To be or not to be elided: VP ellipsis revisited

Abstract

The main question of this paper is: what happens to nonfinite 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: infinitival *have* always stays overt, while auxiliary *being* is obligatorily elided. Infinitival *be* and perfect *been* are optionally elided. We provide an analysis for this pattern.

As preliminaries for our account we develop the following view on verbal inflections in English. Following Adger (2003), Bjorkman (2011) and Lasnik (1995b) we assume that auxiliaries carry uninterpretable inflectional features. Moreover, we take this to force the auxiliary to raise to the relevant inflectional head (T°, Inf°, Perf° or Prog°) for feature checking. This implies that the finite auxiliary surfaces in T° and *have* and *be* in Inf°. The form *been* surfaces in Perf°, and *being* in Prog°.

As we claim – supported by evidence from aspectual mismatches, existential constructions and idioms in English, and VPE in Taiwanese – 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, and *being*'s landing site Prog° is inside of it. 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 position, with their unchecked features, avoiding the PF violation.

We extend this account to other phenomena, such as VP fronting, tag questions and pseudo-clefts. Furthermore, we speculate that the progressive projections are in fact part of the predicational chunk of the clause. This implies that the target of VPE can be characterised as the highest predicate projection of the clause, which makes VPE actually predicate ellipsis.

1. Introduction: the puzzle

In English VPE it is quite clear that finite auxiliaries cannot be elided, as (1)a,b illustrates. This is why it has been assumed that either auxiliaries or finite T act as the licensor for VPE. The lexical verb in English, on the other hand, irrespective of its inflection, cannot survive ellipsis, unlike with Verb-stranding VPE in languages such as Portuguese (see Cyrino & Matos 2005). Even when finite, the English lexical verb is still elided under VPE, leading to insertion of the finite dummy auxiliary *do*, see (1)c,d.

(1) a. An elephant can't fly, but maybe a rhino *(could) [~~fly~~].[1]

b. I thought the auxiliary hadn't disappeared, but it *(had) [~~disappeared~~].

c. * The auxiliary didn't disappear today, but the verb disappeared [~~today~~].

d. The auxiliary didn't disappear, but the verb did [~~disappear~~].

But what happens to nonfinite 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 (2).

[1] We indicate a VP ellipsis site with strike-through. This notation is mainly used here for clarity, although our approach does adopt a PF deletion analysis of VPE.

(2) He could have been being arrested.

→ finite modal > perfect *have* > progressive *be* > passive *be* > lexical verb

Sag (1976) and Akmajian & Wasow (1975) observed that when we apply VPE to such an auxiliary hierarchy, a peculiar pattern emerges in which not all auxiliaries behave alike. Perfect *have* cannot be elided under any circumstance, see (3).

(3) The pizza guy should have called, and the governor should *(have) [~~called~~] too.[2]

Auxiliary *be*, on the other hand, displays optionality, whether it is passive *be* or copular *be*. It can either be included in the ellipsis or remain untouched, see (4). The same holds for the

[2] Akmajian, Steele & Wasow (1979) and Thoms (2011), however, assume that the non-finite perfect auxiliary *have* can in fact be elided:

(i) Rab might have been fired, and Morag might too. (Thoms 2011:21, example 39a)

Wurmbrand (2012), on the other hand, has pointed out that in such sentences a mismatch interpretation is available in which perfect aspect and the perfect auxiliary are altogether absent from the elided constituent:

(ii) Rab might have been fired, and Morag might [~~be fired~~] too.

She suggests that this is in fact the only interpretation available and that the reading in which perfect aspect and the perfect auxiliary are present within the ellipsis site is illicit. Therefore, the apparent ellipsis of auxiliary *have* can be reduced to a simple case of aspectual mismatch.

Further evidence suggesting that the perfect auxiliary cannot be elided arises from the following:

(iii) John may have been to Rome.

This construction is dependant upon perfect aspect. Without it, the sentence is illicit:

(iv) a. * John might be to Rome.
b. * John was being to Rome.
c. * John was to Rome.

Therefore, if ellipsis is applied to a construction similar to that in (iii), there is no chance of a mismatch interpretation interfering. That is, we can be fairly certain as to the presence of the perfect auxiliary in the underlying structure. This would allow us to test conclusively whether the perfect auxiliary can be elided or not. As it turns out, the majority of speakers find the sentence in which the perfect auxiliary is elided to be illicit:

(v) This time next year John will have been to Rome, and Mary will *(have) too.

passive or copular auxiliary *been*, see (5).[3] If the auxiliary occurs as *being*, on the other hand, it is obligatorily elided, as (6) illustrates.

(4) a. If Ted shouldn't be prosecuted, then who should (be) [~~prosecuted~~]?

b. Ted should be home by now, and Barney should (be) [~~home by now~~] too.

(5) a. Ted said Robin had been eaten by a gorilla, but in fact she hadn't (been) [~~eaten by a gorilla~~].

b. If Robin hasn't been on the phone, then who has (been) [~~on the phone~~]?

(6) a. Ted was being [eaten by a gorilla] and Robin was (*being) [~~eaten by a gorilla~~] too.

b. If Ted wasn't being difficult, then who was (*being) ~~difficult~~?

Unfortunately, however, it is difficult to test whether the same rule of optional ellipsis can be applied to the progressive auxiliary. In VPE clauses in which progressive *be/been* appears to be elided, the ellipsis site can often be interpreted without progressive aspect:

(7) John may be questioning our motives, but Peter won't [~~be questioning our motives / question our motives~~]

[3] Interestingly, this is only true when there is an identical form of the auxiliary present in the antecedent (Quirk et al 1972; Sag 1976; Warner 1986; Lasnik 1995b). If the antecedent contains a form of the auxiliary that is different from the one in the ellipsis site, the auxiliary has to remain overt due to recoverability, cf. (i). We do not deal with these cases, and focus on the actual optionality, but briefly come back to this issue in section 3.

(i) a. Ted isn't on the phone all the time, and you shouldn't *(be) [~~on the phone all the time~~] either.
b. Ted was arrested last week, and Robin had *(been) [~~arrested~~] too.

It has even been claimed that an interpretation in which progressive aspect is included in the ellipsis is completely unacceptable (Sailor 2012). Due to these problems we largely stay away from the optional ellipsis of progressive *be*/*been* for now and use examples with passive and copular *be/been*. Section 3.2, however, provides evidence involving existential constructions and idioms which indicate that progressive *be* is also optionally elided.

The table in (8) below summarises the original pattern observed by Sag (1976) and Akmajian & Wasow (1975) that we have just described.

(8) Table 1: Deletion of verbal elements in VP ellipsis:

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

Since this pattern was first discovered, it has received little to no attention.[4] The aim of this paper therefore will be to account for this observed 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*. The next section discusses some preliminary assumptions needed for our analysis. The analysis itself is presented in sections 3 and 4, where we also offer an account of related phenomena, namely VP fronting, pseudo-clefting and tag questions. Section 5 discusses alternative approaches that have been proposed already (Akmajian, Steele & Wasow 1979; Thoms 2011, 2012; Bošković 2012; Sailor 2012) and arguments against them. Section 6 tackles some remaining issues, and section 7 concludes.

[4] See, however, Akmajian, Steele & Wasow (1979) for an analysis, as well as recent work by Thoms 2011; Bošković 2012; Sailor 2012. In section 5 we briefly discuss these approaches and outline their major drawbacks.

2. Preliminary ingredients of the analysis

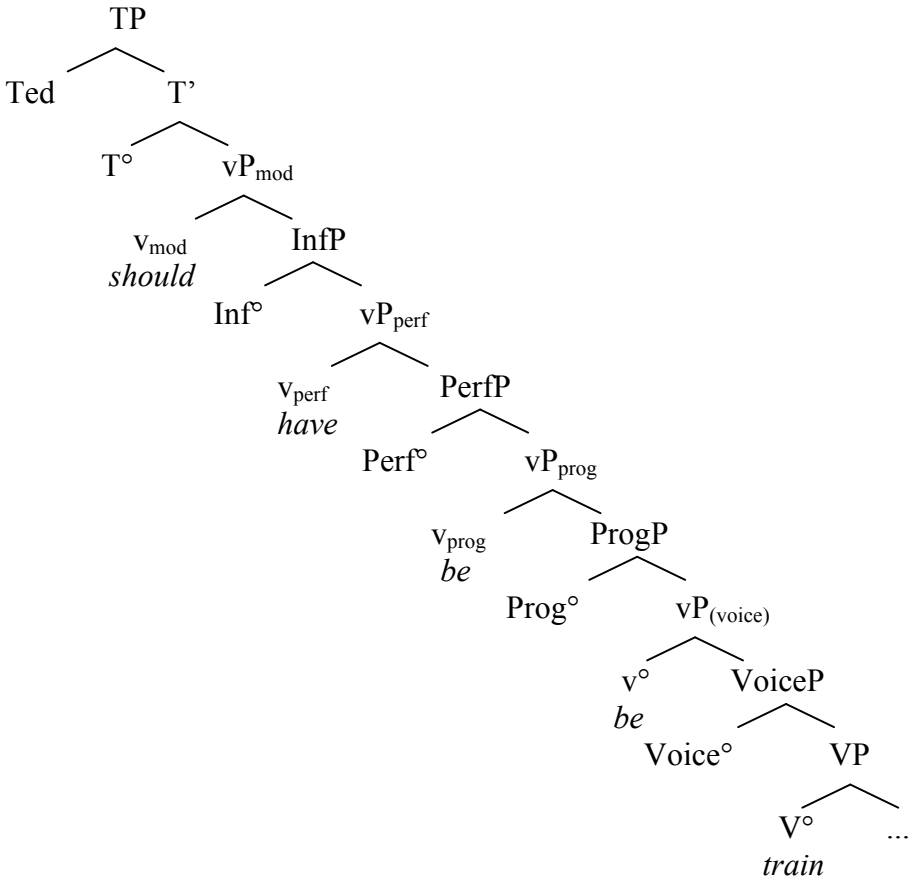
Before any analysis can be attempted to account for the ellipsis paradigm of non-finite auxiliaries, we first consider the exact structure of the verbal/auxiliary domain in English.

2.1 The structure of the verb phrase

Firstly, following work by Cinque (1999), Harwood (2011, 2012, to appear) and Bošković (2012), we take (9)a to have the structure in (9)b. Note that in this structure, only the subject is in its surface position already. The italicised auxiliaries represent their base positions.

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

b.



We take modals to be merged in their own independent modal vP shell (vP_{mod}), which selects an infinitival phrase (InfP) that licenses infinitival verb forms. Crucially, we also take the aspectual auxiliaries (perfect *have* and progressive *be*) to be introduced in their own vP_{perf} and vP_{prog} shells. These vPs select an aspectual PerfP and ProgP, respectively. We assume that these aspectual projections provide the sentence with its aspectual interpretations (in the next subsection we make clear what the use of these projections is in terms of the inflections they trigger). Passive and copular *be* are both base-generated in vP (which could also be called vP_{voice}) (see Baker 1997; Eide and Åfarli 1997; Bowers 2002; Bošković 2004, 2012; Bjorkman 2011; Harwood 2011, 2012), as they are in complimentary distribution with one another.[5] This vP subsequently selects for a VoiceP, which determines the passive/active status of the clause.

We assume a 'What You See Is What You Get' approach (WYSIWYG) to the English auxiliary/aspectual system in that the aforementioned projections are only ever present in the underlying derivation if the aspectual meaning is expressed by the clause.[6] Moreover, since auxiliaries are closely tied to the aspectual inflections they trigger, in the sense that when you get one, you always get the other, we assume that if a certain aspectual projection is absent from the derivation, so is the vP shell introducing it, and vice versa.

2.2 Verbal inflections

[5] 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.

[6] Note that this does not imply that a clause without a passive auxiliary or copular *be* automatically lacks a vP. The lowest vP would still be present in transitive and unergative clauses to introduce the external argument. In the structure suggested in the previous footnote this would mean that vP_{voice} could potentially be absent, but the vP in which copular *be* can be introduced is always present, even without copular *be*.

With respect to the question of how verb forms acquire their inflections, we combine Adger's (2003), Bjorkman's (2011) and Lasnik's (1995b) approach to the inflectional system with Bošković's (2007) theory of foot-driven movement. We claim, as per Adger (2003), Bjorkman (2011) and Lasnik (1995b), that auxiliaries in English enter the derivation bearing uninterpretable inflectional features.[7] These features need to be checked against the relevant inflectional head T°, Inf°, Perf° or Prog°, which carries a matching interpretable inflectional feature. If the auxiliary does not check its uninterpretable feature, the derivation crashes.

More concretely, this means that finite auxiliaries are merged bearing a [*u*T] feature which must be checked against T°'s interpretable [*i*T] feature. Infinitival auxiliaries such as *have* and *be* enter the derivation bearing [*u*Inf], to be checked against Inf°'s [*i*Inf], *been* bears a [*u*Perf] feature, the counterpart of which is Perf°'s [*i*Perf], and *being* bears a [*u*Prog] feature which needs checking against Prog°'s [*i*Prog].[8]

Adger (2003) and Bjorkman (2011) argue that this checking takes place via Reverse Agree, with auxiliaries remaining in their base positions. However, due to the distributional differences exhibited between *be/been* on the one hand, and *being* on the other, as observed in VPE phenomena as well as VP fronting phenomena (see later), we take this to show, as per Lasnik (1995b), that auxiliaries must in fact raise in order to have these features checked (see also Roberts 1998 for arguments for auxiliary raising).

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

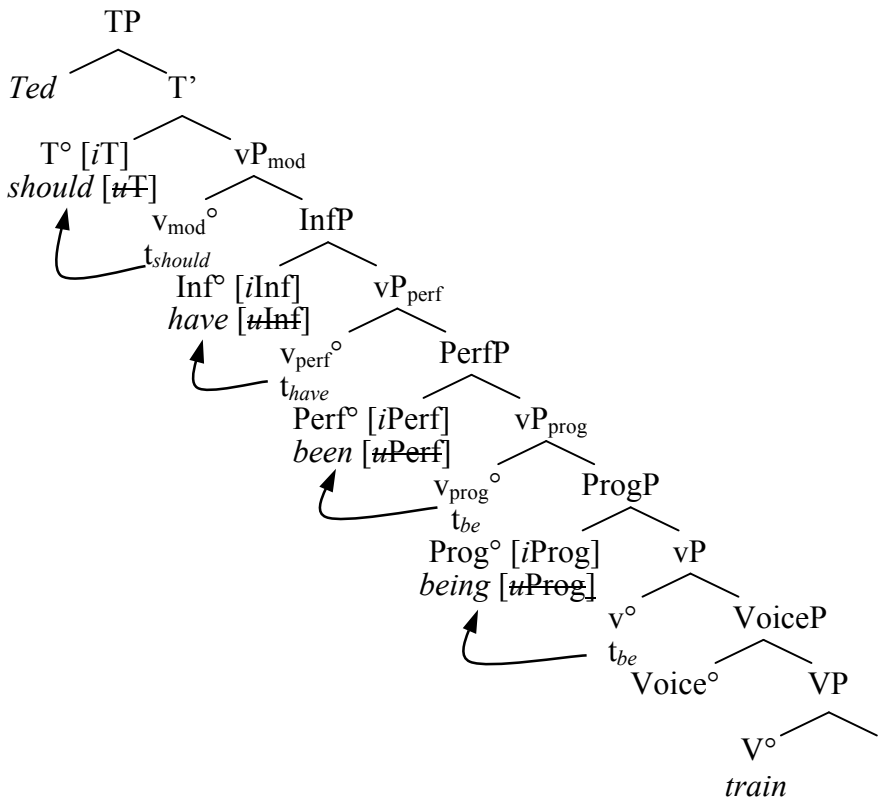
[7] Adger (2003) and Bjorkman (2011) in fact utilise unvalued inflectional features. Due to Bošković's (2007) particular instantiation of foot-driven movement however, which we later employ, we must instead use uninterpretable inflectional features. The common thread, however, remains in that auxiliaries are somehow featurally deficient upon entering the derivation.

[8] A potential issue for this approach is the reduplication of information: the auxiliary enters the derivation inflected, but still bears an uninterpretable feature which requires checking in order to license this form. This is a problem for any account that uses uninterpretble features, and we have no alternative for this. A possible solution is Late Insertion, where the auxiliaries enter the derivation as a bundle of abstract features, and the lexical items are inserted after syntax, as in Roberts (1998).

triggered by an uninterpretable feature on the moving item, whilst maintaining the requirement of c-command on Agree: the uninterpretable feature on the auxiliary probes inside its c-command domain to find a matching interpretable feature. Failing to find such a feature, the auxiliary raises to the next available position, and probes again. The auxiliary continues raising and probing until the relevant feature sits within its c-command domain.

This is illustrated in (10): the modal, *should* here, raises to T° to check its [*u*T] feature; *have* checks its [*u*Inf] by raising to Inf°; the head of v_{prog}, *be*, checks its [*u*Perf] in Perf° and surfaces as *been*, and passive *be* raises to Prog° to check [*u*Prog] and surface as *being*.

(10)



For completeness' sake we outline how the lexical verb behaves in this system. We assume, again following Lasnik (1995b) and Baker (2003) 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.[9]

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), Chomsky (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).[10] This implies that the movement and checking of auxiliaries should be construed as licensing of the auxiliary's form at PF. If the feature is not checked overtly, it causes a crash at PF, though no such violation would occur at LF (see Lasnik 1995b).

With these structures and implementations in mind, we now proceed to section 3, which presents the first part of our approach, namely 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 otherwise the highest projection below vP_{prog}. In order to explain the pattern in (8), we claim in section 4 that the auxiliaries *be* and *been* optionally raise from their base positions in the ellipsis site to positions outside of it, and 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. The analysis is extended to other related phenomena, namely VP fronting, tag questions and pseudo-clefting. Finally, on the basis of the data presented in section 3, we speculate in section 4.5 that the target of VPE is in fact the highest predicative projection. In other words, VPE is in fact predicate ellipsis.

[9] Of course, 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 inflection through linearisation, although later on we will see how this idea, which is discussed already in Lasnik (1995b), captures ellipsis mismatch data and the contrast between lexical and auxiliary verbs.

[10] It is still of course possible that the uninterpretable inflectional features on the auxiliaries that we have proposed must be checked at LF as well, but this would inevitably take place in the covert part of the syntactic component. Whether the uninterpretable features on the auxiliaries are a concern for LF or not, however, is relatively immaterial. The crucial point is that (overt) movement of the auxiliary is a concern for PF, not LF.

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

Standardly, 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 or vP, or VoiceP (Lasnik 1995a; Johnson 2001, 2004; Merchant 2001, 2007, 2008b; Gengel 2007; Aelbrecht 2010). We argue that VPE targets a larger constituent than just VP, VoiceP or vP. According to us, VPE elides as much as vP_{prog} (though nothing larger), containing progressive *be*, provided this projection is present in the structure.[11] This implies that the ellipsis site also contains ProgP, with the progressive inflectional feature.

We provide evidence for the claim that in a progressive sentence, vP_{prog} and ProgP are included in the ellipsis site. Several arguments are discussed, one involving aspectual mismatches, one based on existential constructions and a third having to do with idioms in English. We also present supporting evidence from Taiwanese VPE (Sailor & Kuo 2010).

3.1 VPE includes ProgP

This section shows that ProgP is included in the VP ellipsis site. Evidence supporting this claim involves aspectual mismatches, also discussed by Lasnik (1995b). Following Warner (1986), Lasnik points out that there is a contrast between lexical verbs and auxiliaries when it comes to mismatches under ellipsis. The deleted lexical verb does not require an identical form in the antecedent for the ellipsis to be grammatical, as illustrated in (11) (see Quirk et al

[11] In the absence of ProgP, ellipsis can target a smaller projection, such as vP. We come back to the question of what determines the size of the ellipsis site in section 4.5.

1972; Sag 1976). Things are different with auxiliaries, however, which need an identical verb form in the antecedent for their deletion to be licit. Examples are given in (12), showing that ellipsis of *be* and *been* is only licit when an identical form is contained in the antecedent.[12]

(11) a. Ted **ate** a dolphin sandwich and Robin will [~~**eat** a dolphin sandwich~~], too.

b. Ted will **eat** a dolphin sandwich because Robin has [~~**eaten** a …~~].

(12) a. Ted has been eaten by a gorilla and Robin might *(be) [~~eaten by …~~] too.

b. Ted will be eaten by a gorilla and Robin might (be) [~~eaten by …~~] too.

c. Ted was eaten by a gorilla and Robin has *(been) [~~eaten by …~~] too.

d. Ted has been eaten by a gorilla and Robin has (been) [~~eaten by …~~] too.

In a nutshell, Lasnik accounts for this by arguing that lexical verbs enter the derivation bare and get their inflections attached to them, whereas auxiliaries are introduced inflected and need to check an inflectional feature (parallel to what we discussed in section 2). Viewed in light of the proposal that an elided constituent can only be fully recoverable if it has an identical antecedent, this explains the data above: if there is an inflectional mismatch between the elided lexical verb and its antecedent, the elided verb is still recoverable, as the two verbs were identical at one point during the derivation. For auxiliaries, which enter the derivation readily inflected, this is not the case: if the elided auxiliary is inflectionally different from its antecedent, they were never identical to one another, and therefore the elided auxiliary cannot be recovered, leading to ungrammaticality.

[12] The reason why we are not dealing with *have* or *being* here is obvious: *have* is never elided, irrespective of whether the antecedent contains an identical verb form or not; and the ellipsis of *being* can only ever be observed if it is present within the antecedent also. That is, in the sentence *John said we may be defeated, and indeed we were*, the ellipsis site can only be taken to be [~~*defeated*~~] and not [~~*being defeated*~~]. The only way it is possible for [~~*being defeated*~~] to be an observed option is if the antecedent contains *being* as well.

It is remarkable then that lexical verbs that occur in the progressive form behave differently from the other lexical verbs in this respect. The generalisation is the following: if the antecedent contains a progressive lexical verb, and the ellipsis site does not, VPE is allowed; but if VPE aims to elide a lexical verb inflected for progressive aspect, without this verb occurring as a progressive in the antecedent, the sentence is ungrammatical, see (13).

(13) a. Ted is **eating** a dolphin sandwich, but at least Robin won't [~~**eat** a …~~].

b. Ted may be **eating** a dolphin sandwich, but Robin hasn't [~~**eaten** a …~~].

c. * Ted might **eat** a dolphin sandwich but Robin won't be [~~**eating** a …~~].

d. * Ted may have **eaten** a dolphin sandwich, but Robin hasn't been [~~**eating** …~~].

Lasnik accounts for this by saying that the *–ing* affix is outside the ellipsis site, whereas the lexical verb is inside it. Consequently, the affix is left without anything to attach to, which results in the derivation crashing, see (14).

(14) * Ted might eat a dolphin sandwich, but Robin certainly isn't ***-ing*** [~~eat a …~~].

The main problem with this explanation – as Lasnik notes – is that it is unclear why there is no crash when the perfect *–en/ed* affix is supposedly stranded, as in (11)b, repeated as (15).

(15) Ted will eat a dolphin sandwich because Robin has *-en* [~~eat a dolphin sandwich~~].

Moreover, the supposed stranding of the progressive affix should lead to ungrammaticality in all instances of ellipsis in which a progressive lexical verb is elided, even when there is a progressive lexical verb in the antecedent, contrary to fact (as is illustrated in (16)).

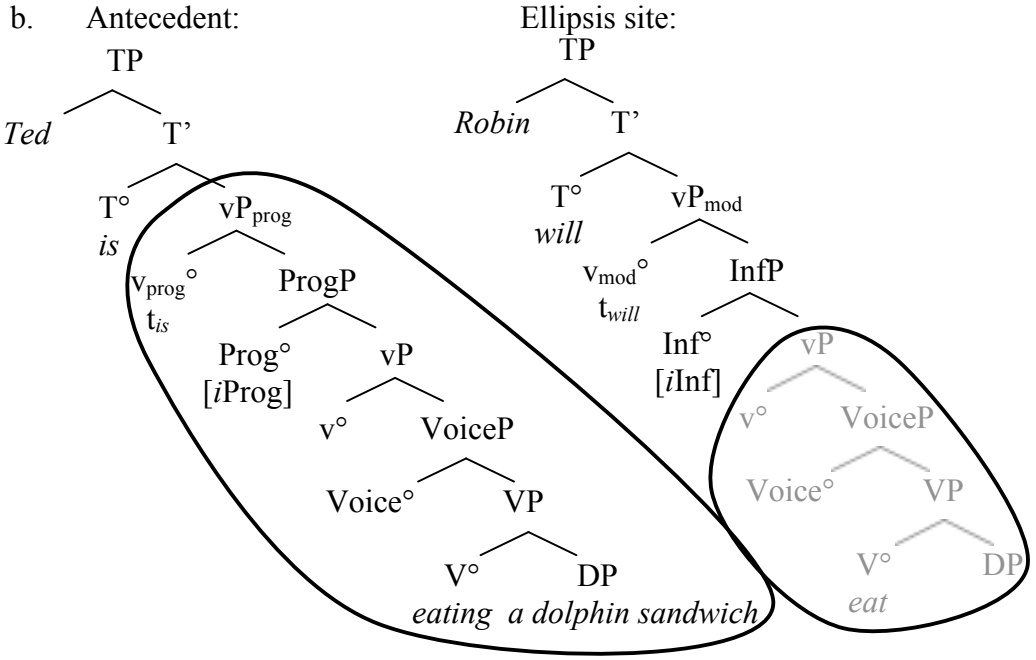
(16) Ted has been eating a dolphin sandwich and Robin has been *-ing* [~~eat a …~~] too.

Therefore, the stranding of the progressive *-ing* affix without a host cannot be used to account for the unacceptability of (13)c,d, which involve a progressive ellipsis site but a non-progressive antecedent. We must therefore look to find a solution elsewhere.

Like Lasnik (1995b), we assume ellipsis is subject to a syntactic identity condition: at some point in the derivation the ellipsis site and the antecedent have to be identical for the ellipsis site to be recoverable. In combination with our claim that the ellipsis site *includes* the progressive aspectual projection, ProgP, this explains the pattern: In the grammatical case in (13)a,b, with a progressive antecedent and a non-progressive ellipsis site, the verbal layer in the former is bigger than that in the latter, as it includes ProgP and vP_{prog}, unlike the ellipsis site. Therefore the ellipsis site is fully included in the antecedent, and hence, fully recoverable, as in (17).

(17) a. Ted is **eating** a dolphin sandwich, and Robin will [**~~eat~~** a …] too.

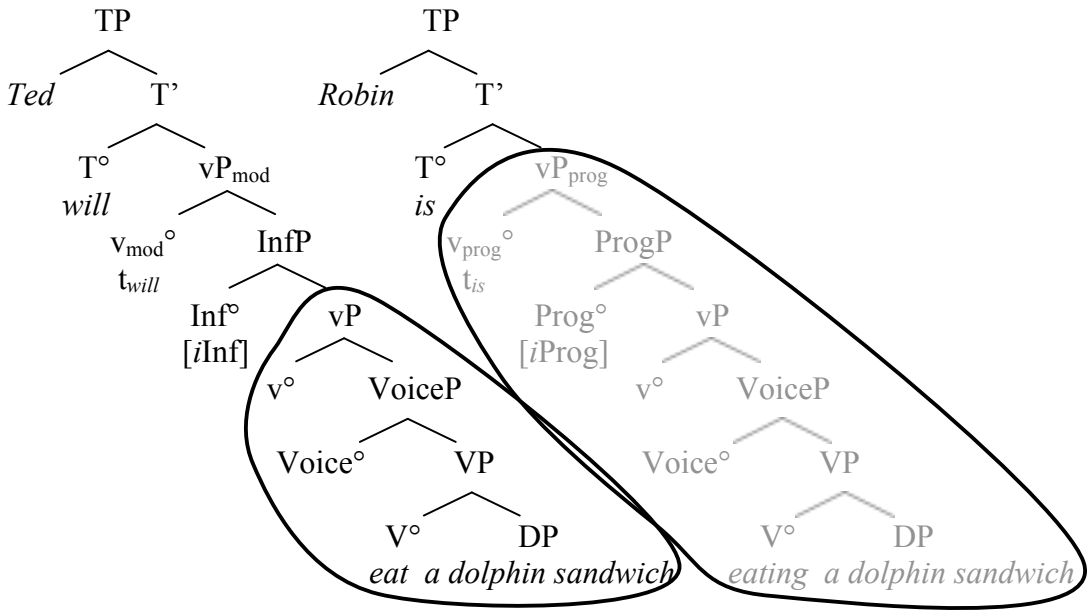
b.



This does not hold for the ungrammatical (13)c,d, where the ellipsis site contains a progressive, but not the antecedent. Here the verbal layer in the ellipsis site is bigger than that in the antecedent, as in (18). Therefore the ellipsis site is not recoverable and ellipsis is illicit.

(18) a. * Ted will **eat** a dolphin sandwich because Robin is [~~**eating** a …~~].

b. Antecedent: Ellipsis site:



The same issue does not arise when the lexical verb in the ellipsis site is inflected for perfect morphology but not in the antecedent, as in (15). As previously mentioned, we claim that perfect aspect is always outside of the ellipsis site, so its presence in the antecedent is immaterial in terms of the recoverability condition. That is, the ellipsis site does not include vP_{perf} or PerfP, therefore the perfect aspect does not need be recovered.

In sum, by including progressive aspect, but nothing higher, in the ellipsis site, we can account for the unacceptability of the aspectual mismatches observed in (13)c,d, that is, instances in which the lexical verb in the ellipsis site is inflected for progressive aspect, but not in the antecedent. In such cases, the ellipsis site includes progressive aspect projections,

which are absent from the antecedent and so cannot be recovered. Because perfect aspectual projections are not included in the ellipsis site, they do not need to be recovered.

Sailor & Kuo (2010, henceforth S&K) come to the same conclusion with respect to the size of the ellipsis site on the basis of data from Taiwanese. Taiwanese is a Sino-Tibetan language which lacks aspectual auxiliaries. Instead this language expresses perfect and progressive aspect and passive voice with independent aspect markers, which Sailor & Kuo claim to reside in Perf°, Prog° and Voice° respectively:

(19) A-ha u teh hoo mama pak thau-chang (PERF>PROG>PASS)
A-Ha PERF PROG PASS mother put.up hair
'A-Ha is having her hair put up (on her) by her mother.'

It turns out that Taiwanese allows for VPE:

(20) Gua chang b-o khi hak-hau, tan-si i u.
1p yesterday neg.PERF go school but 3p PERF
'I didn't go to school yesterday, but he did.' Sailor & Kuo 2010: (7)

Interestingly, Taiwanese VPE does not target perfect markers and modals: "they remain outside of and adjacent to the ellipsis site" (S&K: 2), parallel to English.

(21) A-Ying ai u sai cchiab, A-Ha ma **ai** **u** [~~sai cchiab~~].
A-Ying should PERF drive car A-Ha also should PERF **drive car**
'A-Ying should have driven, and A-Ha also should have.'

Taiwanese and English also behave alike with respect to what is included in the ellipsis site: the progressive particle *teh* cannot survive Taiwanese VPE (see (22)).

(22) A-Ying b-o teh cchih kau, tan-si A-Ha u (***teh**) [~~cchih kau~~].
A-Ying NEG-PERF PROG feed dog but A-Ha PERF PROG **feed dog**
'A-Ying hadn't been feeding the dog, but A-Ha had been.' (S&K: (15))

S&K note that adverbs can intervene between *teh* and the main verb, showing that *teh* is a free morpheme (see (23)).

(23) A-Ying chim-ma **teh** man-man-a **thiah** chhu.
A-Ying now prog slowly destroy house
'A-Ying is now slowly destroying the house.' (S&K: (16))

They argue therefore that the deletion of *teh* "is not due to an adjacency/morphological requirement [since] it can be separated from V. Instead, its behavior must be due to a structural property of VPE" (S&K: 4), which they call The Progressive Prohibition: "VP Ellipsis necessarily elides at least the maximal projection of progressive morphology. That is, VP ellipsis is actually at least *ProgP* ellipsis" (S&K: 4).

3.2 VPE elides the base position of progressive be

We argued above that ProgP, the projection where the interpretable progressive inflectional feature is generated, is included in the ellipsis site. In this subsection we show that vP_{prog} should also be included in the ellipsis site.

It is typically assumed that auxiliaries which undergo VPE are generated inside the ellipsis site (Akmajian & Wasow 1975, Akmajian, Steele & Wasow 1979, Thoms 2011). This section provides evidence showing that apart from passive and copular *be* or *been*, progressive *be* and *been* can optionally be deleted as well. This implies that the projection in which the progressive auxiliary is basegenerated, vP_{prog}, is also included in VPE.

Above in section 1 we observed that to show that *be* or *been* are optional in VPE, we best use cases with passive or copular *be*, since the presence of progressive *be* in the antecedent does not necessarily imply the presence of the progressive in the ellipsis site:

(24) John may be questioning our motives, but Peter won't [~~be questioning our motives~~ / ~~question our motives~~].

Sailor (2012) has even claimed that in such cases, an interpretation with the progressive is ungrammatical. If this is true, it might very well be that progressive *be* is in fact never elided. However, we present data from existentials and from idioms illustrating that progressive *be* is in fact optionally elided under VPE as well.

English existentials display certain restrictions with respect to aspect (Milsark 1974; Aissen 1975; Burzio 1986; Ward & Birner 1996; Deal 2009; Harwood 2011): unaccusative verbs can occur in existentials with all kinds of aspect ((25)), but unergative verbs are only allowed with the progressive, cf. (26).[13]

(25) a. There arrived a crocodile in the mail this morning. [unaccusative]

b. There had arrived a crocodile in the mail this morning.

[13] Transitive and ditransitive existentials are subject to the same aspectual restrictions. See Deal (2009) and Harwood (2011) for an explanation of this restriction.

c. There will be a crocodile arriving in the mail this morning.

(26) a. * There danced a crocodile in the garden this evening. [unergative]

b. * There has danced a crocodile in the garden this evening.

c. There was a crocodile dancing in the garden this evening.

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.[14] In such cases, it turns out that progressive *be* is optionally elided:

(27) a. He said there will be a crocodile dancing in the garden, but there won't (be) [~~a crocodile dancing in the garden~~].

[14] It has been argued in the literature (Williams 1984; McNally 1992; Moro 1997; Law 1999) that progressive existentials in fact involve a reduced relative clause (RRC). That is, all the material following the associate is actually contained inside an 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 mono-clausal constructions, and moreover, so can those cases involving ellipsis. This is evidenced by the fact that these progressive existentials exhibit properties which (reduced) relative clauses do not. For instance, Deal (2009) has observed that whilst reduced relatives must precede full relatives, no such restriction occurs in existentials:

(ii) a. The teacher scolded [the student [laughing in the hall] [who was wearing a cap]].
b. * The teacher scolded [the student [who was wearing a cap] [laughing in the hall]].
c. There is a man <laughing in the hall> [who's wearing a cap] <laughing in the hall>.

Therefore existentials have an underlying structure available to them that does not involve an RRC, but a mono-clausal structure. Transferring this observation to progressive existentials involving VPE, the same pattern holds:

(iii) John said there had been a man who was wearing a cap laughing in the hall, but in fact there hadn't (been) [~~a man who was wearing a cap laughing in the hall~~].

Other differences between progressive existentials and RRCs involve idioms (Chomsky 2001) and eventive copular constructions (Milsark 1974, Caponigro & Schutze 2003 and Rezac 2006), indicating that progressive existentials can not only be formed from RRCs, but also have an underlyingly mono-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, (27) is a genuine case of main clause VPE with the progressive auxiliary being optionally included within the ellipsis site.

b. He said there had been a crocodile dancing in the garden, but in fact there hadn't (been) [~~a crocodile dancing in the garden~~].

In other words, (26) indicates that an existential with an unergative verb cannot occur without the progressive. This implies that the hearer cannot interpret (27) without the progressive and that progressive *be* is genuinely included in the ellipsis site, just like passive and copular *be*.

Additionally, there are certain idioms which depend upon progressive aspect: only the sentence in (28)a with the progressive aspect has the idiomatic reading.

(28) a. Something's eating Bob. = Something is bothering Bob.

b. Something ate Bob. ≠ Something bothered Bob.

c. Something will eat Bob. ≠ Something will bother Bob.

d. Some has eaten Bob. ≠ Something has bothered Bob.

If VPE is applied to such an idiom, the idiomatic interpretation remains intact, see (29), meaning that progressive aspect, and, crucially, the progressive auxiliary, are present in the derivation, even when the auxiliary has been elided:

(29) a. Ted said something had been eating Bob, and indeed something had (been) ~~eating Bob~~.

b. Ted said something might be eating Bob, and indeed something might (be) ~~eating Bob~~.

Irrespective of the analysis you choose for the optional ellipsis of *be/been*, whether it be optional raising of the auxiliary (as we argue in section 4.2), or optional extension of the

ellipsis site (Akmajian, Steele & Wasow 1979; Bošković 2012), the general consensus is that for an auxiliary to be elided, it must be included in the ellipsis site at some point during the derivation. Thus, for the progressive auxiliary to be optionally elided in (27) and (29), the ellipsis site must be as large as vP_{prog} in such cases. Moreover, since *have* is never elided, its base position should never be in the elided part. Thus, we claim that VPE targets vP_{prog} but nothing higher. Next, we show how the claims made so far capture the deletion paradigm.

4. The analysis, part II: optional raising

The pattern our proposal tries to capture is summarised in (8), repeated as (30): 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.

(30) Table 1: Deletion of verbal elements in VP ellipsis:

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

First, we tackle the easiest patterns: the auxiliaries that are always overt or always elided, namely *have* and *being* (and the finite auxiliary and the lexical verb), respectively. Section 4.2 turns to the optionally deleted auxiliaries *be* and *been.* We then show how this analysis can be extended to account for the data regarding VP fronting and other related phenomena. Finally, the discussion leads us to the question of how to determine the ellipsis site formally, and as an answer to that question we propose in section 4.5 that VPE is in fact predicate ellipsis.

4.1 Being and *have*

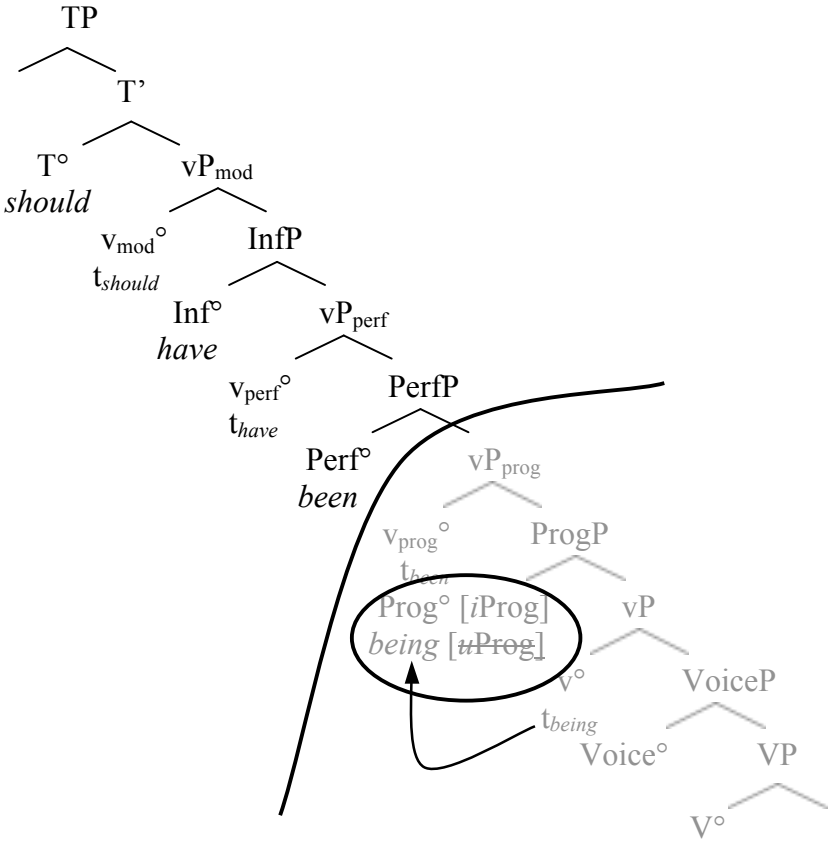
The first piece of data our analysis wishes to capture is the obligatory deletion of *being*:

(31) a. Ted was being [eaten by a gorilla] and Robin was (*being) [~~eaten …~~] too.

b. Ted is being difficult and Robin is (*being) ~~difficult~~ too.

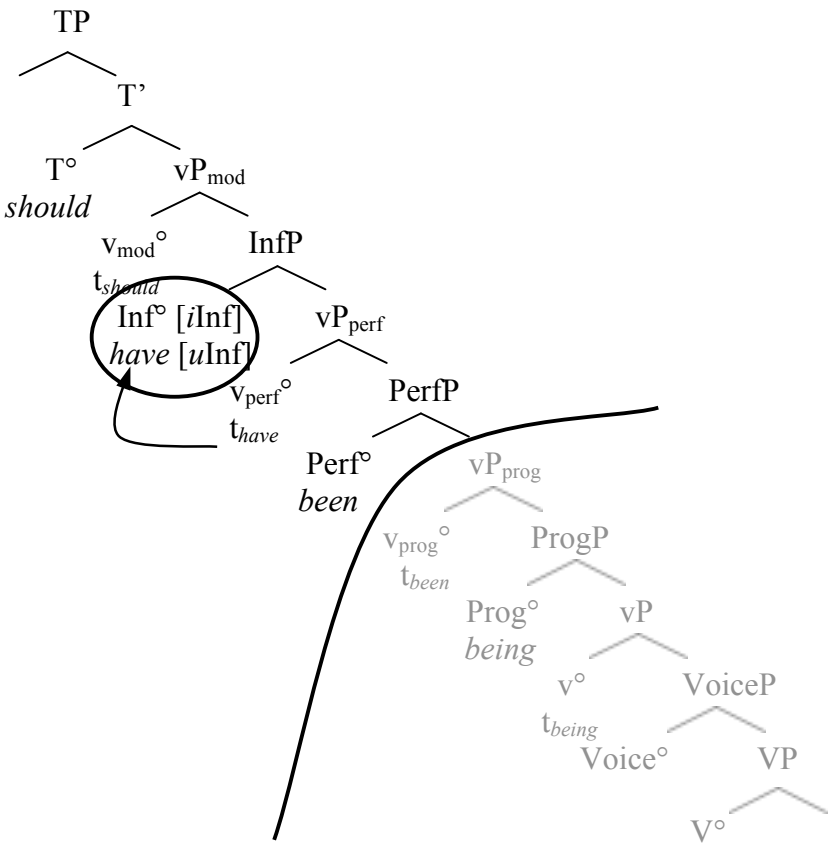
Under our view on verbal inflections, *being* raises from v° to Prog° to check its inflectional feature, as in (32). We claimed in section 3 that VPE elides as much as vP_{prog}, if this projection is present. Therefore ProgP, the landing site of *being*, is always included in the ellipsis site, meaning *being* never escapes ellipsis.

(32)



The illicit ellipsis of the non-finite perfect auxiliary *have* can be explained as the opposite of this: both the landing site and – crucially – the base position of *have* are higher than the vP_{prog} ellipsis site and therefore *have* obligatorily escapes ellipsis, see (33).

(33)



The lexical verb in English never raises for inflection if we follow Lasnik (1995b), 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. Finite *be*, however, turns out to be trickier, as will be clear in 4.2. We defer this issue to section 6, where we deal with some other remaining issues too.

4.2 Be/been

We have seen earlier that *being* is obligatorily elided, while *have* never is. *Be* and *been*, however, are optionally elided. The relevant data are repeated in (34).

(34) a. Ted will be eaten by a gorilla, and Robin will (be) [~~eaten by a gorilla~~] too.

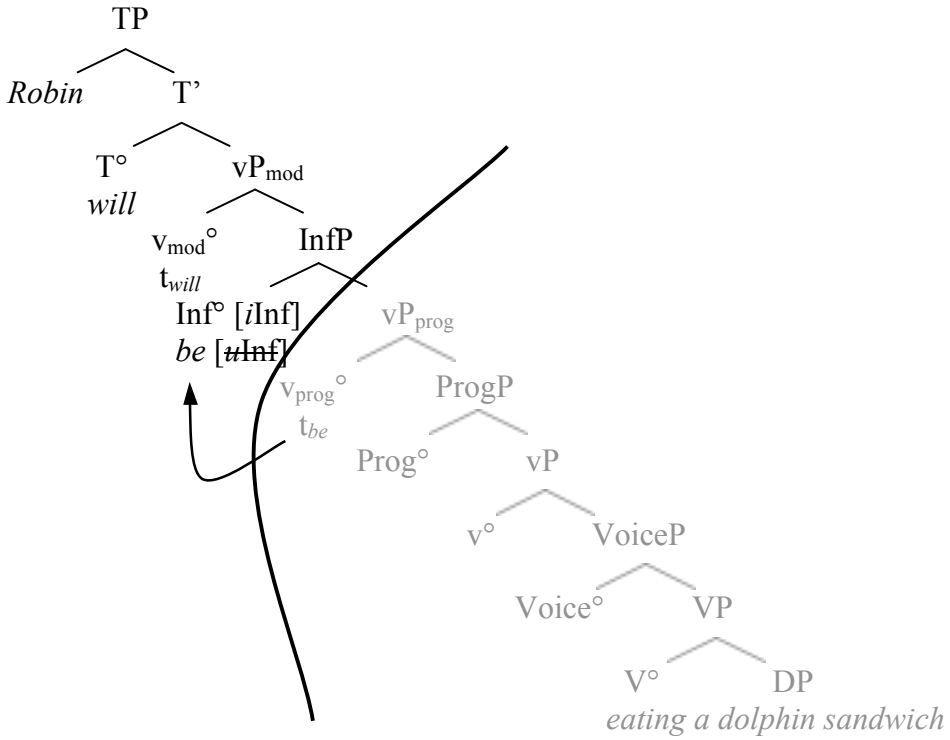
b. Ted said Robin had been eaten by a gorilla, and indeed she had (been) [~~eaten by a gorilla~~].

Our approach with respect to *be* and *been*, in a nutshell, is that optional ellipsis of *be/been* results from optional raising of these auxiliaries out of the ellipsis site.

The ellipsis site is vP_{prog}. To surface as *be* or *been*, the progressive auxiliary – or passive or copular *be*, if there is no progressive in the structure – should raise to the respective inflectional heads Inf° or Perf°, in order to check its inflectional features. This causes it to raise out of the ellipsis site, surviving ellipsis, see (35) and (36).

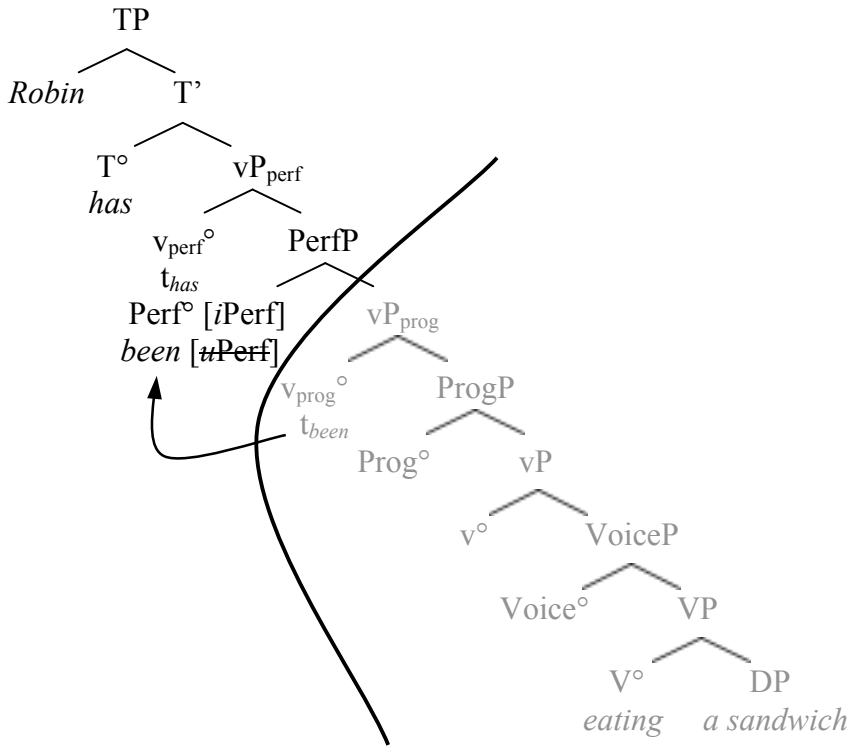
(35) a. Ted will be eating a dolphin sandwich and Robin will be [~~eating a …~~], too.

b.



(36) a. Ted has been eating a sandwich and Robin has been [~~eating a …~~], too.

b.

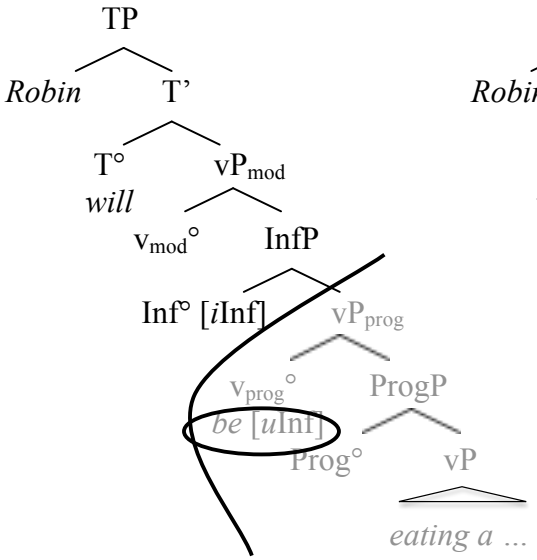


However, this raising does not have to occur under ellipsis. When *be* and *been* are elided, it is because they have failed to raise out of the ellipsis site. This implies that the unraised auxiliaries have not had a chance to check their inflectional features on Inf° or Perf°. Still bearing unchecked features, our derivation would be in danger of crashing at PF. However, ellipsis saves the derivation from crashing: if we delete the material in the ellipsis site, then the offending auxiliary, including its unchecked features, are elided too. Consequently, they are no longer a problem for PF, and the derivation is rescued.[15] The structures in (37)b and (37)c illustrate what happens in (the relevant parts of) the sentence in (37)a with optional deletion of *be*.

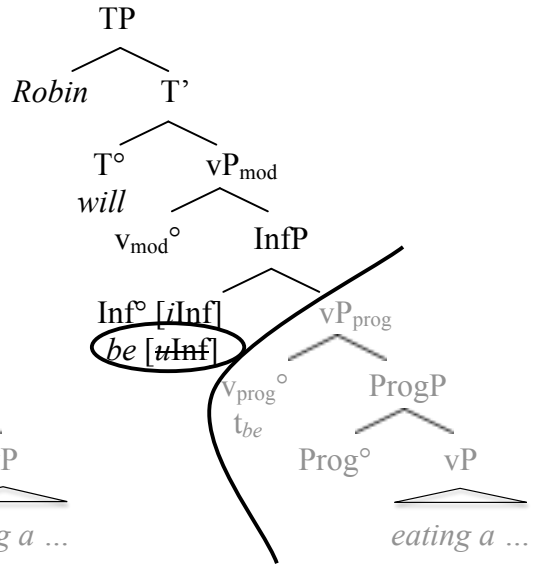
[15] An alternative method can be taken from Lasnik's (2001) approach to pseudo-gapping: the uninterpretable feature could also be checked by feature movement only, leaving the auxiliary behind. In non-elliptical sentences, feature movement is not an option, as this turns the auxiliary into a deficient 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.

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

b. Deletion of *be*



c. Non-deletion of *be*



Note that the option of not raising is only possible in elliptical sentences. If in a non-elliptical sentence, *be* does not raise to Inf° or *been* to Perf° to get their uninterpretable features checked, the derivation crashes at PF, since no ellipsis occurs to delete the offending items. This will be seen in the following section when we discuss VP fronting.

Recapitulating, we propose that the ellipsis site is maximally vP$_{prog}$, which includes the base position of all instances of auxiliary *be* (progressive, passive and copular). *Be* and *been* however, can raise out of the ellipsis site to check their uninterpretable inflectional features. This captures the optional deletion of these two auxiliaries: if they raise out of the ellipsis site to check their features, they survive ellipsis, and if they do not raise and remain in the ellipsis site, their uninterpretable features are elided along with them, and the derivation does not crash at PF. The next section shows that our analysis can be extended beyond VPE to VP fronting.

4.3 VP fronting

A phenomenon that has been related to VPE in the literature is VP fronting (see Zagona 1982; Johnson 2001; Kim 2003; Aelbrecht & Haegeman 2012; Funakoshi 2012; Aelbrecht 2012). It has been amply noted that VPE and VP fronting (VPF) exhibit parallel syntactic behaviour (Zagona 1982; Johnson 2001). 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, temporal auxiliary, infinitival *to* or *do*-support, as the contrasts in (38) and (39) show (examples taken from Aelbrecht 2012).

(38) a. * We told Drew he couldn't kill a mockingbird, but he wanted [~~to kill a …~~].

b. * No-one believed that Drew wanted to kill a mockingbird, but [to kill a mockingbird] he wanted *t*.

c. * I never thought I'd see Jess become a sea lion trainer, but I saw [~~Jess become a sea lion trainer~~].

d. * I never thought I'd see Jess become a sea lion trainer, but [Jess become a sea lion trainer] I saw *t*.

(39) a. We told Drew he couldn't kill a mockingbird, but he wanted **to** [~~kill a …~~].

b. No-one believed that Drew wanted to kill a mockingbird, but [kill a mockingbird] he wanted **to** *t*.

c. I never thought I'd see Jess become a sea lion trainer, but I **did** [~~see …~~].

d. I never thought I'd see Jess become a sea lion trainer, but [see Jess become a sea lion trainer] I **did** *t*.

A second similarity between VPE and VPF is that both generally target the same chunk of the verb phrase. We know that perfect *have* for instance cannot be elided under VPE. As (40), adapted from Johnson (2001: 444 (19)), shows, this auxiliary cannot be fronted either. Moreover, as Akmajian & Wasow (1975) have noted, just like VPE obligatorily deletes *being*, VPF cannot leave *being* behind, cf.(41).

(40) 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*.

(41) a. Will thought he was being seduced by his colleague and [**being** seduced by his colleague] he was.
b. * Will thought he was being seduced by his colleague and [seduced by his colleague] he was **being**.

With this in mind, it is remarkable that VPF never optionally includes *be* or *been* in the fronted verbal structure, as noted by Akamajian, Steele & Wasow (1979) and Roberts (1998). These auxiliaries obligatorily stay behind, as (42) illustrates.

(42) 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 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 ellipsis repair 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 (43).

(43) a. * He said he would be working all night and indeed [$_{vP(prog)}$ **be$_{[uInf]}$** working all night]] [$_{TP}$ he [would [$_{InfP}$ Inf°$_{[iInf]}$ t$_{vP(prog)}$]]].

b. He said he would be working all night and indeed [$_{vP(prog)}$ **t$_{be}$** [working all night]] [$_{TP}$ he [would [$_{InfP}$ Inf°$_{[iInf]}$+*be*$_{[\sout{uInf}]}$ t$_{vP(prog)}$]]].

4.4 Extending the data range

Note that the analysis so far leads to an interesting prediction, namely that 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 attested in tag questions and specificational pseudo-cleft constructions.

Akmajian & Wasow (1975) and Bošković (2004) 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:

(44) a. Ted was being eaten by a gorilla, wasn't he (*being) (*eaten) ~~by a gorilla~~.

b. Ted should have become a hot air balloon pilot, shouldn't he *(have)?

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:

(45) a. Ted has been eating dolphin sandwiches, hasn't he (been)? [Am Engl]

b. Ted will be eating dolphin sandwiches, won't he (be)?

This optional ellipsis of *be* and *been* conforms with our predictions.[16]

Another context in which the verb phrase seems to have undergone fronting is specificational pseudo-clefting, as claimed in Blom & Daalder (1977), Declerck (1988), Den Dikken (1995), Heggie (1988), Heycock (1994), Higgins (1979), Moro (1997) and Verheugd (1990) (cited in Den Dikken 2006). Sailor (2012) notes that in such constructions, *being* is included in the moved phrase, parallel to VPF:

(46) Ted should be being praised. – No, *<being> criticised is what he should be <*being>.

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:

(47) a. Ted should be praised. – No, <*be> criticised is what he should *<be>.

[16] Interestingly, British English speakers behave differently. Their tag questions only contain the finite auxiliary. Unlike in American English, no non-finite auxiliaries remain, not even perfective *have* (Sailor 2009). British speakers judge the tags in (44)b and (45) only grammatical if *have, be* or *been* are absent. This is a remarkable contrast for which we will not try to provide an answer in this paper.

b. Ted should have been praised. – No, <*been> criticised is what he should have *<been>.

We have therefore provided an analysis that successfully accounts not only for the ellipsis paradigm of auxiliary verbs, but also for VPF, tag questions and specificational pseudo-cleft phenomena as well. The next section deals with a problem our approach has, however, when it comes to determining what is elided under VPE. We claim that the maximal ellipsis site is vP_{prog}, but if the clause does not express the 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, Steele & Wasow 1979 and Bošković 2012, discussed below), 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 there is 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. The next section presents a formalised solution for this issue.

4.5 Predicate ellipsis

A problem with our account involves the question of how the ellipsis site is determined. We have provided evidence for vP_{prog} to be the maximal ellipsis site: when the clause contains progressive aspect, VPE targets vP_{prog} (see (48)a). When there is no progressive aspect in the clause, vP_{prog} and ProgP are absent, and VPE targets a smaller portion of the verbal layer, as in (48)b. This implies that the actual projection that is elided differs depending on what is

present in the clause, making it harder to formalise how the ellipsis site is targeted, as one cannot simply say that VPE elides vP or vP_{prog}.

(48) 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*]]]]]]]].

A potential solution could be not to fix the ellipsis site as a certain projection, but to assign the complement of a certain head as the ellipsis site. For instance, following Merchant (2001) and subsequent work, an [E] feature could be posited on a certain head. This [E] feature would then trigger non-pronunciation of its complement, which can be any projection. If we look at the structures immediately above the ellipsis site, we see that it is PerfP that is dominating the ellipsis site in both cases, which makes it a possible candidate for carrying the [E] feature. However, our assumption that the structure only contains those aspectual projections that are actually present in the sentence implies that PerfP and vP_{perf} are not always there either. Hence, which head bears the [E] feature would depend on what is present in the structure, and can therefore not be fixed in the syntax either. In sum, the fact that neither the ellipsis site nor the head selecting the ellipsis site is fixed makes it hard to generalise what the target of VPE is in a formal way. The present section offers a speculative suggestion as to how the ellipsis site can be determined without fixing it to a certain projection.

A close look reveals that it is not always a VP that is elided in VPE. Not every clause necessarily has a VP as its lexical core: there are many clauses which have a predicative

adjective, NP or PP as their lexical centre, where the finite verb is a copula which can even be absent in certain languages. Still, such clauses allow for VPE in English, as (49) illustrates.

(49) a. The door was {green/closed}, but the window wasn't [~~green/closed~~].

b. Marshall could have been a pilot and Lily could have been [~~a pilot~~] too.

c. The chickens were in the garden, and the crocodile was [~~in the garden~~] too.

Of course, one can assume that these clauses still contain a vP hosting the copula, but whichever the label of that projection is, it is clear that what VPE elides is not necessarily a verb phrase, but the predicate of the clause.

This leads us to another way of determining the VP ellipsis site. We claim that VPE always targets the highest projection that is part of the predicate of the clause. There are several projections that can act as (part of) the predicate. Most obviously, there are lexical VPs, but as we have seen above, also predicative APs, NPs and PPs. However, we argue that it is not only these obviously lexical projections that constitute the predicate of a clause. We claim that progressive aspect is included in the predicate too: it is a nominalising form that does not simply add a functional layer; it is partly lexical as well, and should therefore be considered part of the predicate. In what follows we provide some arguments for this claim and show that perfect aspect behaves differently.

Firstly, progressive aspect is sensitive to lexical restrictions. Not all 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 higher aspectual forms.

(50) 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 that progressive aspect is more lexical, and thus more likely part of the predicative layer of the clause, involves the morphological form of progressive aspect in many languages: progressive formation seems to have more nominal properties than other verb forms. In English the *–ing* suffix makes clear the link with gerunds, which are nominalisations (to different degrees, see Chomsky 1970), as in (51). Also in other languages the progressive inflection has nominal properties, such as in Gungbe (Aboh 2005, 2007, 2009), Dutch and German: in Dutch (see (52)) and German for instance it comes with a definite article.

(51) Ted('s) growing (of) a beard was the worst idea ever.

(52) De krokodil was aan het dansen.
the crocodile was on the dancing
'The crocodile was dancing.'

A third reason why we believe that progressive aspect is part of the lexical layer of the clause, and not the purely functional layer, is the fact that progressive aspect can be included in lexical idioms. Idiom chunks typically include the lexical verb and an internal argument (cf. (53)a,b), or the verb and all its arguments (cf. (53)c), whereby it is impossible to change any items that are part of the idiom, but anything else can be altered. It appears that progressive aspect can also be a part of the idiom as well (see (53)d): the idiom 'something is eating X' is dependent upon progressive aspect. This implies that progressive aspect is stored lexically with the rest of the idiom, i.e., with the lexical verb and its arguments. Idioms can also include higher functional elements such as perfect aspect, but in that case the idiom is

non-productive, with every aspect of the utterance being fixed, including the clause type, cf. (54).[17]

(53) a. He threw his oldest son to the wolves by exposing him to those bastards.

b. The boy was thrown to the {wolves/#hyenas} from the very first day.

c. The shit {will hit/has hit} the fan. / The {shit/#dirt} hit the {fan/#radiator}.

d. Something {is/has been} eating Will. / # Something {has eaten/eats} Will.

(54) Has the cat got your tongue? / # The cat has got your tongue.

As idioms can target only predicate projections, or the whole clause (as implied in Svenonius 2005), this suggests that progressive aspect constitutes a predicative projection.

Another possible indication that progressive (and potentially passive) is part of the predicate, is that it uses *be* as its auxiliary in English. This is identical in form to copular *be*, which appears alongside AP, NP and PP predicates. It is thus possible that progressive and passive *be* are simply other instances of a copular appearing alongside a verbal predicate,

[17] One problem with this argument is that there seems to be one expression in English that appears to be idiomatic, and depends upon perfect aspect, namely *have been to X*, with the meaning *having visited X*, see (i).

(i) a. I have been to Italy several times.
b. * I was to Italy last year.
c. * I am to Italy next summer.

These data pose a problem for our argument for the progressive, but not the perfect being included in the lexical part of the sentence, at least on the basis of idioms. At the moment we do not know why this expression behaves this way.

What we do note is that unlike the idioms which involve progressive aspect, this *have been to* construction is incompatible with other aspects and Voice (progressive and passive), cf. (ii). This indicates that something else is going on here.

(ii) a. Will was being eaten by something. (progressive idiom + passive)
b. Something had been eating Will. (perfective + progressive idiom)
c. * Rome has been (been) to by many people. (**have been to* + passive)
Compare: Rome has been visited by many people.
d. * I have been being to Italy for years. (**have been to* + progressive)
Compare: I have been visiting Italy for years.

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 perfect aspect, unlike progressive, is not a part of the predicate.[18]

In other words, we tentatively suggest that the verbal layer should be divided into a predicative 'zone' and a functional 'zone' (parallel to Phases, see Chomsky 2000, 2001). Contrary to standard assumptions so far – although it seems that more people are beginning to question the traditional view – we consider the predicative 'zone' of the clause to go as high as progressive aspect, and the functional layer to start from perfect aspect upwards. This may have repercussions on domains other than ellipsis too, but the current paper will not go into these, as this proposal is not the main point we want to address in this paper.[19]

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[18] There are of course languages that use the auxiliary *be* with perfect aspect too. However, many such languages do not display VPE in the first place. A prediction that one would make for languages with VPE that use the predicative copular as the perfect auxiliary, is that perfect aspect, unlike English, can be included in the ellipsis site. Rouveret (2012) shows that this is potentially the case for Welsh. Welsh, like English, exhibits VPE, but realises the perfect auxiliary as a form of *be*. The particle realising perfect aspect can be ellided 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 ungrammaticality of (i)b could stem from the presence of the progressive auxiliary as well. Further investigation would be required.

[19] A similar divide between progressive and other aspects has been proposed based on the phenomenon of split ergativity. Whilst nominative-accusative languages always mark both the agent of a transitive verb and the single argument of an intransitive verb with nominative Case, and mark the patients of transitives with accusative Case, ergative-absolutive languages draw a different distinction. They mark the transitive patient and the intransitive single argument with absolutive Case, and the transitive Agent with ergative Case. A number of languages, however, exhibit split ergativity: in certain contexts, the ergative-absolutive Case system is lost and all arguments are marked for absolutive Case. Most importantly, this phenomenon occurs in many languages in the presence of progressive aspect, but not in the presence of perfect aspect. This has been noted for Basque by Laka (1996) and Coon & Preminger (to appear), for the Mayan language Chol in Coon (2010), and within Nakh-Dagestanian languages in Forker (2010).

In order to explain this phenomenon, Coon (2010), Coon & Preminger (to appear) and Laka (2006) have all claimed that in the presence of progressive aspect the clause is divided into two separate Case-assignment domains at this aspectual boundary. This entails that the two arguments of the clause are divided across the Case domains and so are invisible to one another. Under Marantz's (1991) Case-competition approach

What we suggest is that VPE targets the highest predicate projection. This is vP_{prog} when it is present or vP otherwise (or potentially VP, if one wants to assume that there is no vP in unaccussative clauses). A formal implementation is deferred to future research, but this proposal might give us a way of formalising ellipsis without making use of the [E] feature (proposed by Merchant 2001 and adopted by many people after him), or to use it in a less stipulative way. At the moment, however, we do not know how this can be realised.

4.6 Summary

We have argued that the ellipsis site is the highest predicative projection in the clause, which maximally corresponds to vP_{prog}. Section 2 presented our approach to verbal inflections: auxiliaries raise to check their uninterpretable feature (see Lasnik 1995), otherwise the derivation crashes at PF. This means that *being* is formed by passive or copular *be* raising to Prog°, inside the ellipsis site, and hence is always elided under VPE. *Been* is formed by progressive, passive or copular *be* raising to Perf°, and *be* is formed by progressive, passive or copular *be* raising to Inf°. In each case, the auxiliary raises from a position inside the ellipsis site, to a position outside of the ellipsis site, thereby escaping ellipsis. Finally, *have* is base-generated outside the vP_{prog} ellipsis site, and obligatorily remains overt.

We argue that the optional deletion of *be*/*been* is due to the fact that they do not always raise out of the ellipsis site to Perf° or Inf°. This is only possible under ellipsis, however: the uninterpretable (PF) feature on the auxiliary is unchecked, but ellipsis acts as a repair mechanism so no PF violation occurs. In non-elliptical sentences, if the auxiliary does not raise, its inflectional feature is unchecked, but unlike with VPE, it is not elided, and thus a PF

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this means that the two arguments do not compete against one another and so can be assigned the same absolutive Case. No such clausal division takes place in the presence of perfect aspect in these languages.

violation occurs. In sum, either the auxiliary raises or it does not, but only under ellipsis does the option of not raising result in grammaticality. The next section presents previous accounts for the auxiliary pattern.

5. Previous approaches

We divide our discussion of previous analyses of the pattern in two parts: one focuses on the obligatory ellipsis of *being*, while the second deals with the optional ellipsis of *be* and *been*.

5.1 Being

Most of the analyses of VPE in the literature stay away from the question of where exactly the auxiliaries are situated and in which position the elided auxiliary *being* would reside. Very recently, this latter issue has been given some more attention. Inspired by Akmajian & Wasow (1975) and Akmajian, Steele & Wasow (1979), Bošković (2004, 2012) and Thoms (2011) propose that whilst all other auxiliaries raise to receive inflections, *being* remains in its base position and has its inflection lowered onto it. Specifically, passive/copular *be* is base-generated in vP without its progressive affix *–ing* attached to it. The *–ing* affix sits somewhere above *be* in ProgP and is lowered onto the auxiliary. If VPE always targets vP, *being* can never survive ellipsis. The advantage to this approach is that it allows us to maintain a consistent ellipsis site in the form of vP, without having to extend the ellipsis site in certain contexts to include ProgP. However, as the aspectual mismatch data in section 3 has shown, ProgP is in fact included within the ellipsis site, thereby denying the '*being* in base position' approach of its theoretical advantage.

Moreover, the main problem with the '*being* in base position' approach is that it is a pure stipulation that *being* is the only auxiliary that does not raise to get its inflection.[20] The only reason offered by Bošković for why *being* does not raise is that it is adjacent to the *–ing* suffix. That is, there are no intervening projections between *–ing* and auxiliary *be* so *be* can receive its progressive inflection in its base position. However, what about when the passive or copular auxiliary surfaces as *been*? In such instances, ProgP would be absent from the derivation and the auxiliary would find itself immediately adjacent to the perfect inflection in PerfP. Since nothing intervenes between the auxiliary and perfect aspect, we would expect the auxiliary to once again receive its inflection in its base position. There should therefore be no distributional difference between *been* and *being*: we would predict both to be obligatorily elided under VPE since they occupy the same position. This is of course contrary to fact. The only way to circumvent this problem would be to assume a hard-line cartographic approach according to which all the inflectional projections are always present in the structure. This implies that ProgP is always present, even in a sentence without progressive aspect, and so intervenes between PerfP and the auxiliary. Bošković (2012), however, overtly assumes the opposite of this, adopting a WYSIWYG approach, thereby reducing the non-raising of *being* once again to a pure stipulation.

Sailor's (2012) analysis runs into similar problems but from the opposite angle when dealing with the ellipsis of *being*: he assumes uniform lowering of affixes onto the auxiliaries through a reverse Agree model, as in Bjorkman (2011). To account for the distinction

[20] The fact that *being* does not raise to receive inflection is crucial in Thoms' (2011) analysis, as he claims that there is not really a licensing head for ellipsis, but that it is head movement (and A'-movement) itself that licenses ellipsis of everything below the landing site of the moving head. Hence, the fact that *being* can never survive ellipsis is because it does not move and therefore cannot license ellipsis of its complement.

Elegant though this approach might be, there are several arguments against it. One problem with it, for instance, is that VPE in questions should be able to elide the subject as well, as the finite verb in this case moves to C°, while the subject is still in TP below it. This prediction does not hold, however:

(i) I heard Ted is playing the ukelele tonight. – Oh, is *(he) [~~playing the ukelele tonight~~]?

between *be/been* and *being* he has to postulate optional raising of *be* and *been* out of the ellipsis site. This additional raising, however, is unmotivated and, again, a pure stipulation.

Thoms (2012) takes a similar approach to Sailor, but motivates the optional raising through optional cliticisation to the preceding auxiliary. The problems with this approach are twofold. First, there is no evidence that *be* and *been* are able to undergo cliticisation to higher elements in the same way that *have* can. Second, this optional raising of *be* and *been* cannot capture the obligatory raising of these auxiliaries under VPF and pseudo-clefts.

For these reasons, we reject the aforementioned treatments of *being*. The next section sums up the fluctuating ellipsis site accounts for the optional ellipsis of *be* and *been* and presents their problems.

5.2 Be/been

Our proposal to capture the optional deletion of *be* and *been* is not the only option. There are other ways to approach this puzzle. One possible solution, instead of having a fixed ellipsis site, but 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).[21] Bošković's (2012) account essentially uses this tactic, as does the original proposal by Akmajian, Steele & Wasow (1979).

Bošković (2012) makes a number of assumptions as to the structure of the middle field which are highly similar to our own. He assumes the same functional hierarchy that we established in (9), and the same analysis with regards to auxiliary raising (though he motivates this through a morphological requirement rather than through feature checking).

[21] Of course, the 'fixedness' of our ellipsis site is not as rigid as it seems: 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.

Bošković explains optional ellipsis of *been* as follows: *been* raises to occupy Perf°. Under VPE we are presented with a choice: we may either elide everything in the complement of Perf°, in which case *been* survives ellipsis, or elide PerfP itself, in which case *been* is elided.[22]

This seems to work for the optional ellipsis of *been*, but runs into trouble when trying to account for 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.

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, then *be*, sat in Inf°, survives ellipsis. If on the other hand, we decide to elide InfP itself, *be* is contained within the ellipsis site and so is elided.

This claim, however, runs into a number of problems. 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* would be predicted to be optionally included in the ellipsis site, contrary to fact: infinitival *have* can never be elided (see footnote 2). 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, the sentence in (55). In this sentence, the auxiliary *have*

[22] Bošković actually assumes a phasal approach to ellipsis as per Gengel (2007) in which the ellipsis site is the spell-out domain of the phase. However, Bošković suggests that what is elided is either the complement of the phase head, or the entire phase, to account for the optional ellipsis data. Unfortunately he then loses the intuitive notion that was gained by marrying ellipsis with phases. That is, at spell-out we simply choose whether to pronounce, or not to pronounce, the spell-out domain of the phase. The spell-out domain has always been taken to be the complement of the phase head. So why we should suddenly have the option of including the phase head and its edge in the spell-out domain remains a mystery. A further issue with Bošković's phasal approach to ellipsis is that he allows for aspectual projections to act as phases. Whilst we are sympathetic to the idea that projections other than just vP and CP may constitute phases, the problem with allowing for an aspectual projection to act as a phase, but not its associated vP shell, is that we separate aspects and their associated auxiliaries by a phasal boundary. As was stated earlier, auxiliaries are always closely tied to their aspectual forms. That is, 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 suggests.

occupies the head of InfP, and *been* sits in Perf°, which is in the complement of Inf°. Therefore, we expect *been* to be obligatorily elided under VPE, contrary to fact:

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

Further to the empirical issues regarding Bošković's approach, it has a significant disadvantage from the system we have argued for in this paper. Bošković's account cannot be extended to capture the VPF and pseudo-clefting data. Bošković seems to recognise in a footnote that there is a connection between VPE and fronting, though explicitly stays away from the issue. If we genuinely wish to maintain the link between VPE and fronting, 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 predicted to be optionally fronted, contrary to fact.

Akmajian, Steele & Wasow (1979) have also sketched out a similar analysis to Bošković (2012), in which the optional ellipsis of *be/been* is accounted for via optional extension of the ellipsis site. Many of the arguments against Bošković's account can therefore be extended to Akmajian, Steele & Wasow's (1979) account, most notably the difficulties that the system runs into when trying to account for the non-ellipsis of *have*, and the fact that the analysis cannot be so easily extended to explain VPF phenomena.

This has hopefully demonstrated why these previous accounts do not fully capture the data, or at least not in a satisfactory way, and highlights why an approach such as the one argued for in this paper is needed.

6. Remaining issues and speculations

As is the case with any analysis, ours has some loose ends and problems as well. This section mentions some of these issues and speculates about potential solutions to them.

A first issue involves finite *be*, which we have already briefly mentioned in section 4.1. Our approach to optional *be/been* deletion was that *be/been* has the option of not raising to check its inflectional features, because ellipsis would elide the unchecked features and prevent the PF violation anyway. That means, however, that finite *be* would have that option as well if it had finite features to check, which predicts that finite *be* is allowed to not raise and be elided. This is not the case, naturally, as VPE can never elide the finite auxiliary. One could say that T° needs to be filled by means of an unchecked feature on the head itself (perhaps the verbal equivalent of an EPP feature). If the auxiliary did not raise, this feature on T° would go unchecked, causing a PF violation, but because it is not within the ellipsis site, it cannot be rescued by ellipsis. This may also capture the need for the dummy auxiliary *do* in English: *do* is inserted in cases of negation, SAI, ellipsis and fronting in which only the lexical verb would otherwise be present. Since the lexical verb does not raise, T° would not be filled, so *do* is inserted as a last resort PF operation to satisfy T°'s unchecked feature.

Two follow-up questions can be raised here: firstly, why is insertion of dummy *do* not an option for finite auxiliaries? The answer here could be that insertion of dummy *do* into T° is a more costly operation than auxiliary raising: unlike the auxiliaries, *do* was never a part of the original numeration and is simply a PF operation to save the derivation as a last resort. Auxiliary raising to satisfy T°'s unchecked feature, which is an option unavailable to the lexical verb, is a less costly operation than insertion of an extra item at PF, therefore auxiliary raising is chosen over *do* insertion, and the finite auxiliary does not have the option of staying in situ even under ellipsis.

The second question is what happens with the finite lexical verb in a standard English declarative sentence without ellipsis? It is standardly assumed that the lexical verb does not

raise to T° (see Lasnik 1995b, among many others), leaving T° empty, but dummy *do* is not inserted to satisfy T°'s feature in this case. So how could our proposed unchecked feature on T° be satisfied? Related to this is the issue of why this distinction between lexical and auxiliary verbs should exist in English? It is standardly assumed that universal grammar categorially distinguishes lexical verbs from auxiliary verbs (see Akmajan, Steele & Wasow 1979; Steele 1981; Kayne 1989; Lasnik 1995b; see also Roberts 1998),[23] and that the lexical verb does not raise to T° (or any other inflectional head) in English. Yet still, the lexical verb appears with (finite or non-finite) inflections. Why there is such a contrast, however, has been a long standing issue for generative syntax, and one which we are unfortunately unable to answer in this paper.

A second aspect of the pattern in (8) that we did not capture fully with our analysis involves epistemic modals. It has been claimed that epistemic modals by themselves cannot occur in a VPE context. That is, they always need another non-finite auxiliary to be present:

(56) Has Ted gone home already? – His car isn't here, so he must *(have) [~~gone ...~~]

Some accounts of ellipsis therefore argue that it is not T° that is the licensor of VPE, but the auxiliaries themselves.[24] They take the fact that epistemic modals obligatorily come with another auxiliary to show that these modals cannot license VPE. However, this data should be put into perspective. As we know, *have* can never be elided anyway, so the fact that it is obligatorily present with an epistemic modal is no different from cases without such a modal. So the problematic cases are (i) sentences without any auxiliaries but the epistemic modal (see

[23] Wexler (1994) observed a consistent pattern of inflectional errors in child English reflecting such a fundamental contrast between English main verbs and auxiliaries: children freely substitute the infinitival form for the appropriate finite form for main verbs, but not for auxiliaries.
[24] See Aelbrecht (2010), however, for arguments against this view.

(57)a) and (ii) sentences with ellipsis of *be* (see (57)b), and the question of why these cases are ungrammatical.

(57) a. Do you think Ted will eat a dolphin sandwich? – *He must.[25]

b. Do you think Ted will be eating a dolphin sandwich? – He must *(be).

Even that turns out not to be the full story, however: it is true that epistemic *must* requires the overt presence of *be* (illustrated by example (57)b), but this could be for independent reasons (see below). Other epistemic modals, such as *should*, *might* and *could* allow for optional deletion of *be*, see (58), with the relevant epistemic reading. These examples show that epistemic modals are allowed with VPE, even in the absence of another auxiliary. This means that epistemic modals might not be that different from the cases with deontic modals (cf. (59)) or without any modals.

(58) a. Should he be home by now? – Yes, he should (be).

b. Will he be arrested? – He might (be).

c. Dr. Watson: That is none of your business.[26]

Mycroft: It could be.

Dr. Watson: It really couldn't.

(59) a. She should be fired – No, she shouldn’t (be).

b. She could be a singer – No, she couldn’t (be).

[25] The asterisk here indicates that an epistemic reading is unacceptable. A deontic interpretation is of course fine.
[26] Example taken from *Sherlock*, 2010, BBC Show. Thanks to Jason Merchant (p.c.) for pointing this out to us.

Must is a different case, as the examples in (57) illustrated. However, it is hard to find an example even without ellipsis in which epistemic *must* selects for a lexical verb, and not an auxiliary:[27] the sentence in (60)a with *be* has epistemic *must*, but this interpretation seems to be inaccessible when *must* selects for a lexical verb ((60)b).

(60) a. He must be walking home. [epistemic/?deontic]

b. He must walk home. [*epistemic/deontic][28]

In other words, epistemic *must* seems to be almost impossible without any auxiliary, whether there is VPE or not. Hence, the ungrammaticality of (57)a is expected.

It is still unclear why in (57)b *be* has to be present and cannot be optionally elided as in sentences with other modals.[29] One suggestion we would have for this, although it is speculative, is that the epistemic interpretation of *must* in (57)b depends on the overt presence of *be* (or another auxiliary), for the same semantic reason as why (57)a is out (even though we do not fully understand what this semantic reason is). This dependency is strong enough so

[27] One counterexample we can find is the sentence *He must know the answer*, which has an epistemic interpretation.

[28] Admittedly, one can think of a context in which the epistemic reading could be felicitous, for instance one describing a likely habit. Even so, this use feels quite archaic and formal.

(i) A: Will leaves work every day at 5 and is home at 6, but he lives only 5 kilometers away.
B: Well, he must walk home then.

Crucially, in this context VPE without any additional auxiliary is possible as well, with the same archaic feel:

(ii) A: Will leaves work every day at 5 and is home at 6, but he lives only 5 kilometers away. Do you think he walks home?
B: Well, he must.

[29] Interestingly, however, the context provided in the previous footnote seems to allow ellipsis of *be* more readily following *must*, see (i). Apart from the context, an important difference between (i) and (57)b is that in (i), *must* is included in the antecedent. We do not know, however, why an antecedent without *must* does not deliver an acceptable sentence. Furthermore, this construction needs to be tested with more native speakers, and there seems to still be a strong preference for the version with *be*, which we do not have an answer for.

(i) A: Will said that he's leaving work at 5 and will be home by 6, though he only lives 5 kilometers away. So he must be walking home, right?
B: Yes, he must ?(be).

that the hearer cannot get to the right interpretation of *must* if the selected auxiliary is missing at PF, as a recoverability requirement. Of course, this is a very tentative explanation which needs to be further formalized and looked into.

One final issue for our proposal involves voice mismatches under VPE. Merchant (2007, 2008) 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.

(61) a. The janitor must remove the trash whenever it is apparent that it should be [~~removed~~]. (Act-Pass)

b. The system can be used by anyone who wants to [~~use it~~]. (Pass-Act)

Merchant accounts for this mismatch 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. That is, because VoiceP survives ellipsis, it does not need to be identical in form to the VoiceP contained in the antecedent. 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, it is worth noting that not all native speakers of English accept voice mismatches under ellipsis. Moreover, Merchant's analysis cannot be used to analyse the illicitness of aspectual mismatches when progressive aspect is involved in the ellipsis clause, as discussed and accounted for in section 3.1 of this paper. At present we have no means of reconciling these two phenomena and related analyses, though the contrast between the licitness of voice mismatches, and the illicitness of certain aspectual mismatches under VPE seems to be an

interesting avenue for further research on ellipsis. One interesting point to note is that voice mismatches are illicit when progressive aspect is involved, but not when higher aspectual forms, such as perfect aspect, are:[30]

(62) a. The system can be used by anyone, and Mary has [~~used the system~~] already twice.

b. * The system can be used by anyone, and Mary has been [~~using the system~~] all day.

c. * The system can be used by anyone, and Mary has been [~~using the system~~] (continuously) since Friday.

This observation highlights the peculiar and somewhat unique behaviour of progressive aspect that we have only just begun to touch on in this paper.

7. Conclusion

In conclusion, this paper aimed to account for the fact that, under VPE, modals, finite auxiliaries and non-finite perfect *have* can never be elided, *being* must always be elided, and *be* and *been* are optionally elided. This was achieved by claiming that ellipsis may target as much as vP_{prog} (though less if progressive aspect is absent from the underlying derivation). Evidence was provided through data involving aspectual mismatches, Taiwanese VPE, English existential constructions and idioms. 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

[30] Thanks to Jason Merchant (p.c) and Wurmbrand (2012) for pointing out this observation.

ellipsis site; *have* is basegenerated outside of the ellipsis site; and *be* and *been*'s base positions are inside the ellipsis site, but they raise out of the ellipsis site. 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. Finally, as a means of formalising the ellipsis site, we speculatively argued that VPE ellipsis is in fact predicate ellipsis, and that progressive aspect may be seen as part of the predicate whilst higher aspectual forms are not.

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