recently. In what follows, we review these accounts. We first discuss Baker et al. (1989), and present its advantages and drawbacks, and then move on to Bošković (2014), Thoms (2012) and Sailor (2012).

6.1 Baker et al. (1989)

Baker et al. (1989), following Lobeck (1987) and Sag (1976), claimed that the obligatory ellipsis of *being* under VPE actually reflects a general property of ellipsis in that it cannot apply when governed by a V+*ing* form. Evidence for this comes from the fact that VPE is not permitted following a gerund either:

(45) a. * I remember Mary having eaten an apple, and Gary having, too.

---

agreement/deictic domain. Of course, this too raises new problems and questions, such as why there is no CP-ellipsis in general, and how to analyse NP-ellipsis and British English *do*, to name only a few. Admittedly, with the vast array of ellipses available, one does have to wonder whether they all target phases, and perhaps it is not always the case that ellipsis deletes a phase. Though with regards to VP ellipsis at least, there is indeed something significant about the fact that VPE, existential constructions, and VP preposing phenomena (see section 7) all seem to privilege the exact same unit of structure (which we have here defined as a phase).

[41] An issue that was pointed out to us is that, as it stands, our analysis fails to account for Bresnan's (1976) generalisation stating that the VP ellipsis site needs to be adjacent to a head. Data supporting this view are given in (i).

(i) Don't worry about John – he'll have merely been delayed a while, and…
  a. …Pete'll have merely been, too.
  b. * …Pete'll have merely, too.

At present it is unclear to us how these facts can be reconciled with the analysis we propose. We thank an anonymous reviewer, however, for the suggestion that the adjunction site for adverbs like *merely* happens to fall within the ellipsis site in structures in which e.g. *been* is licensed. This is an issue for further research.

b. * I remember Mary having been angry about it, and Gary having, too.

(Baker et al. 1989:(81))

In the case of *being*, if VPE cannot apply following any form of -*ing*, then it has no choice but to include the *being* form within the ellipsis site in order for VPE to be licit. This easily explains the obligatorily ellipsis of *being*. However, there are a number of problems facing this analysis. First of all, Abney (1987), Hudson (2003) and Malouf (1998) have all noted that gerunds cannot be elided, even though common nouns in the same environment can be:

(46) a. * John's passing the exam was surprising, and Bill's was even more so.[42]

b. John's success in the exam was surprising, and Bill's was even more so. (Hudson 2003:31)

This contrasts with *being* which obviously can be elided. If gerunds therefore cannot be elided, despite appearing in a context in which ellipsis is licensed (as evidenced by the NP ellipsis in (46)b), whereas *being* can be elided, this suggests that the connection between the two in terms of ellipsis is untenable. That is, if it is simply the case that ellipsis cannot apply following an *–ing* form, why is it that the syntax treats *being* and gerunds entirely differently when it comes to ellipsis: the ellipsis site is somehow expanded to include *being* when this auxiliary is present, whereas the ellipsis is not stretched to included the gerund. In fact, gerunds actually witness a possible reduction of the ellipsis site so that it is not immediately governed by the *–ing* form:

(47) Which bothers you more, John's having been arrested for drug dealing, or Bill's having been?

This contrast in behaviour between *being* and gerunds under ellipsis we consider to be problematic for Baker et al.'s (1989) approach.

The second problem is that the *–ing* form found in gerunds is not the same as progressive *–ing*, as demonstrated by the fact that progressive *–ing* and gerunds are not in complementary distribution:[43]

---

[42] An anonymous reviewer indicates that according to their judgements, (46)a is not as bad as Hudson claims. Another reviewer adds that the example improves if the auxiliary in the second clause is also deleted (similar to gapping). We have no explanation for these facts, but it is still clear that the deletion of a gerund is degraded, or at least more restricted, than deletion of *being*.

[43] Thanks to Jeroen van Craenenbroeck (p.c.) for the following examples, collected from the British National Corpus (search term: having been + ING-form).

(48) a. Maggie glanced sideways at the river, having been concentrating on the fairly heavy traffic.
b. Play resumed just after four o'clock, the pitch having been sweating under the covers in the meantime.
c. Wayne was enchanted to see Hermia and Perdita, and gave the appearance of having been searching for them all day.

Therefore it might be spurious to claim that ellipsis cannot apply after *–ing* forms if, whilst morphologically identical, the two *–ing* forms exhibit completely different syntactic functions. For these reasons we are sceptical of the generalisation linking the obligatory ellipsis of *being* under VPE and the inability for VPE to apply immediately following a gerundive *–ing* form.

Furthermore, it is also worth mentioning that Baker et al.'s (1989), Lobeck's (1987) and Sag's (1976) analysis misses the fact that *being* is not only uniquely privileged by VPE, but also by existential constructions (as seen in section 5.1) and fronting phenomena (as will be illustrated in section 7). By attributing the ellipsis of *being* to a peculiar fact about ellipsis itself, one is unable to explain why *being* behaves apart in phenomena other than ellipsis. Finally, note that, as it stands, Baker et al.'s (1989) approach has no means of capturing the optional deletion of *be* and *been*.

6.2 Bošković (2014)

Our proposal is not the only option to capture the optional deletion of *be* and *been*. One possible solution, instead of having a fixed ellipsis site and optional raising out of it, is to say that the size of the ellipsis site can fluctuate, in the sense that the ellipsis site normally does not contain *be* or *been*, but can be optionally extended to included them (or vice versa).[44] Bošković's (2014) account uses this tactic, as does the original proposal by Akmajian et al. (1979).

Bošković (2014) makes a number of assumptions as to the structure of the middle field which are highly similar to our own. He essentially assumes the same functional hierarchy that we established in (7), and the same analysis with regards to auxiliary raising (though he motivates this through a morphological requirement rather than through feature checking). He also takes a WYSIWYG approach to the syntactic structure.

Bošković assumes a degree of optionality with respect to what VPE can target. That is, he claims VPE can target the highest projection in the

[44] Of course, the 'fixedness' of our ellipsis site is not as rigid as it seems: as we have claimed, our ellipsis site differs depending on which projections are present in the structure. But this variation does not occur in the derivation of a single sentence in order to capture the optionality of *be*/*been* deletion.

extended domain of the lexical verb, or the projection just below it. In the absence of any aspectual projections, he takes VPE to target either vP or VP (there is no VoiceP intervening between vP and VP in his system). Following Lasnik (1999), Bošković claims that the lexical verb does not raise out of its base position of V° in ellipsis contexts. Therefore the lexical verb is obligatorily elided under VPE, as is illustrated in (49).

(49) a. [TP [vP [~~VP *lex V*~~]]]
b. [TP [~~vP~~ [~~VP *lex V*~~]]]

In the presence of progressive aspect, which Bošković assumes constitutes part of the extended projection of the lexical verb, Bošković claims VPE targets either ProgP, or vP below it. Note that the vP_{prog} shell above ProgP is not targeted by VPE under his view. This is the first problem with his account: vP shells also form part of the extended projection under Bošković's assumptions, and in the absence of any higher aspectual material, vP_{prog} would constitute the highest projection in the extended domain of the lexical verb. So it is a mystery why he assumes nevertheless that the vP_{prog} shell should not be targeted by VPE.[45]

In order to account for the obligatory ellipsis of *being*, Bošković claims, following Akmajian et al. (1979), Akmajian & Wasow (1975), Bošković (2004), Iwakura (1977), Lobeck (1987) and Thoms (2011), that *being* is the only auxiliary that does not raise for inflectional purposes and instead has its inflection lowered onto it in its v° base position. The reason for this is clear: if *being* raises to Prog° for inflectional purposes, it is predicted to only be optionally elided. In order for *being* to remain consistently in the ellipsis site, Bošković is forced to claim that *being* does not raise from its base position.

(50) a. [TP [vPprog [ProgP [~~vP *being*~~ [~~VP *lex V*~~]]]]]
b. [TP [vPprog [~~ProgP~~ [~~vP *being*~~ [~~VP *lex V*~~]]]]]

However, this is a stipulation since there is no principled reason as to why *being* should be the only auxiliary not to raise. Furthermore, Harwood (2013,

[45] Bošković takes a phasal approach to ellipsis as per Gengel (2007b) and Holmberg (2001) in which the ellipsis site is either the complement of the phase head or the entire phase itself. He furthermore proposes a dynamic approach to phases in which the highest phrase in the extended projection of the verb is the clause internal phase. However, the issue of VPE targeting an AspectP, but not the vP shell above it, remains. By allowing an AspectP to act as a phase and not the vP shell above it, we are separating aspects and their associated auxiliaries by a phasal boundary. As was stated earlier, auxiliaries are always closely tied to their aspectual forms: whenever vP_{prog} is present, so is ProgP, or whenever vP_{perf} is present, so is PerfP. It seems strange then that the auxiliary should be separated from its aspect by a phase boundary, as Bošković implies.

2014b) has explicitly shown, using the distribution of *being* in relation to adverbs, that *being* uniformly raises out of the vP domain for inflection.

In the presence of perfect aspect, which Bošković also assumes to constitute part of the extended projection of the lexical verb, VPE may target either PerfP, or the complement of PerfP (vP_{prog} or vP, depending on whether the progressive aspectual layer is present or not). Again, the vP_{perf} shell above PerfP is curiously not targeted by VPE despite being the highest projection in the extended domain. The optional deletion of *been* now falls out of this analysis: *been* raises for inflectional purposes to Perf°, which is optionally targeted by ellipsis.

(51) a. [TP [vPperf [PerfP *been* ~~[vPprog~~ ~~t*been*~~ [ProgP~~ ~~[vP *being* [vP *lex V*]]]]]]]
b. [TP [vPperf ~~[PerfP~~ ~~*been* [vPprog~~ ~~t*been*~~ ~~[ProgP~~ ~~[vP *being* [vP *lex V*]]]]]]]

The analysis raises problems, however, with respect to the optional ellipsis of *be* under similar mechanisms. Unfortunately, Bošković does not specifically discuss the optional ellipsis of *be*, but by extending the analysis he has made so far we can observe which data can and cannot be accounted for. In the presence of the modal layer, Bošković allows for ellipsis to target either the complement of InfP, or InfP itself. This instantly explains the optional ellipsis of *be*: if we decide to elide the complement of InfP, *be* – surfacing in Inf° – survives ellipsis. If on the other hand, we elide InfP itself, *be* is contained within the ellipsis site and so is elided.

This claim gives rise to a number of issues. First, what if non-finite *have* has risen to occupy Inf° rather than *be*? Should we not still expect ellipsis to target either the complement of Inf°, or InfP itself? In that case *have* is predicted to be optionally included in the ellipsis site, contrary to fact: Bošković (2014) assumes, as we do, that infinitival *have* is never elided. Moreover, if in the presence of InfP the complement of Inf° must always be elided under VPE, we should expect everything below the infinitival auxiliary to be obligatorily elided under ellipsis. Consider, however, (52), with non-finite *have* in Inf°, and *been* in Perf°, in the complement of Inf°. Here one incorrectly expects *been* to be obligatorily elided.

(52) John could have been defeated, and Peter could have (been) ~~defeated~~ too.

Bošković's analysis is reminiscent of an early generative approach by Akmajian et al. (1979). For them the optional ellipsis of *be/been* is accounted for via optional extension of the ellipsis site to include the aspectual projections. Many of the arguments against Bošković's account can therefore be extended to Akmajian et al.'s (1979) also.

6.3 Thoms (2012)

Thoms (2012) takes a different approach to the ellipsis of *being* and the optional deletion of *be* and *been*: He argues that all auxiliaries check their inflectional features in their base positions via Reverse Agree (as per Bjorkman 2011), and that ellipsis is licensed by subsequent movement of the finite auxiliary to T°. Under Thoms' analysis, everything in the complement of T° is uniformly targeted by VPE in English. The only way that additional material, such as negation and non-finite auxiliaries, can survive is by cliticising to T°, thereby raising out of the ellipsis site. He claims that *have*, *be* and *been* optionally survive ellipsis by this optional cliticisation to T°. Since *being* is a prosodically heavy item, it cannot so easily cliticise to T°, which explains why it is obligatorily elided.[46]

The fundamental problem with this approach is that, whilst there is plenty of evidence to suggest that non-finite *have* can cliticise to T°, the evidence regarding cliticisation of non-finite *be* seems to point the other way. As already discussed, in Johnson (1988) and Kayne (1997), it is shown that non-finite *have* can cliticise to the modal in T° and subsequently undergo subject auxiliary inversion, whilst, crucially, *be* cannot:

(53) a. Shouldn't'**ve** Pam remembered her name?
b. * Shouldn't **be** Pam remembering her name?

This suggests that optional cliticisation to T° cannot be used to explain optional ellipsis of *be* and *been*. Furthermore, this optional raising of *be* and *been* cannot capture the obligatory raising of these auxiliaries under VP fronting, an issue which we discuss in section 7 below.

6.4 Sailor (2012)

Like Thoms (2012), Sailor (2012) also assumes uniform lowering of affixes onto the auxiliaries through a Reverse Agree model, as in Bjorkman (2011). Sailor claims, however, that ellipsis targets the projection headed by the passive auxiliary, which is equivalent to vP in the hierarchy we assume. In order to explain the obligatory ellipsis of *being*, Sailor proposes that *being* does not raise out of vP. He motivates this by claiming that the projection

[46] Thoms (2012) discusses some data where *being* actually survives VPE. We present Thoms' view on this issue as well as our own in section 9.1.

Furthermore, Thoms (and Bošković) can capture the dialectal variation that seems to occur with respect to *have*: as indicated above in section 3.2 there is some discussion about whether or not *have* can be deleted, and some speakers or certain dialects seem to allow for it. Our informants, however, generally did not accept this deletion, and with our analysis we capture the original pattern.

immediately above vP, ProgP, is headed by the progressive auxiliary in such instances.[47] This prevents *being* from raising out of the ellipsis site as there is no available position for the auxiliary to raise to. In the case of passive *be* and *been*, Sailor assumes that ProgP still projects onto the clausal spine, but that its head is spelt out as null. Therefore Prog° presents a potential position for the passive auxiliaries *be* and *been* to raise to. This raising out of the ellipsis site Sailor claims to be optional, accounting for the optional deletion of *be* and *been*.

The problems with Sailor's analysis are twofold: first, this optional raising of *be* and *been* to Prog° is unmotivated. These auxiliaries have already checked their inflectional features in their base position of v° through Reverse Agree. Second, Sailor has no means of capturing the optional ellipsis of progressive *be* and *been*. His ellipsis site is vP, which means that ProgP, which according to Sailor is headed by the progressive auxiliary, is outside of the ellipsis site. Therefore there is no way in which the progressive auxiliary can undergo ellipsis. Sailor (2012) responds to this by claiming that ellipsis of the progressive auxiliary is impossible, but as the data in section 3.1 has shown, this claim is untenable.

As said before, our account captures the auxiliary pattern, but also makes the interesting prediction that optional raising of *be* and *been* out of vP_{prog} is only made possible because of ellipsis, and that contexts without deletion would force the auxiliaries to raise and check their features. This is exactly what happens in VP fronting (VPF) cases, as section 7 will show, but none of the approaches presented above can account for this contrast between VPE and VPF.

7. Extending the analysis

7.1 VP fronting

A phenomenon that has been related to VPE in the literature is VP fronting (see Aelbrecht 2012a; Aelbrecht & Haegeman 2012; Funakoshi 2012; Johnson 2001; Kim 2003; Roberts 1990, 1998; Zagona 1982). It has been amply noted that VPE and VP fronting (VPF) exhibit parallel syntactic behaviour (Johnson 2001; Zagona 1982). They occur in the same environments: "both an elided VP and the trace left by a fronted VP must be governed by an Aux" (Johnson 2001:444). Neither occurs without a modal,

[47] As already discussed in section 2, under the Reverse Agree analyses of the auxiliary system, auxiliaries are merged directly into the head of their associated aspectual projections, as no raising takes place. Therefore there is no need to posit vP shells.

temporal auxiliary or *do*-support, as the contrasts in (54) show (examples adapted from Aelbrecht 2012a).[48]

(54) a. * I never thought I'd see Jess become a cook, but I saw [~~Jess become a cook~~].
b. * I never thought I'd see Jess become a cook, but [Jess become a cook] I saw *t*.
c. I never thought I'd see Jess become a cook, but I **did** [~~see Jess become a cook~~].
d. I never thought I'd see Jess become a cook, but [see Jess become a cook] I **did** *t*.

A second similarity between VPE and VPF is that both generally target the same chunk of the verb phrase. For instance, perfect *have* cannot be elided under VPE, and as (55)a,b, adapted from Johnson (2001:(19)), show, it cannot be fronted either. Moreover, Akmajian & Wasow (1975) note that, just as VPE always deletes *being*, VPF cannot leave it behind, cf. (55)c,d.

(55) a. * Julia hadn't eaten fish, but Peter claimed that [**have** eaten fish] she should *t*.
b. Julia hadn't eaten fish, but Peter claimed that [eaten fish] she should **have** *t*.
c. Will thought he was being seduced and [**being** seduced] he was.
d. * Will thought he was being seduced and [seduced] he was **being**.

Given these facts, we hypothesise that VPF, like VPE, targets as much as vP_{prog} when the progressive layer is present.[49]

With this in mind, it is remarkable that VPF never includes *be* or *been* in the fronted verbal structure, not even optionally, as observed by Akmajian et

[48] Or infinitival *to*, see Aelbrecht (2012), Aelbrecht & Haegeman (2012) and Johnson (2001) for examples. As was indicated in footnote 7, we stay away from infinitival clauses in the present paper.

[49] Harwood (2013, 2014a) uses the VPF facts as further support for the claim that the progressive aspectual layer constitutes part of the clause-internal phase. Chomsky (2005), Fowlie (2010), Holmberg (2001) and Roberts (2010a,b) have all claimed that the only phrases that can undergo movement are phases. This has been further assumed by Aelbrecht & Den Dikken (2013) and Koopman (2010) in the context of prepositional phrases. Therefore, if only phases can undergo phrasal movement, this would suggest that the VPF-type phenomena discussed above must be instances of the clause-internal phase undergoing movement to the left periphery. Since it is shown that the fronted constituent corresponds to vP_{prog}, this suggests that vP_{prog} acts as the clause-internal phase when it is present in the derivation (and vP otherwise). Similarly it suggests that higher aspectual layers such as perfect aspect are not included within this lower phase.

al. (1979) and Roberts (1998). These auxiliaries are obligatorily stranded by the fronted constituent, see (56).[50]

(56) a. * If he says he will be working all night, then [**be** working all night] he will.
b. If he says he will be working all night, then [working all night] he will **be**.
c. *If he says he has been working late, then [**been** working late] he has.
d. If he says he has been working late, then [working late] he has **been**.

If VPE and VPF target the same chunk of the verb phrase, it is curious that VPE optionally includes *be* and *been* in this chunk, but VPF never does. This contrast can be easily captured under our analysis: optional deletion of *be* and *been* under VPE is due to the fact that the uninterpretable inflectional features on the auxiliaries are deleted at PF by ellipsis when the auxiliary does not raise out of the ellipsis site. Under VPF, however, the auxiliaries have to raise because there is no repair by ellipsis here. If they do not raise, their [*u*F] features remain unchecked in the (moved) higher copy of the verb phrase, causing a crash at PF, see (57).

(57) a. No raising of *be* out of vP_{prog}:
* If he says he will be working all night, then...
[$_{vP(prog)}$ **be**$_{[\mathit{u}Inf]}$ working all night] [$_{TP}$ he [will [$_{InfP}$ Inf°$_{[\mathit{i}Inf]}$ $t_{vP(prog)}$]]].

b. Raising of *be* out of vP_{prog}:
If he says he will be working all night, then...
Step 1: Raising out of vP_{prog}
[$_{TP}$ he [will [$_{InfP}$ Inf°$_{[\mathit{i}Inf]}$+*be*$_{[\mathit{u}\sout{Inf}]}$ [$_{vP(prog)}$ **t**$_{\mathit{be}}$ working all night]]]].
Step 2: Fronting of vP_{prog} (not including *be*)
[$_{vP(prog)}$ **t**$_{\mathit{be}}$ working all night] [$_{TP}$ he [will [$_{InfP}$ Inf°$_{[\mathit{i}Inf]}$+*be*$_{[\mathit{u}\sout{Inf}]}$ $t_{vP(prog)}$]]].

We consider this to be the most significant advantage of our approach over prior analyses. None of the alternative approaches reviewed in section 6 are

[50] Sailor (2012) actually gives contrasting judgements for (56)a,c, which would pose a problem for our analysis. However, our own informants, as well as those of Akmajian et al. (1979), Ramchand & Svenonius (2013), Roberts (1998) and Thoms & Walkden (2013), all report such sentences to be ungrammatical. If there is indeed dialectal variation with respect to these sentences, we do not have access to any speakers who accept them and cannot capture the variation within our system.

able to explain the contrast between VPE and VPF straightforwardly. Bošković recognises in a footnote that there is a connection between VPE and fronting, though explicitly stays away from the issue. If we wish to maintain this link, however, in that the site targeted by VPE is the same site targeted by fronting, then *be* and *been*, which according to Bošković can be elided by optionally extending the ellipsis site to include them, are incorrectly predicted to be optionally fronted.

For Thoms (2012) and Sailor (2012), optional raising of auxiliaries out of the ellipsis site occurs independently of the ellipsis operation. Therefore auxiliaries should optionally raise in all contexts. This implies once again that *be* and *been* should optionally raise out the fronting site in VPF contexts, wrongly predicting optional fronting of these auxiliaries.

In short, the analysis that we proposed for the optional deletion of *be* and *been* under VPE can be successfully extended to capture the non-optional stranding of the same auxiliaries under VPF.

Note that the analysis we have presented leads to an interesting prediction: under other phenomena making use of VPE, we expect the auxiliaries *be* and *been* to also be optionally elided, whereas in other phenomena involving movement of the VP, we expect the same auxiliaries to be obligatorily stranded. This is in fact confirmed by (American English) tag questions, which have been argued to involve VPE (Sailor 2009),[51] and by both specificational pseudo-clefts and predicate inversion, which are claimed to involve movement of the verbal predicate. We discuss the latter two contexts in the next section.

7.2 Extending the data range

Another context in which the verb phrase is fronted is specificational pseudo-clefting, as claimed by Blom & Daalder (1977), Declerck (1988), Den Dikken (1995), Heggie (1988), Heycock (1994), Higgins (1979), Moro (1997) and

[51] Akmajian & Wasow (1975), Bošković (2004) and Sailor (2009) have noted that in American English, the lexical verb and the passive/copular auxiliary *being* are always absent from tag questions, whilst non-finite *have* is always present (if the sentence being tagged contains perfect aspect, naturally), parallel to VPE. This has led Sailor (2009) to analyse tag questions as involving VPE. Interestingly, Sailor also notes that, just as with VPE, *be* and *been* occur optionally in tags (see (i)). This optional ellipsis of *be* and *been* conforms with our predictions, and supports both our analysis and Sailor's (2009) account of tag questions.

(i) a. Ted has been eating dolphin sandwiches, hasn't he (been)?
b. Ted will be eating dolphin sandwiches, won't he (be)?

Interestingly, British English speakers (and reportedly certain dialects of American English as well) behave differently. Their tag questions only contain the finite auxiliary. Unlike in American English, no non-finite auxiliaries remain, not even perfect *have* (Sailor 2009). This is a remarkable contrast for which we do not provide an answer in this paper.

Verheugd (1990) (cited in Den Dikken 2006). Sailor (2012) notes that, parallel to VPF, *being* is included in the moved phrase:

(58) Ted should be being praised. – No, *<being> criticised is what he should be <*being>. (Sailor 2012:8)

Crucially, Sailor (2012) notes that *be* and *been* are obligatorily stranded in such constructions, again conforming with our predictions that auxiliaries only have the option of not raising in ellipsis contexts, in which their unchecked PF features can be deleted via ellipsis:

(59) a. Ted should be praised. – No, <*be> criticised is what he should *<be>.
b. Ted should have been praised. – No, <*been> criticised is what he should have *<been>. (Sailor 2012:8)

A second context that has been argued to involve displacement of the predicate (i.e., the verb phrase in this case) is predicate inversion, see Emonds (1976), Haegeman (2008), Heycock & Kroch (1999), Hooper & Thompson (1973) and Samko (2014). This phenomenon too patterns like VPF: *being* is obligatorily fronted with the inversed predicate, see (60).

(60) a. [Also **being** loud and obnoxious today] is my old friend Bugs Bunny.
b. * [Also loud and obnoxious today] is **being** my old friend Bugs Bunny.

As predicted by our analysis of these fronting contexts, *be* and *been* can never be included in the fronted constituent, see (61): these auxiliaries obligatorily raise out of vP_{prog} in order to check their inflectional features. If they do not, there is no ellipsis operation to rescue the derivation from a crash at PF, so the resulting sentence is unacceptable.

(61) a. [Also with us in the studio today] will **be** my old friend Bugs Bunny.
b. * [Also **be** with us in the studio today] will my old friend Bugs Bunny.
c. [Also with us in the studio today] has **been** my old friend Bugs Bunny.
d. * [Also **been** with us in the studio today] has my old friend Bugs Bunny.

In sum, we have provided an analysis that accounts not only for the VP ellipsis paradigm of auxiliary verbs, but also for other cases with VPE, such as

tag questions, and for auxiliary behaviour in phenomena involving movement of the verbal layer, such as VPF, specificational pseudo-clefts and predicate inversion. In the next section we provide additional support for our analysis using cross-linguistic data.

8. Cross-linguistic evidence

Given the analysis presented in this paper, the question arises as to whether there is any cross-linguistic justification for such an account. That is, is there any evidence to suggest that optional raising out of an ellipsis site is manifested cross-linguistically? We argue here that such optional raising is attested in verb-stranding VPE in European Portuguese (EP).

EP has been noted for being one of the few Romance languages which actually permits VPE (Cyrino & Matos 2002, 2005; Goldberg 2005; Matos & Cyrino 2001; Raposo 1986; Tescari 2013):

(62) *A Ana já tinha lido o livro à irmã,*
the Ana already had read the book to-the sister,
mas a Paula não tinha [~~lido o livro à irmã~~].
but the Paula not had read the book to-the sister
'Ana had already read the book to her sister but Paula had not.'
(Cyrino & Matos 2002:(1))

Unlike English, however, EP has also been argued to exhibit overt movement of the lexical verb out of vP for inflectional purposes. We refer the interested reader to Ambar (1987, 1989), Ambar et al. (2004), Brito (2001), Costa (1998, 2004), Costa & Galves (2002), Cyrino (2011), Cyrino & Matos (2002), Galves (1994, 2001), Goldberg (2005), Matos & Cyrino (2001), Modesto (2000), Raposo (1986) and Tescari (2013) for evidence of this movement for both finite and non-finite main verbs.

Such overt raising of the lexical verb gives rise to what tends to be referred to as 'V-stranding VPE' in which the finite lexical verb raises out of the (traditionally vP) ellipsis site to T, thereby escaping ellipsis. Therefore the only elements which are in fact elided in such instances are the arguments and prepositional phrases internal to the vP ellipsis site:[52]

(63) *A Ana não leva o computador para as aulas, pois*
the Ana not brings the computer to the classes, because
os amigos também não ***levam*** *[~~o computador para as aulas~~].*

[52] Cyrino & Matos (2002) and Raposo (1986) discuss diagnostics to disambiguate V-stranding VPE from (superficially-similar) null object constructions, demonstrating that Portuguese indeed exhibits VPE.

the friends too not bring the computer to the classes.
'Ana does not bring her computer to classes because her friends don't, either.' (Cyrino & Matos 2002:(9))

Interestingly, Cyrino & Matos (2002, 2005) have observed that lexical verbs inflected for progressive or passive morphology cannot escape VPE in EP, parallel to *being* in English:[53]

(64) *Ela está a.ler livros às crianças mas ele não está (***a.ler**)*
she is reading books to.the children but he not is reading
~~[livros às crianças]~~.
books to.the children.
'She is reading books to the children but he is not'.
(Cyrino & Matos 2005:(53))

(65) *O carro foi atribuído à Maria, mas os outros prémios não*
the car was given to.the Maria, but the other prizes not
foram (**atribuídos**) ~~[à Maria]~~.*
were given to.the Maria.
'The car was given to Maria, but the other prizes were not'.
(Cyrino & Matos 2002:(29))

If lexical verbs raise for inflectional purposes in EP, but are obligatorily elided under VPE when they have risen into the Voice or progressive aspectual layers for inflection, this suggests that these layers are targeted by VPE in EP. In other words, VPE in EP targets as much as the progressive aspectual layer, parallel to English. Indeed, Cyrino & Matos (2002) and Matos (2001) have claimed exactly this.

Most interesting of all, however, is the fact that lexical verbs inflected for perfect aspect are only optionally elided in EP, parallel to *been* in English:

(66) *Ela tem lido livros às crianças*,
she has read books to.the children,
*mas ele também tem (**lido**) ~~[livros às crianças]~~.*
but he too has read books to the children.
'She has read some books to the children, but he also has.'
(Cyrino & Matos 2002:(30)/(31))

[53] Cyrino & Matos (2002) note that stranding of the progressive and passive participles in (64) and (65) are permissible under an object drop interpretation. This, however, is a very different derivation from those involving ellipsis.

Since the lexical verb need not be elided when it has risen to the perfect aspectual layer for inflection, we conjecture that the perfect projections are not targeted by VPE in EP, once again parallel to English. In order to explain the optional ellipsis of the perfect participle we assume an optional raising account similar to the optional deletion of *been*: lexical verbs in EP overtly raise in the narrow syntax for inflectional feature checking. When the perfect participle is stranded by VPE in EP, it has risen out of the ellipsis site (which we take to be as large as the progressive layer) to Perf°, where it has its feature checked and escapes ellipsis. When the perfect participle is elided, however, it remains in the ellipsis site and has its feature deleted at PF by ellipsis, thereby rescuing the derivation.[54]

In sum, the data above appears to suggest that, parallel to English, VPE in EP targets the progressive aspectual layer and, more importantly, that the lexical verb, when inflected for perfect aspect, can either remain inside this ellipsis site and be deleted, or raise out of it and survive ellipsis. In other words, optional raising out of an ellipsis is a cross-linguistically attested phenomenon. A point for further research is to explore how widely attested this phenomenon is in natural language and to uncover how it is constrained.

9. Further issues

In this section we present some problematic issues that arise for our analysis and speculate about potential solutions to them. We first deal with instances in which *being* can apparently be stranded and then discuss the principle of economy.[55]

[54] In contrast to EP, progressive and passive participles actually behave similarly to the perfect participle in Brazilian Portuguese (BP): they are only optionally elided under VPE. Cyrino & Matos (2002) essentially analyse this as indicating that the identity of the ellipsis site in BP corresponds to a smaller unit of structure than in EP. Specifically, we are forced to conclude that only the projection of the lexical verb itself, VP, is targeted by VPE in BP and that the optional ellipsis of the progressive and passive participles, similar to the perfect participle, arises from optional raising of the lexical verb out of the ellipsis site.

[55] One more issue for our proposal, which we will not address at length here, involves voice mismatches under VPE. Merchant (2008a, 2013) notes that voice mismatches between antecedent and ellipsis clause are possible under ellipsis: the antecedent clause may be active, whilst the ellipsis clause bares passive voice, and vice versa. He accounts for this by claiming that VoiceP, encoding the passive or active status of the clause, is contained outside of the ellipsis site and is therefore not subject to the recoverability requirement of ellipsis (but see Nakamura 2013 for a contrasting view). The problem for our analysis is that VoiceP is always contained within the ellipsis site, whether that be vP or vP_{prog}. This implies that VoiceP should be subject to the identity condition, so we expect voice mismatches between the antecedent and the ellipsis clause to be illicit, contrary to fact.

However, the judgements on voice mismatches are more complex. Kehler (2002) and Merchant (2013) note that voice mismatches in VPE in English are only possible in very specific discourse contexts that strongly favour the mismatch reading and exclude the non-

9.1 Being *revisited*

The data presented in section 1 shows that *being* is, generally speaking, obligatorily elided under VPE. There is, however, a complication to this pattern. As observed by Quirk et al. (1975: 875) and Thoms (2012), the deletion of *being* is not as categorical as it at first sight seems. Sometimes *being* can remain pronounced in certain varieties of English:

(67) a. % Remember, always be respectful and courteous, even if the officer isn't **being**.[56]
b. % Otherwise you may have some integrity problems because the key that apparently should be enforced actually isn't **being**.

Does that mean that *being* is in fact optionally elided, just like *be* and *been*? We take this not to be the case: whereas ellipsis of *be* and *been* is really optional when they have an identical antecedent, (as in (68)a,b; see Lasnik 1995), *being* is obligatorily elided when it has an identical antecedent (cf. (68)c), but for some speakers can be stranded by ellipsis when its antecedent is non-identical, as in (67) above and (68)d below:

(68) a. Ted should **be** home, and Barney should (**be**), too.
b. Ted has **been** fired, and Barney has (**been**), too.
c. Ted was **being** punished this morning, and now Barney is (***being**).
d. % Ted was punished this morning, and now Barney is **being**.

In other words, *being* survives ellipsis if it is not recoverable from the antecedent, parallel to *be* and *been*, as shown in (25). If it is recoverable

---

mismatch reading (see also Arregui et al. 2006, Kim 1997, Nakamura 2013 and many others). It is possible that Voice is actually contained inside the ellipsis site but is recoverable in a restricted set of discourse contexts which are adequately set up to prime the mismatch reading, therefore momentarily allowing for a relaxation of the strict identity requirement (Thoms & Walkden 2013). We could then suggest that VoiceP is contained inside the ellipsis site, but that it can be recovered with a great deal of effort so long as enough clues are given by the discourse context as to the value of Voice. However, it should be clear that the debate on voice mismatches is still very much open, especially since – as an anonymous reviewer points out – this suggestion cannot account for the contrast in allowing voice mismatches between sluicing and VPE: in sluicing, such clues can still not make a mismatch acceptable (see Merchant 2013).

[56] We thank a colleague for providing the examples. The first sentence can be found on http://www.uer.ca/forum_showthread_archive.asp?fid=13&threadid=79988&currpage=2, and the second one on http://consultingblogs.emc.com/jacekn ieszporek/archive/2010/07/02/sql-server-and-unique-constrain-with-multiple-null-value-columns-part-ii.aspx.

however, it is obligatorily deleted, unlike *be* and *been*.[57] To the extent that the stranding of *being* in (68) is acceptable in some English varieties, there is a potential way to capture this fact, which we will very briefly sketch out here.[58,59]

One could claim that when *being* cannot be recovered, it raises beyond Prog° to a landing site that is external to the ellipsis site, as a last resort rescue operation. This would cause *being* to escape ellipsis and so it would not be subject to the recoverability condition (see Merchant 2001 among many others). However, an issue with this solution is what position *being* raises to in such instances. One potential position is the head of a low focus projection to the specifier of which arguments raise in pseudogapping constructions (see Gengel 2007a, 2008; Lasnik 1995a, 1999; among many others).

Of the alternative analyses reviewed in section 6, the only one which deals with the apparent stranding of *being* is that of Thoms (2012). We briefly discuss his approach. As mentioned in section 6.3, Thoms (2012) takes movement of the finite auxiliary to T° to be the licensor for VPE, and non-finite auxiliaries survive VPE by optionally cliticising to T°. *Being* normally does not move, and therefore does not survive ellipsis, but in these rather rare occasions when it does remain pronounced, Thoms claims that *being* cliticises to T° too. In this case the finite auxiliary bears extra stress to host the prosodically heavy *being* as a clitic.

However, there are some problems with this proposal. First of all, apart from it being quite an ad hoc stipulation to assume that *being* cliticises to T° (without any actual prosodic difference in the realisation of *being*), Thoms' (2012) proposal depends on the fact that the finite auxiliary in particular bears extra stress so as to host *being*. Although we do not want to deny that

---

[57] An apparent counterexample to our generalisation that *being* can only survive ellipsis when it is absent from the antecedent is the following:

(i) % If Ted wasn't being difficult, then who WAS (being)?

Being occurs in the antecedent and still it can survive VPE. Apparently, *being* can survive ellipsis in certain restricted contexts, such as in this specific construction with '*if…then*', and – as anonymous reviewers have pointed out – for some, but not all speakers also in comparative contexts as in (ii)a and the sentences in (ii)b-c. At this point we do not know how to analyse this data, as the judgements and the contexts which allow this are not clear.

(ii) a. % John was being louder than Mary was being.
b. % You already told me who WASN'T being difficult. Now tell me who WAS being.
c. % A: Stop being so difficult. – B: I didn't know I WAS being!

[58] Judgements regarding the stranding of *being* in environments in which the auxiliary otherwise cannot be recovered are rather unstable. Whilst some speakers accept it, others find such sentences degraded, and certain other speakers outright reject such sentences.

[59] An issue which faces this analysis is why *being* is able to survive ellipsis when it cannot be recovered, while the lexical verb can never survive ellipsis, whether it satisfies the recoverability condition or not.

prosody is at stake here, the finite auxiliary is not the only item that can bear such stress. In the sentence in (68)d, for instance, the finite auxiliary *is* preceding *being* is not contrasted; the subject is.

Secondly, both floating quantifiers (FQs) and associates from existential constructions can intervene between *being* and T°, as in (69). This casts doubt on the claim that *being* has cliticised to T°, unless one wants to assume that FQs and associates could also cliticise to T°. Given the particular emphasis on the associate, however, this seems unlikely.

(69) a.%Ted said they would all be arrested, and they ARE all **being**.
b.%Ted says there will be more men arrested tomorrow than there are <WOMEN> **being** now.

Thirdly, Thoms' (2012) approach has nothing to say about the fact that survival of *being* appears to be subject to recoverability conditions, as we have argued.

9.2 The Economy Principle

An anonymous reviewer raises the issue of optionality within the Minimalist Program. Due to Chomsky's (1991) principle Economy of Derivation, optionality is only allowed when two or more derivations are equally economical. Under these standard assumptions, our analysis faces a problem: we have two possible derivations in our discussion of the optional deletion of *be/been*, which only differ from each other in whether the auxiliary raises or stays in situ. Everything else is exactly the same. As movement is a costly operation, the derivation in which the auxiliary raises and checks its features should be less economical than the derivation in which the auxiliary stays in situ and lets ellipsis take care of the unchecked features. Therefore, derivations in which the auxiliary raises and survives ellipsis should be degraded, contrary to fact.

The reviewer proposes a potential solution in which the two derivations have in fact different numerations – e.g. the raising derivation has an additional feature that the in situ derivation lacks – and therefore are not identical. However, as the reviewer notes already, this kind of solution lacks all explanatory power, and we do not think that the best way to deal with this is to adapt the derivations so that they are no longer identical, or to try and ensure that the derivations are equally economical. We acknowledge that this is a problem for our analysis, but at the same time think the Economy Principle (as it currently stands) makes it almost impossible for the Minimalist Program to capture the optionality that is obviously present in natural language, and therefore that perhaps this principle should be revised, or be made less strict.

One potential solution might be to consider the Economy Principle to apply throughout the course of the derivation and to take into consideration also how long a feature is unchecked for, and hence remains problematic for the derivation. Concretely, in the raising derivation, the auxiliary moves up almost immediately and checks its feature. In the in-situ derivation, on the other hand, raising – which is a costly operation – does not take place. Therefore, the unchecked feature remains a problem for longer, i.e., until ellipsis takes care of it. This would put an additional burden on the derivation in a different way from the raising operation, namely, having to hold this unchecked – and hence problematic – feature in working memory for longer. This would make both derivations equally costly/economical, and therefore give way to optionality.

10. Conclusion

In conclusion, this paper accounts for the fact that, under VPE, modals, finite auxiliaries and perfect *have* can never be elided, *being* is standardly elided, and *be* and *been* are optionally elided. This was achieved by claiming that ellipsis targets as much as vP_{prog} (though less if progressive aspect is absent from the underlying derivation). We also assumed that auxiliaries uniformly raise in English to check uninterpretable (PF) inflectional features, and explained the relevant ellipsis data as follows: *being*'s base position and landing site are both contained within the ellipsis site; *have* is base-generated outside of the ellipsis site; *be* and *been*'s base positions are inside the ellipsis site, but they raise out. Their optional deletion comes down to optional raising: they either raise out of the ellipsis site to check their features and survive ellipsis, or they remain inside the ellipsis site and have their features deleted at PF by ellipsis. This option is not available to *be* and *been* under fronting phenomena however, since no ellipsis occurs to delete their unchecked features.

Acknowledgements

This research was funded by the FWO project 'Comparative Syntax: layers of structure and the cartography' (FWO 2009-Odysseus grant- G091409) and the UGent BOF project BOF13/PDO/001. We would like to thank our GIST colleagues Liliane Haegeman, Anne Breitbarth, Rachel Nye, Karen De Clercq, Amélie Rocquet, Lieven Danckaert, Aleksandra Vercauteren, Liisa Buelens, Tijs D'Hulster and Eric Lander for their comments and suggestions, as well as Jeroen van Craenenbroeck, Gary Thoms, Craig Sailor, Jason Merchant, Kyle Johnson, Howard Lasnik, Anikó Lipták and three anonymous reviewers for their helpful advice, along with audiences at the May 2013 Edinburgh workshop on ellipsis, the Leiden Syntax Circle, UCL London, the Vigo ellipsis conference, CLS49, NRFL Manchester 2012, SWIGG 12 and TIN-Dag 2013. All errors are our own.

References

Abney, Steven. 1987. *The English Noun Phrase and its Sentential Aspect*. Doctoral dissertation, MIT.

Aboh, Enoch. 2005. Object shift, verb movement and verb reduplication. In Guglielmo Cinque & Richard Kayne (eds.), *The Oxford handbook of comparative syntax*. 138- 177. New York: OUP.

Adger, David. 2003. *Core Syntax*. Oxford: Oxford University Press.

Aelbrecht, Lobke. 2010. The Syntactic Licensing of Ellipsis. Amsterdam: John Benjamins.

Aelbrecht, Lobke. 2012a. Movement or ellipsis: What's the difference?! Ms. Ghent University.

Aelbrecht, Lobke. 2012b. What ellipsis can do for phases and what it can't, but not how. Talk presented at *Ellipsis Conference*, Vigo University.

Aelbrecht, Lobke & Liliane Haegeman. 2012. VP ellipsis is not licensed by VP Topicalization. *Linguistic Inquiry* 43(4).

Aelbrecht, Lobke & Marcel den Dikken. 2013. Preposition doubling in Flemish and its consequences for the syntax of Dutch PPs. *Journal of Comparative Germanic Linguistics.*

Aissen, Judith. 1975. Presentational *there*-insertion: a cyclic root transformation. *Proceedings of CLS* 11, 1-14.

Akmajian, Adrian & Thomas Wasow. 1975. The constituent structure of VP and AUX and the position of BE. *Linguistic Analysis* 1, 205-245.

Akmajian, Adrian, Susan Steele & Thomas Wasow. 1979. The category AUX in Universal Grammar. *Linguistic Inquiry* 10, 1-64.

Ambar, Manuela. 1987. Flutuação do quantificador e subida da flexão. *Actas do III Encontro Nacional da Associação Portuguesa de Linguística*, 17-38. Lisboa: APL.

Ambar, Manuela. 1989. Sobre a posição do sujeito, movimento do verbo e estrutura da frase. *Actas do V Encontro Nacional da Associação Portuguesa de Linguística*, 369-399. Lisboa: APL.

Ambar, Manuela, Manuela Gonzaga & Esmaralda Negrão. 2004. Tense, quantification and clause structure in EP and BP: evidence from a comparative study on Sempre. In Reineke Bok-Bennema, Bart Hollebrandse, Brigitte Kampers-Manhe and Petra Sleeman (eds.), *Romance Languages and Linguistic Theory 2002*, 1-16. Amsterdam: John Benjamins.

Arregui, Ana, Clifton, Charles, Frazier, Lyn and Keir Moulton. 2006. Processing elided VPs with flawed antecedents: the recycling hypothesis. *Journal of Memory and Language 55*(2), 232-246.

1615 Baker, Mark. 1997. Thematic Roles and Syntactic Structure. In Liliane
1616 Haegeman (ed.), *Elements of Grammar,* 73-137. Dordrecht: Kluwer.
1617 Baker, Mark. 2003. Building and Merging, not Checking: the nonexistance of
1618 (Aux)-S-V-O languages. *Linguistic Inquiry* 33, 321-329.
1619 Baker, Mark C. 2008. *The Syntax of Agreement and Concord*. Cambridge
1620 University Press.
1621 Baltin, Mark. 2012. Deletion versus pro-forms: an overly simple dichotomy?
1622 *Natural Language and Linguistic Theory* 30. 381-423.
1623 Benveniste, Émile. 1966. *Problèmes de linguistique générale*. Paris:
1624 Gallimard.
1625 Bjorkman, Bronwyn. 2011. BE-ing default: The morphosyntax of auxiliaries.
1626 PhD dissertation, MIT.
1627 Blom, Alied & Saskia Daalder. 1977. *Syntaktische theorie en taalbeschrijving*.
1628 Muiderberg: Coutinho.
1629 Bobaljik, Jonathan & Susi Wurmbrand. 2005. The domain of agreement.
1630 *Natural Language and Linguistic Theory* 23. 809-865.
1631 Bošković, Željko. 2004. Be careful where you float your quantifiers. *Natural*
1632 *Language and Linguistic Theory* 22. 681-742.
1633 Bošković, Željko. 2007. On the locality and motivation of Move and Agree: An
1634 even more minimal theory. *Linguistic Inquiry* 38. 589-644.
1635 Bošković, Željko. 2014. Now I'm a phase, now I'm not a phase: On the
1636 variability of phases with extraction and ellipsis. *Linguistic Inquiry*.
1637 Bošković, Željko. To appear. Phases beyond clauses. In Lilia Schürcks,
1638 Anastasia Giannakidou, Urtzi Etxeberria and Peter Kosta (eds.), *Nominal*
1639 *Constructions in Slavic and Beyond*. De Gruyter.
1640 Bowers, John. 1993. The syntax of predication. *Linguistic Inquiry* 24:591-656.
1641 Bowers, John. 2001. Predication. In Mark Baltin & Chris Collins (eds.), *The*
1642 *Handbook of Contemporary Syntactic Theory*, 299-333. Oxford: Blackwell.
1643 Bowers, John. 2002. Transitivity. *Linguistic Inquiry* 33. 183-224.
1644 Branigan, Phil. 2005. The phase theoretic basis for subject-aux inversion. Ms.
1645 Memorial University.
1646 Bresnan, Joan. 1976. The form and functioning of transformations. *Linguistic*
1647 *Inquiry* 7, 3-40.
1648 Brito, Ana Maria. 2001. Clause structure, subject positions and verb
1649 movement: about the position of Sempre in European Portuguese and
1650 Brazilian Portuguese. In Yves D'Hulst (ed.), *Romance Languages and*
1651 *Linguistic Theory 1999*: *selected papers from "Going Romance"*. 63-85.
1652 Caponigro, Ivano & Carson T. Schütze. 2003. Parameterizing passive
1653 participle movement. *Linguistic Inquiry* 34(2).
1654 Chomsky, Noam. 1970. Remarks on nominalization. In Roderick Jacobs &
1655 Peter Rosenbaum (eds.), *Readings in English Transformational Grammar*.
1656 Waltham, MA: Blaisdell.

1657 Chomsky, Noam. 1993. A Minimalist Program for Linguistic Theory. In Ken
1658 Hale & S. Jay Keyser (eds.), *The View from Building 20: Essays in*
1659 *Linguistics in Honor of Sylvain Bromberger*. Cambridge: MIT Press.
1660 Chomsky, Noam. 1995. *The Minimalist Program*. Cambridge MA: MIT Press.
1661 Chomsky, Noam. 2000. Minimalist inquiries. In Roger Martin, David Michaels
1662 & Juan Uriagereka (eds.), *Step by step*, 89-155. Cambridge: MIT Press.
1663 Chomsky, Noam. 2001. Derivation by phase. In Michael Kenstowicz (ed.),
1664 *Ken Hale: A life in language*. Cambridge: MIT Press.
1665 Chomsky, Noam. 2005. On phases. In Robert Freidin, Carlos P. Otero, and
1666 Maria Luisa Zubizarreta (eds.), *Foundational Issues in Linguistic Theory:*
1667 *essays in honor of Jean Roger Vergnaud*. Cambridge, MA: MIT Press. 133-
1668 166.
1669 Cinque, Guglielmo. 1999. *Adverbs and Functional Heads: A Cross-Linguistic*
1670 *Perspective*. Oxford: Oxford University Press.
1671 Costa, João. 1998. *Word order variation: a constraint-based approach*.
1672 Doctoral dissertation, Leiden University.
1673 Costa, João. 2004. A multifactorial approach to adverb placement:
1674 assumptions, facts, and problems. *Lingua* 114. 711–753.
1675 Costa, João, Charlotte Galves. 2002. External subjects in two varieties of
1676 Portuguese: evidence for a non-unified analysis. In Frank Drijkoningen,
1677 Claire Beyssade, Paola Monachesi and Reineke Bok-Bennema (eds.),
1678 *Proceedings of Going Romance 2000*. Amsterdam/Philadelphia: John
1679 Benjamins.
1680 van Craenenbroeck, Jeroen. 2010. *The Syntax of Ellipsis: evidence from*
1681 *Dutch dialects*. New York: OUP.
1682 van Craenenbroeck, Jeroen and Marjo van Koppen. 2012. How to void a
1683 phase: Anti-intervention effects with clitic doubling in Dutch dialects. Paper
1684 presented at the Complementizer Agreement Workshop, 17 October 2012,
1685 Ghent University.
1686 Cyrino, Sonia. 2011. On richness of tense and verb movement in Brazilian
1687 Portuguese. Paper presented at the *21st Colloquium on Generative*
1688 *Grammar*.
1689 Cyrino, Sonia & Gabriella Matos. 2002. VP ellipsis in European and Brazilian
1690 Portuguese - a comparative analysis. *Journal of Portuguese Linguistics* 1.
1691 177-195.
1692 Cyrino, Sonia & Gabriella Matos. 2005. Local licensers and recovering in VP
1693 ellipsis. *Journal of Portuguese Linguistics* 4. 79-112.
1694 Deal, Amy. 2009. The origin and content of expletives: evidence from
1695 "selection". *Syntax* 12.
1696 Declerck, Ranaat. 1988. *Studies on Copular Sentences, Clefts and Pseudo-*
1697 *Clefts*. Leuven: Leuven University Press/Foris Publications.
1698 Dikken, Marcel den. 1995. Copulas. Ms. Vrije Universiteit Amsterdam/HIL.

1699 Dikken, Marcel den. 2006. Specificational copular sentences and pseudo-
1700 clefts. In Martin Everaert and Henk van Riemsdijk, eds., *The Blackwell*
1701 *companion to syntax,* 4. Blackwell.
1702 Eide, Kristin & Tor Åfarli. 1997. A predication operator: evidence and effects.
1703 Ms, NTNU.
1704 Einarsson, Stefán. 1945. *Icelandic: grammar, texts, glossary*. Baltimore: The
1705 John Hopkins Press.
1706 Emonds, Joseph. 1976. *A transformational approach to English syntax.* New
1707 York: Academic Press.
1708 Emonds, Joseph. 1978. The verbal complex V'-V in French. *Linguistic Inquiry*
1709 21. 49- 77.
1710 Fitzpatrick, Justin. 2006. Deletion through Movement. *Natural Language and*
1711 *Linguistic Theory* 24. 399-431.
1712 Fowlie, Meaghan. 2010. More multiple multiple spell-out. In *Proceedings of*
1713 *GLOW 31: principles of linearisation workshop*. Berlin: Mouton de Gruyter.
1714 Fox, Danny & David Pesetsky. 2003. Cyclic linearisation and the typology of
1715 movement. Ms. MIT.
1716 Fox, Danny & David Pesetsky. 2005. Cyclic linearization of syntactic structure.
1717 *Theoretical Linguistics* 31. 1-45.
1718 Freeze, Ray. 1992. Existentials and other locatives. *Language* 68. 553-595.
1719 Funakoshi, Kenshi. 2012. On Headless XP-Movement/Ellipsis. *Linguistic*
1720 *Inquiry* 43(4).
1721 Gallego, Ángel. 2010. *Phase Theory*. Amsterdam: John Benjamins.
1722 Galves, Charlotte. 1994. V-movement, levels of representation and the
1723 structure of S. *Letras de Hoje* 96. 35-58.
1724 Galves, Charlotte. 2001. *Ensaios Sobre as Gramáticas do Português*.
1725 Campinas: Editora da Unicamp.
1726 Gengel, Kirsten. 2007a. *Focus and Ellipsis: A Generative Analysis of*
1727 *Pseudogapping and other Elliptical Structures.* PhD dissertation, University
1728 of Stuttgart.
1729 Gengel, Kirsten. 2007b. Phases and ellipsis. In Emily Elfner and Martin
1730 Walkow, (eds.), *Proceedings of the 37th meeting of the North East Linguistic*
1731 *Society.* University of Massachusetts, Amherst: GLSA. 233-246.
1732 Gengel, Kirsten. 2008. Phases and ellipsis. *Linguistic Analysis* 35. 21-42.
1733 Goldberg, Lotus. 2005. *Verb-Stranding VP Ellipsis: cross-linguistic study*.
1734 Doctoral dissertation, McGill University.
1735 Grimshaw, Jane. 2000. Locality and extended projection. In Peter Coopmans,
1736 Martin Everaert and Jane Grimshaw, (eds.), *Lexical specification and*
1737 *insertion*, 115-133. Amsterdam/Philadelphia: John Benjamins.
1738 Grimshaw, Jane. 2005. *Words and Structure*. Chicago: CSLI Publications.

1739 Haddican, William. 2007. The structural deficiency of verbal pro-forms.
1740 *Linguistic Inquiry* 38. 539-547.
1741 Haegeman, Liliane. 2008. Prenominal possessors and predicate inversion in
1742 the West Flemish DP. Paper presented at CASTL Research Center,
1743 University of Tromsø.
1744 Haegeman, Liliane, and Terje Lohndal. 2010. Negative concord and (multiple)
1745 agree: a case study of West Flemish. *Linguistic Inquiry* 41. 181–211.
1746 Hartman, Jeremy. 2011. The semantic uniformity of traces: evidence from
1747 ellipsis parallelism. *Linguistic Inquiry* 42. 367-388.
1748 Harwood, William. 2011. Phasage: a phase based account of English
1749 existential constructions. *Proceedings of SICOGG 13*.
1750 Harwood, William. 2013. *Being Progressive Is Just A Phase: dividing the*
1751 *functional hierarchy*. Doctoral dissertation, Ghent University.
1752 Harwood, William. 2014a. Being progressive is just a phase: celebrating the
1753 uniqueness of progressive aspect under a phase-based analysis. *Natural*
1754 *Language and Linguistic Theory*. 10.1007/s11049-014-9267-3
1755 Harwood, William. 2014b. Rise of the Auxiliaries: A Case for Auxiliary Raising
1756 vs. Affix Lowering. *The Linguistic Review* 31. 295-362.
1757 Heggie, Lorie. 1988. The Syntax of Copular Structures. PhD dissertation,
1758 University of Southern California.
1759 Heycock, Caroline. 1994. The internal structure of small clauses. *Proceedings*
1760 *of NELS 25*, 223-38. Amherst: GLSA.
1761 Heycock, Caroline & Anthony Kroch. 1999. Pseudocleft Connectivity:
1762 Implications for the LF Interface. *Linguistic Inquiry* 30(3), 365-397.
1763 Higgins, Francis Roger. 1979. *The Pseudo-Cleft Construction in English*. New
1764 York: Garland.
1765 Holmberg, Anders. 1999. Yes and No in Finnish: ellipsis and cyclic spell-out.
1766 *MIT Working Papers in Linguistics* 33.
1767 Holmberg, Anders. 2001. The syntax of Yes and No in Finnish. *Studia*
1768 *Linguistica* 55. 140-174.
1769 Hooper, Joan & Sandra Thompson. 1973. On the applicability of root
1770 transformations. *Linguistic Inquiry* 4: 465-497.
1771 Huddleston, Rodney & Geoffrey Pullum. 2002. The Cambridge Grammar of
1772 the English Language. Cambridge: Cambridge University Press.
1773 Hudson, Richard. 2003. Gerunds without phrase structure. *Natural Language*
1774 *and Linguistic Theory* 21. 579-615.
1775 Iatridou, Sabine, Elena Anagnostopoulou & Roumyana Izvorski. 2001. Some
1776 observations about the form and meaning of the perfect. In Michael
1777 Kenstowicz, (ed.), *Ken Hale: a life in language*. Cambridge, MA: MIT Press.
1778 189–238.
1779 Iatridou, Sabine & Hedde Zeijlstra. 2012. Negation, polarity and deontic
1780 modals. *Linguistic Inquiry*.

1781 Iwakura, Kunihiro. 1977. The auxiliary system in English. *Linguistic Analysis* 3.
1782 101-136.
1783 Johnson, Kyle. 1988. Verb raising and “have”. *McGill Working Papers in*
1784 *Linguistics* 6: *special issue on comparative Germanic syntax*. 156-167.
1785 Johnson, Kyle. 2001. What VP-ellipsis can do, and what it can’t, but not why.
1786 In Mark Baltin & Chris Collins (eds.), *The handbook of contemporary*
1787 *syntactic theory*, 439-479. Oxford/Boston: Blackwell.
1788 Johnson, Kyle. 2004. How to be Quiet. In Nikki Adams, Adam Cooper, Fey
1789 Parrill & Thomas Wier (eds.), *Proceedings from the 40th Annual Meeting of*
1790 *the Chicago Linguistics Society*, 1-20.
1791 Julien, Marit. 2002. Optional *ha* in Swedish and Norwegian. *Journal of*
1792 *Comparative Germanic Linguistics* 5. 67-95.
1793 Kaisse, Ellen M. 1983. The syntax of auxiliary reduction in English. *Language*
1794 59(1). 93-122.
1795 Kayne, Richard. 1989. Notes on English Agreement. Ms, CUNY Graduate
1796 Center.
1797 Kayne, Richard. 1993. Toward a modular theory of auxiliary selection. *Studia*
1798 *Linguistica*, 47. 3-31.
1799 Kayne, Richard. 1997. The English complementizer *of*. *The Journal of*
1800 *Comparative Germanic Linguistics* 1. 43-54.
1801 Kehler, Andrew. 2002. *Coherence, reference, and the theory of grammar*.
1802 Stanford, CA: CSLI.
1803 Kim, Jeong-Seok. 1997. Syntactic focus movement and ellipsis: A Minimalist
1804 approach. PhD dissertation, University of Connecticut.
1805 Kim, Jong-Bok. 2003. Negation, VP ellipsis and VP fronting in English. A
1806 construction HPSG analysis. *The Korean Generative Grammar Circle*. 271-
1807 282.
1808 King, Harold V. 1970. On blocking the rule for contraction in
1809 English. *Linguistic Inquiry* 1. 134-136.
1810 Koopman, Hilda. 2010. Prepositions, postpositions, circumpositions, and
1811 particles. In Guglielmo Cinque and Luigi Rizzi, (eds.), *Mapping Spatial PPs:*
1812 *the cartography of syntactic structures, vol. 6*. Oxford: Oxford University
1813 Press.
1814 Kratzer, Angelika. 1996. Severing the external argument from its verb. In
1815 Johan Rooryck and Laurie Zaring, (eds.), *Phrase Structure and the Lexicon*.
1816 109-137. Dordrecht: Kluwer.
1817 Lasnik, Howard. 1995a. A note on pseudogapping. *Papers on Minimalist*
1818 *Syntax*, *MIT Working Papers in Linguistics* 27. 143-163.
1819 Lasnik, Howard. 1995b. Verbal morphology: Syntactic Structures meets the
1820 minimalist program. In Hector Campos & Paula Kempchinsky (eds.),
1821 *Evolution and Revolution in Linguistic Theory: Essays in Honor of Carlos*
1822 *Otero*, 251-275. Georgetown University.

1823 Lasnik, Howard. 1999. Pseudogapping puzzles. In Shalom Lappin and
1824 Elabbas Benmamoun (eds.), *Fragments: Studies in Ellipsis and Gapping*,
1825 141-174. Oxford University Press.
1826 Lasnik, Howard. 2001. When can you save a structure by destroying it? In
1827 Minjoo Kim & Uri Strauss (eds.), *Proceedings of the North East Linguistics*
1828 *Society* 31, 301-320. GLSA.
1829 Law, Paul. 1999. On the passive existential constructions. *Studia Linguistica*
1830 53.183–208.
1831 Lechner, Winfried. 2006. An interpretive effect of head movement. In Mara
1832 Frascarelli (ed.), *Phases of interpretation*, 45-70. Berlin/New York: Mouton
1833 de Gruyter.
1834 Legate, Julie Anne. 2003. Some interface properties of the phase. *Linguistic*
1835 *Inquiry* 34. 506-515.
1836 Lobeck, Anne. 1987. *Syntactic Constraints on VP Ellipsis.* PhD Dissertation,
1837 Indiana University.
1838 Lobeck, Anne. 1995. *Ellipsis: Functional Heads, Licensing and Identification*.
1839 Oxford: Oxford University Press.
1840 Lockwood, William Burley. 1977. *An Introduction to Modern Faroese*.
1841 Tórshavn: Føroya Skúlabókagrunnar.
1842 López, Luis. 2009. A Derivational Syntax for Information Structure. Oxford
1843 University Press: Oxford.
1844 Malouf, Robert. 1998. *Mixed Categories in the Hierarchical Lexicon*. Doctoral
1845 dissertation. Stanford University.
1846 Matos, Gabriella. 2001. Negative concord and the minimalist approach. In
1847 Yves d'Hulst, Johan Rooryck and Jan Schroten (eds.), *Romance*
1848 *Languages and Linguistic Theory* 1999. Amsterdam: John Benjamins. 245-
1849 280.
1850 Matos, Gabriella & Sonia Cyrino. 2001. Elipse de VP no Português Europeu e
1851 no Português Brasileiro. *Boletim da Abralin* 26. 386-390.
1852 Matushanksy, Ora. 2006. Head-movement in linguistic theory. *Linguistic*
1853 *Theory* 37. 69-109.
1854 McNally, Louise. 1992. An interpretation for the English existential
1855 construction. PhD Dissertation, University of California, Santa Cruz.
1856 Merchant, Jason. 2001. *The syntax of silence. Sluicing, islands and the theory*
1857 *of ellipsis*. Oxford: Oxford University Press.
1858 Merchant, Jason. 2004. Towards a taxonomy of elliptical repair. Paper
1859 presented at the Workshop on morphosyntax. Universidad Nacional del
1860 Comahue, Buenos Aires.
1861 Merchant, Jason. 2008a. An asymmetry in voice mismatches in VP-ellipsis
1862 and pseudogapping. *Linguistic Inquiry* 39(1). 169-179.
1863 Merchant, Jason. 2008b. Variable island repair under ellipsis. In Kyle Johnson
1864 (ed.), *Topics in ellipsis,* 132–153. Cambridge: Cambridge University Press.

1865 Merchant, Jason. 2011. Aleut case matters. In Etsuyo Yuasa Yuasa, Tista
1866 Bagchi, and Katharine P. Beals, (eds.), *Pragmatics and Autolexical*
1867 *Grammar: in honor of Jerry Sadock*. 382–411. Amsterdam: John
1868 Benjamins.
1869 Merchant, Jason. 2013. Voice and ellipsis. *Linguistic Inquiry* 44. 77-108.
1870 Milsark, Gary. 1974. Existential sentences in English. PhD dissertation, MIT.
1871 Modesto, Marcello. 2000. *On the Identification of Null Arguments*. PhD
1872 Dissertation, University of Southern California.
1873 Moro, Andrea. 1997. *The raising of predicates: predicative noun phrases and*
1874 *the theory of clause structure*. Cambridge: Cambridge University Press.
1875 Müller, Gereon. 2011. *Constraints on Displacement. A Phase-Based*
1876 *Approach*. Amsterdam: John Benjamins.
1877 Nakamura, Taichi. 2013. Voice mismatches in sloppy VP-Ellipsis. *Linguistic*
1878 *Inquiry 44*, 519-528.
1879 Nunes, Jairo and Cynthia Zocca. 2005. Morphological identity in ellipsis. In
1880 Noureddine Elouazizi, Frank Landsbergen, Mika Poss and Martin
1881 Salzmann (eds.), *Leiden Papers in Linguistics*, 29-42. Leiden: Leiden
1882 University.
1883 Nunes, Jairo and Cynthia Zocca. 2009. Lack of morphological identity and
1884 ellipsis resolution in Brazilian Portuguese. In Jairo Nunes (ed.), *Minimalist*
1885 *Essays on Brazilian Portuguese Syntax*, 215-236. Amsterdam/Philadelphia:
1886 John Benjamins.
1887 Phan, Trang. 2013. Syntax of Vietnamese Aspect. PhD Dissertation,
1888 University of Sheffield.
1889 Pollock, Jean-Yves. 1989. Verb movement, universal grammar, and the
1890 structure of IP. *Linguistic Inquiry* 20. 365-424.
1891 Potsdam, Eric. 1997. English Verbal Morphology and VP Ellipsis. In *The*
1892 *Proceedings of the 27th Meeting of the North East Linguistic Society*: 353-
1893 368. Amherst, Ma: GLSA, University of Massachusetts.
1894 Pullum, Geoffrey K. 1997. The morpholexical nature of English *to*-
1895 contraction. *Language* 73, 79-102.
1896 Quirk, Randolph, Sidney Greenbaum, Geoffrey Leech & Jan Svartik. 1972. *A*
1897 *Grammar of Contemporary English*. London: Seminar Press.
1898 Ramchand, Gillian & Peter Svenonius 2013. Deriving the functional hierarchy.
1899 Ms. University of Tromsø.
1900 Raposo, Eduardo. 1986. On the null object in European Portuguese. In
1901 Osvaldo Jaeggli and Carmen Silva-Corvalán (eds.), *Studies in Romance*
1902 *Linguistics*. Dordrecht: Foris.
1903 Rezac, Milan. 2006. The interaction of Th/Ex and locative inversion. *Linguistic*
1904 *Inquiry* 37(4).
1905 Richards, Marc. 2011. Deriving the edge: what's in a phase? *Syntax* 14. 74-
1906 95.

1907 Rizzi, Luigi. 1990. *Relativized Minimality*. MIT Press.
1908 Roberts, Ian. 1990. Some Notes on VP-Fronting and Head-Government. In
1909 Javier Mascarò & M. Nespor (eds), *Progress in Grammar: A Festschrift for*
1910 *Henk van Riemsdijk*, 387-396. Dordrecht: Foris.
1911 Roberts, Ian. 1998. *Have/be* raising, move F, and procrastinate. *Linguistic*
1912 *Inquiry* 29, 113-125.
1913 Roberts, Ian. 2010a. *Agreement and Head Movement: clitics, incorporation,*
1914 *and defective goals*. Cambridge, MA: MIT Press.
1915 Roberts, Ian. 2010b. A deletion analysis of null subjects. In Theresa
1916 Biberauer, Anders Holmberg, Ian Roberts, and Michele Sheehan (eds.),
1917 *Parametric Variation: null subjects in minimalist theory*. Cambridge:
1918 Cambridge University Press. 58-87.
1919 Ross, John. 1969. Auxiliaries as main verbs. In William Todd (ed.), *Studies in*
1920 *philosophical linguistics* (Series 1). Evanston, IL: Great Expectations Press.
1921 Rouveret, Alain. 2006. VP ellipsis in phasal syntax: the case of Welsh. Ms,
1922 Université Paris-Diderot and Laboratoire de Linguistique Formelle, CNRS.
1923 Rouveret, Alain. 2011. Hallmarks of Portuguese syntax. In Laura Brugé, Anna
1924 Cardinaletti, Giuliana Giusti, Nicola Munaro and Cecilia Poletto (eds.), *A*
1925 *festschrift for Guglielmo Cinque*. Oxford: Oxford University Press.
1926 Rouveret, Alain. 2012. VP ellipsis, the vP phase and the syntax of
1927 morphology. *Natural Language and Linguistic Theory* 30. 897-963.
1928 Sag, Ivan. 1976. Deletion and Logical Form. PhD dissertation, MIT.
1929 Sailor, Craig. 2009. Tagged for Deletion: A Typological Approach to VP
1930 Ellipsis in Tag Questions. Ma thesis, UCLA.
1931 Sailor, Craig. 2012. Inflection at the interface. Ms. UCLA.
1932 Samko, Bern. 2014. Participle Preposing. Ms. UCSC.
1933 Steele, Susan. 1981. *An Encyclopedia of Aux*. Cambridge: MIT Press.
1934 Svenonius, Peter. 2004. On the edge. In David Adger, Cécile de Cat &
1935 George Tsoulas (eds.), *Syntactic Edges and their Effects*. Dordrecht:
1936 Kluwer. 261-287.
1937 Svenonius, Peter. 2005. Extending the extension condition to discontinuous
1938 idioms. *Linguistic Variation Yearbook* 5. 227-263.
1939 Takahashi, Shoichi & Danny Fox. 2005. MaxElide and the re-binding problem.
1940 *Semantics and Linguistic Theory* 15: 223-240.
1941 Taraldson, Tarald. 1984. Some phrase structure dependent differences
1942 between Swedish and Norwegian. *Working Papers in Scandinavian Syntax*
1943 9. 1-45.
1944 Tenny, Carol L. 1987. *Grammaticalizing aspect and affectedness*. Doctoral
1945 dissertation, MIT.
1946 Tescari, Aquiles Neto. 2013. *On Verb Movement in Brazilian Portuguese: a*
1947 *cartographic study*. Doctoral dissertation, Università Ca'Foscari Venezia.

Thoms, Gary. 2011. Verb-floating and VPE: towards a movement account of ellipsis licensing. *Linguistic Variation Yearbook 2011*.

Thoms, Gary. 2012. Towards a movement theory of ellipsis licensing. Paper presented at UiLOTS, Utrecht.

Thoms, Gary & George Walkden. 2013. VP preposing without remnant movement. Paper presented at the *2nd Cambridge Comparative Syntax Conference*.

Verheugd, Els. 1990. *Subject Arguments and Predicate Nominals: a study of French copular sentences with two NPs*. Amsterdam: Rodopi.

Warner, Anthony R. 1986. Ellipsis Conditions and the Status of the English Copula. *York Papers in Linguistics* 12. 153-172.

Wexler, Kenneth. 1994. Optional Infinitives, Head Movement, and the Economy of Derivations. In David Lightfoot & Norbert Hornstein (eds.), *Verb Movement*. Cambridge: Cambridge University Press.

Williams, Edwin. 1984. There-insertion. *Linguistic Inquiry* 15. 131–153.

Wurmbrand, Susi. 2011. On Agree and Merge: lecture notes. University of Connecticut. http://wurmbrand.uconn.edu/Papers/Agree(ment).pdf

Wurmbrand, Susi. 2012a. The syntax of valuation in auxiliary-participle constructions. In *Coyote Working Papers: Proceedings of the 29th West Coast Conference on Formal Linguistics*. University of Arizona, Tucson.

Wurmbrand, Susi. 2012b. Seminar on Agree, Merge & Phasehood. University of Connecticut.

Wurmbrand, Susi. To appear. QR and selection: covert evidence for phasehood. In Stefan Keine and Shayne Sloggett, (eds.), Proceedings of the North Eastern Linguistics Society Annual Meeting 42. Amherst: University of Massachusetts, GLSA.

Zagona, Karen. 1982. Government and proper government of verbal projections. PhD dissertation, University of Washington.

Zagona, Karen. 1988. *Verb Phrase Syntax: a Parametric Study of Spanish and English*. Dordrecht: Kluwer.

Zeijlstra, Hedde. 2008. Negative concord is syntactic agreement. Ms. University of Amsterdam.

Zeijlstra, Hedde. 2010. There is only one way to agree. Talk given at GLOW 33, Wroclaw, Poland.

Zeijlstra, Hedde. 2011. On the uninterpretability of interpretable features. Paper presented at the University of Potsdam, October 2011.

Zwicky, Arnold M. 1970. Auxiliary reduction in English. *Linguistic Inquiry* 1(3). 323-336.