

Being Progressive Is Just A Phase: celebrating the uniqueness of progressive aspect under a phase-based analysis

Abstract

The identity of phasal boundaries has mostly been considered in light of minimal CP-TP-vP-VP structures. The question this paper addresses is where the clause-internal phase boundary lies in light of more complex structures in which aspectual projections intervene between TP and vP. I claim progressive aspect to be unique amongst aspectual forms in English in that it is part of the clause-internal phase, whilst perfect aspect and all higher functional items are contained within the CP/TP phase. This claim accounts for many peculiar quirks of progressive aspect in English, namely in VP ellipsis, fronting phenomena, idioms and existential constructions. On the theoretical front I argue that this division in the aspectual hierarchy is best understood through a variable approach to phases in which the highest projection within a sub-numeration acts as the phase, irrespective of what that projection is. This denies vP of its exclusivity as the clause-internal phase, and allows the progressive layer to project the phase when present. This approach generally sits in line with the move towards a dynamic understanding of phases, as per Bobaljik & Wurmbrand (2005), Wurmbrand (2012, to appear) and Bošković (to appear a, b).

1. Introduction

It has long been observed that certain domains appear to exist in natural language which exhibit syntactic, phonological and semantic independence from the rest of the structure surrounding them. An ongoing issue for generative grammarians has been how these facts should best be captured within a syntactic framework. Various proposals have been made to explain these seemingly opaque domains, such as Chomsky's Barriers (1986) model. The Minimalist Program (Chomsky 1995), however, abandoned such earlier proposals in favour of phase theory (Chomsky 2000, 2001). Under phase theory, the syntactic derivation is not formed in one go and is instead built up in a series of discrete chunks of structure, known as phases. Once complete, each phase is sent off independently to PF and LF for pronunciation and interpretation, thereby establishing the apparent independence of certain domains. With respect to the main clausal spine, Chomsky (2000, 2001) assumes this to be bifurcated into two discrete phases: the lower phase demarcated by vP, and the higher phase demarcated by CP. The focus of this paper will be on the identity of the lower, clause-internal phase.

For the most part, the phasal boundary of the clause-internal phase is only ever considered in the context of a minimal CP>TP>vP>VP structure.¹ But what happens if we look at phases in the light of more articulated structures? Consider, for instance, the sentence below:²

- (1) Betsy must have been being paid to keep quiet about the crime.

In this example there is clearly a more detailed structure intervening between TP and vP involving a number of aspectual projections. Phases are rarely explored in the context of these more elaborate structures, and on the few occasions that they have been considered, there has often been confusion as to where the phasal boundary lies. Several authors assume that the entire range of aspectual projections may constitute separate clause-internal phases (Butler 2004; Henry & Cottell 2007; Deal 2009), or, conversely, are simply a part of the higher TP/CP phase (Chomsky 2000, 2001; Svenonius 2004, 2005). Alternatively, Wurmbrand (2012, to appear) and Bošković (to appear a) claim the entire range of aspectual projections

¹ See, however, Rizzi (2005) and Kidwai (2010) for considerations of phase theory in terms of a cartographical framework.

² The data presented in this paper is based on the judgments of a number of native speakers of British English, including those of the author, unless otherwise stated.

are contained within the one clause-internal phase. In short, no consensus has been reached as to where the clause-internal phase boundary lies in light of more complex structures.

This paper directly addresses this issue by claiming that the clause-internal phase boundary, which under standard minimalist assumptions is vP, may in fact extend as far as the progressive aspectual layer when such projections are present in the structure. Perfect aspect, on the other hand, is always contained within the higher phase of the clause, along with modals, TP and CP. This proposal will be formalised by claiming that the last merged item from a sub-numeration acts as the phase, whatever that last merged item may be. By taking progressive aspect to be contained within the same sub-numeration as the lexical verb (but not perfect aspect), this allows for a variable phase boundary in which progressive aspect, when present in the derivation, acts as the clause-internal phase instead of vP. This will be motivated empirically by the peculiar properties that the English progressive aspect exhibits in relation to VP ellipsis, fronting phenomena, idioms and existential constructions. In particular I focus on the fact that auxiliaries inflected for progressive aspect are obligatorily elided under VP ellipsis, obligatorily fronted under VP fronting, and must follow the associate in existential constructions:

- (2)
 - a. Betsy might be being paid to keep quiet, and Dorothy might be (***being**), too.
 - b. If Betsy says she might be being deceived, then [***(being)** deceived] she might be (***being**).
 - c. There might be (***being**) many ravers ***(being)** arrested tonight.

The rest of this paper is structured as follows: section 2 discusses the formal background to phase theory that I will be following, and also outlines the basic structure of the aspectual hierarchy in English. In section 3 I show how the current understanding of ellipsis in terms of phases predicts that the progressive aspectual layer of the clause should be contained within the clause-internal phase, but not the perfect aspectual layer. Section 4 illustrates how Chomsky's (2005), Fowlie's (2010) and Roberts' (2010) claims that only phases can move predicts that the progressive aspectual layer, but nothing higher, should act as the clause-internal phase when present, rather than vP. Section 5 discusses how Svenonius' (2005) understanding of idioms as being constrained by phasal domains provides further support for this claim. Section 6 provides a formal explanation for how progressive aspect can constitute a part of the clause-internal phase but not perfect aspect. Section 7 seeks further support for this proposal from existential constructions, whilst section 8 deals with any remaining issues. Finally, section 9 concludes.

2. *Background Assumptions*

2.1. *Phase Theory*

Given the various different approaches to phase theory that have been proposed over the last decade (Chomsky 2000, 2001, 2005; Fox & Pesetsky 2003, 2004; Svenonius 2004; to name but a few), I make clear here the core concepts of phase theory that I will be assuming.

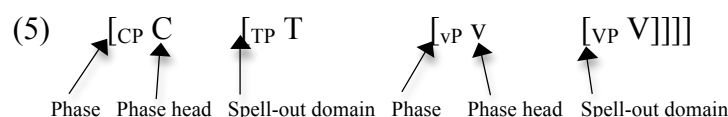
I generally follow the traditional concepts of phase theory as formalised in Chomsky (2000, 2001) where it is claimed that the composition of each phase is determined in the numeration. If one considers a minimal CP>TP>vP>VP structure, and putting aside arguments, the basic numeration for such a derivation would be comprised as follows:

- (3) [C T v V]

However, rather than the numeration being comprised of one single set of items, phase theory assumes a number of smaller sets of items: sub-numerations:

- (4) [[C T] [v V]]

These sub-numerations are what constitute phases. Chomsky (2000, 2001) claims that items from the first sub-numeration are merged into the workspace until the point that *v* is merged, which is the phase head. Therefore, the phrase that *v* projects, *vP*, is the clause-internal phase. Similarly, *C* from the second sub-numeration is the phase head of the higher phase, meaning the phrase it projects, *CP*, is the higher phase. These phases are, at some point in the course of the derivation, independently shipped off to PF and LF for spell-out and interpretation respectively. However, phases are not shipped off in their entirety. Rather, only the complement of the phase head, the spell-out domain, is sent to spell-out, whilst the phase head and its specifier, the phase edge, remain in the syntax and are only spelt out with the higher phase.



A side effect of all this is that any material contained inside the completed spell-out domain would be unavailable for further syntactic computations. That is, if an item has been shipped off, along with the rest of the spell-out domain, to PF and LF, then it is no longer visible to the syntactic component and so cannot enter into any further syntactic operations with elements outside of the phase; thus deriving the opacity and apparent syntactic, phonological and semantic independence that phases exhibit.

Consequently, any item merged within the spell-out domain of the lower phase that must undergo operations within the higher phase, proceeds first via the phase edge so as to escape spell-out of the lower phase and remain visible to the syntax.³ This therefore allows such items to undergo syntactic operations within the higher phase.

Finally, I follow Chomsky (2001) in assuming that a domain is sent to spell-out, not upon merger of the phase head immediately above it, but upon merger of the phase head of the next phase up. For instance, the VP spell-out domain is only spelt out upon merger of the C phase head. This can be formalised with the revised version of the Phase Impenetrability Condition (PIC II, Chomsky 2001) as follows:

- (6) Given structure $[ZP Z [XP [HP \alpha [H YP]]]]$, with H and Z the heads of phases – The domain of H is not accessible to operations at ZP; only H and its edge α are accessible to such operations.

These are the crucial assumptions of phase theory that I will follow, although I will take issue with the claim that *C* and *v* are the only elements that may act as phase heads within the matrix clause, and argue that the clause-internal phase, when considered in light of more elaborate structure, can be somewhat larger than just *vP*.⁴ In section 3 I also take issue with the claim that only phasal complements can be sent to spell-out and argue that full phasal spell-out is also a possibility. In the next section I outline a number of background assumptions with regards to the enriched structure of the aspectual hierarchy in English.

³ I do not assume, however, that phase edges and phase heads are the only potential landing sites for internal merge, merely that syntactic items must proceed via these positions in order to undergo operations in the higher phase. I also do not assume, as per Chomsky (2005) and Richards (2007), that only phase heads trigger Agree.

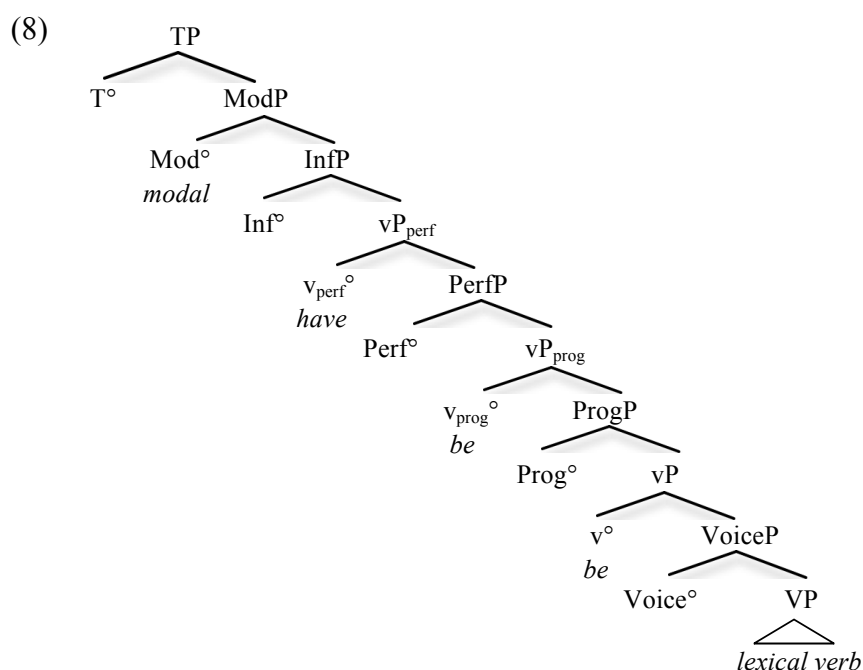
⁴ As detailed in section 6, I will ultimately be assuming a dynamic approach to phases along the lines of Bobaljik & Wurmbrand (2005), Wurmbrand (2012, to appear) and Bošković (to appear a,b). An alternative approach to dynamic phases is that of phase extension and phase sliding, as per Den Dikken (2007) and Gallego (2010), respectively. However, I will not be assuming these alternative approaches, at least for the purposes of English.

2.2. *Auxiliaries and the aspectual hierarchy*

As Tenny (1987) and Cinque (1999) has observed, there is a universal functional hierarchy of the form: tense > modality > perfect aspect > progressive aspect > voice > verb.⁵

(7) Betsy must have been being paid to keep quiet about the crime.

In order to derive this functional hierarchy one must posit a number of additional projections between TP and vP whose heads can host the relevant auxiliaries and aspectual forms. Here I follow work done by Tenny (1987), Kayne (1993), Cinque (1999), Iatridou, Anagnostopoulou & Izvorski (2001), Harwood (2011), Aelbrecht & Harwood (2013) and Bošković (to appear a), and propose the articulated structure in (8) (leaving specifiers aside for reasons of space and simplicity). The modal, auxiliary and lexical verbs, all written in italics, represent the abstract, uninflected forms of these verbs in their base positions:



First and foremost I assume a paired layering in which auxiliaries head their own vP shells independent of the aspectual projections that they select for. Whilst this is theoretically less attractive than a system in which auxiliaries head the actual aspectual projections themselves (as in Bjorkman 2011), I assume that auxiliaries raise for inflectional purposes (see later), which means that first merger of auxiliaries in their own vP shells is necessary in order to prevent auxiliaries from raising into one another's trace positions, a clear violation of locality.

Starting with the modal layer, I assume modals to be merged in the head of ModP, which immediately selects for the infinitival phrase InfP, which itself licenses the infinitival forms of lower verbs. Below this is the perfect aspect layer. This layer is composed of vP_{perf}, headed by the perfect auxiliary *have*, followed by the aspectual phrase PerfP, which licenses the perfect forms of lower verbs. Following this is the progressive layer: vP_{prog}, headed by the progressive auxiliary *be*, which selects the progressive aspectual phrase, ProgP, licensing the progressive forms of lower verbs. I follow Baker (1997), Eide & Áfarli (1997), Bowers (2002), Harwood (2011) and Aelbrecht & Harwood (2013) in assuming that passive and

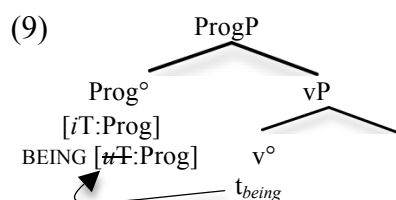
⁵ In this paper I stay away from discussion of infinitival *to*, which goes beyond the scope of this research.

copula *be* are both merged in v° and that VoiceP, which determines the active or passive voice of the sentence, is situated between vP and VP.⁶

Furthermore, I assume a What You See Is What You Get (WYSIWYG) approach to the functional hierarchy: the relevant verbal and aspectual projections are only ever present in the underlying derivation if the aspectual meaning is expressed by the clause. TP and VP are taken to always be present,⁷ but ModP, InfP, vP_{perf} , PerfP, vP_{prog} and ProgP are only present if modals, perfect aspect or progressive aspect, respectively, are expressed in the sentence. Whether projections such as VoiceP and vP are always present is a matter for debate and one which I will largely set aside for the majority of this paper. See section 6, however, for a brief discussion of this issue in relation to phase theory.

Moreover, I take auxiliaries to uniformly raise for inflectional purposes. Specifically, I suppose that auxiliaries raise for reasons of feature checking, as per Chomsky (1993), Lasnik (1995b) and Aelbrecht & Harwood (2013). That is, auxiliaries enter the derivation bearing readily valued, but uninterpretable inflectional features that must raise to either T° , Inf° or an aspectual head in order to have this feature checked by a matching interpretable feature, thereby licensing the auxiliary's form at PF.⁸ Let us briefly consider what this implies for the distribution of auxiliaries.

I assume that, when realised as *being*, passive or copula *be* bears an uninterpretable inflectional feature $[uT]$ valued for progressive aspect: $[uT:\text{Prog}]$.⁹ In order to check this feature, *being* raises out of v° to Prog° , which bears a matching interpretable feature of the form $[iT:\text{Prog}]$. Once in Prog° , *being* is able to check its feature and is spelt out in this position in accordance with its feature value:



Been on the other hand, whether progressive, passive or copular, bears an uninterpretable inflectional feature valued for perfect aspect $[uT:\text{Perf}]$, causing it to raise out of $v^\circ/v_{\text{prog}}^\circ$ to Perf° in order to check this feature. *Be* raises from $v^\circ/v_{\text{prog}}^\circ$ to check its uninterpretable infinitival $[uT:\text{Inf}]$ feature in Inf° , whilst finite *be* raises out of $v^\circ/v_{\text{prog}}^\circ$ to check its $[uT:\text{Fin}]$ feature in T° . Non-finite *have* raises out of v_{perf}° to Inf° to check its infinitival $[uT:\text{Inf}]$ feature, and to T° when finite and bearing a $[uT:\text{Fin}]$ feature. Finally, modals always raise from Mod° to T° to check their $[uT:\text{Fin}]$ feature.

This gives us the distribution of auxiliaries in (10), where the italicised forms represent the base positions of auxiliaries in their abstract uninflected forms, and the capitalised forms are their spell-out positions:

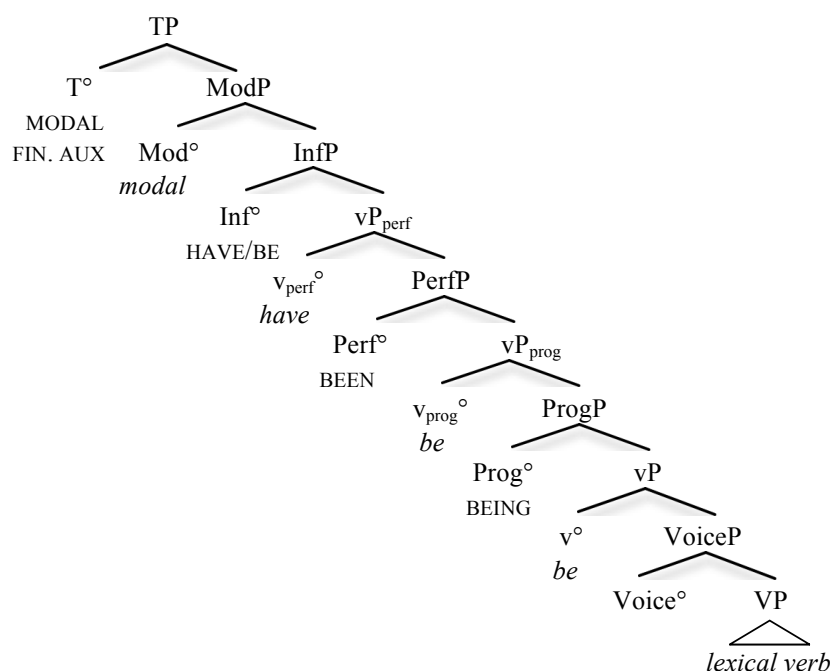
⁶ The assumption that passive and copula *be* reside in v° is not pivotal for the story. An approach in which passive *be* is merged in its own vP_{voice} projection, which is followed by VoiceP, and only then by vP proper, is also possible, and would not affect the analysis.

⁷ Unless we have a copular construction, in which case VP is replaced by NP, AdjP or PP.

⁸ This results in a system in which movement of the auxiliary is driven by a featural deficiency on the moving element itself. See Bošković's (2007) theory of foot driven movement for an understanding of how this can occur under current Minimalist assumptions.

⁹ I use i/uT to indicate inflectional features rather than $i/u\text{Infl}$ as this can be easily confused with the infinitival Inf valuation of these features.

(10)



I follow Chomsky (1993, 1995), Lasnik (1995b) and Aelbrecht & Harwood (2013) in assuming that such auxiliary head movement is syntactic, but that its output is generally a concern for the PF interface, not necessarily the LF interface. That is, the uninterpretable inflectional features on the auxiliaries which cause them to raise to higher aspectual heads must be checked before spell-out at PF, otherwise a derivational crash at PF would ensue. The implication is therefore that the raising and checking of auxiliaries must occur overtly in the syntax rather than covertly in order for the morphological form of the auxiliary to be licensed. This is not controversial. All overt raising of elements is standardly considered to be in order to satisfy a requirement at the PF interface. And since verb raising typically does not carry semantic import, it is logical that such movement should not be a part of the LF interface.¹⁰

Finally, it is standardly assumed that in English the lexical verb does not raise out of the vP domain. I do not commit myself to any particular approach as to how the lexical verb is inflected, though most proposals that have been made in this field, such as some form of covert raising (Chomsky 1993, 1995) or merger under PF adjacency (Marantz 1988; Bobaljik 1994; Lasnik 1995b; Baker 2003) are compatible under the assumptions made so far.

Having outlined the background assumptions to phase theory and the enriched structure of the auxiliary and aspectual system, the following three sections discuss the empirical phenomena that lead us to postulate that as much as progressive aspect should be included within the clause-internal phase.

3. *Ellipsis and Phases*

In this section I discuss the claim that ellipsis is constrained by phases and show that, when applied to VPE and the English auxiliary paradigm, progressive aspect is included within the clause-internal phase.¹¹ In section 3.1 I discuss the background literature on ellipsis and phases and conclude, as per Bošković (to appear a), that ellipsis may target either the phasal complement or the entire phase. In 3.2 I abstract away from phase theory and focus on the size of the ellipsis site in English VPE, claiming, as per Aelbrecht & Harwood (2013), that

¹⁰ The term ‘uninterpretable’ features usually conjures up associations with LF rather than PF. I use ‘uninterpretable’ here, however, for want of a better term that refers to PF features. It is also possible that the auxiliaries’ inflectional features might similarly be checked at the LF interface, but this can occur covertly in the syntax. The important point is that the overt raising and checking of auxiliaries’ inflectional features is a concern for the PF interface to license the morphological forms that the auxiliaries occur in.

¹¹ This paper has nothing to say, however, about the licensing requirements on ellipsis.

VPE targets the progressive aspectual layer. Finally, in section 3.3 I discuss the implications that the conclusions from the previous sections have on the size of the clause-internal phase.

3.1. *Background*

This section discusses the previous literature which argues that ellipsis is constrained by phases. Ultimately I adopt Bošković's (to appear a) claim that ellipsis may privilege either the phasal complement, or the entire phase.

3.1.1. *Ellipsis as non-pronunciation of the phasal domain*

Ellipsis is the apparent deletion of certain domains of syntactic structure. English VP Ellipsis (VPE), for instance, involves deletion of the lexical verb and its internal arguments:

(11) Apollo punched Rocky, and Mr. T did [~~punch Rocky~~] too.

I follow numerous authors (Ross 1969; Chomsky 1972; Sag 1976; Tancredi 1992; Chomsky & Lasnik 1993; Lasnik 1995a, 1999, 2001b; Merchant 2001, 2004; Aelbrecht 2010) in assuming that ellipsis phenomena such as VPE are deletion of syntactic structures at PF.

A long-standing issue with ellipsis phenomena has been why only certain constituents are targeted by ellipsis. Gengel (2007, 2008) suggests a potential solution to this problem by connecting ellipsis sites to phasal spell-out domains. That is, Gengel (2007, 2008) observes that ellipsis sites appear to correspond to spell-out domains. This is most clearly illustrated in sluicing (Ross 1969; Saito & Murasugi 1990; Merchant 2001), which is the ellipsis of TP:

(12) Pinocchio lied about something, but I don't know [_{CP} what [_{TP} ~~Pinocchio lied about~~]].

Under the standard approach to phase theory, C° is a phase head and TP is the spell-out domain. Therefore, ellipsis in (12) appears to target the spell-out domain of the CP phase.¹²

VPE can also be analysed as non-pronunciation of the spell-out domain of the clause-internal phase. VPE has traditionally been analysed as deletion of VP (Akmajian & Wasow 1975; Sag 1976; Akmajian Steele & Wasow 1979; Lasnik 1999, 2001b, Gengel 2007, 2008), containing the lexical verb and its internal arguments. If vP is the clause-internal phase and v° the phase head, as Chomsky (2000, 2001) claims, then VP is the spell-out domain (under a minimal C-T-v-V structure), and hence the ellipsis site.

According to Gengel (2007, 2008), the elided constituent is always that part of the phase which is shipped off from the syntax, namely the phasal complement. This makes sense intuitively: a completed phase ships off its complement to PF and LF for pronunciation and interpretation. With regards to ellipsis, all that needs to be said is that, at PF, one chooses to either pronounce or not pronounce the spell-out domain. So ellipsis is essentially non-pronunciation of the phasal spell-out domain. Crucially then, ellipsis is constrained by phases, in that it only ever targets phasal complements. This approach has been assumed by van Craenenbroeck (2010), Rouveret (2006, 2011, 2012), Gallego (2010), Sailor (2012), Wurmbrand (2012) and Bošković (to appear a).

3.1.2. *The complement or the entire phase?*

However, as Bošković (to appear a) notes, the facts are not quite as simple as they at first appear. It has been claimed that Japanese, Korean, Turkish, Chinese and American Sign Language all allow for full argument ellipsis (Oku 1998; Kim 1999; Saito 2001, 2004, 2007; Tomioka 2003; Sugawa 2008; Sener & Takahashi 2010; D. Takahashi 2008a, b, 2010;

¹² NP ellipsis is another possible instance of ellipsis targeting the phasal complement if one assumes, as per Chomsky (2005), that DPs constitute phases.

Bošković 2011; Koulidobrova 2011; Takita 2011a, b; cited in Bošković to appear a). This is illustrated below for Japanese:¹³

- (13) a. Taroo-wa sannin-no sensei-o sonkeisiteiru.
 Taro-TOP three-GEN teacher-ACC respects.
 ‘Taro respects three teachers.’
 b. Hanako-mo e sonkeisiteiru.
 Hanako-also respects.
 ‘Hanako respects e, too.’

(Sener & Takahashi 2010, cited in Bošković to appear a:(30))

Saito (2007), D. Takahashi (2010) and Bošković (to appear a) all additionally observe that Japanese allows for DP, CP and PP argument ellipsis. If CPs, DPs and PPs act as phases, as assumed by Chomsky (2000, 2001, 2005), Fowlie (2010), Koopman (2010), Aelbrecht & Den Dikken (2013) and Bošković (to appear a, b), then the aforementioned data imply that ellipsis can also target the entire phase rather than just the complement of the phase head.¹⁴ Indeed, Holmberg (1999, 2001), Fox & Pesetsky (2003), Aelbrecht (2012) and Bošković (to appear a) have claimed that ellipsis targets entire phases. Going one step further, Bošković (to appear a) has claimed that ellipsis is constrained by phases in that only either the phasal complement or the entire phase can be elided. That is, there is a degree of parametric variation as to whether ellipsis privileges the one or the other. This choice can differ cross-linguistically, as well as between types of ellipsis within any one language.¹⁵

Bošković (to appear a) elaborates an argument involving extraction data in support of the claim that ellipsis can privilege either the phasal complement or the entire phase. Here I review his argumentation. First of all, note there is an implication that, if an entire phase can be elided and ellipsis only targets that part of the phase which is spelt out, then spell-out of an entire phase is sometimes possible.¹⁶ Recall furthermore that, in order for elements generated within the lower phase to undergo operations within higher phases, they must first proceed via the phase edge in order to escape spell-out. Recall also that PIC II (Chomsky 2001) is assumed, according to which spell-out within a lower phase does not occur until the phase head of the higher phase has been merged. For instance, in a minimalist C-T-v-V structure, spell-out from the vP phase does not occur until C° is merged. Bošković (to appear a) notes that these assumptions make an interesting prediction, namely that extraction from a phase should be more restricted if the entire phase is spelt out as opposed to the phasal complement.

Consider, for instance, the extraction possibilities under a minimal C-T-v-V structure in which C and v are phase heads, and the items α and β represent an agentive subject and a wh-object, respectively. Upon completion of the vP phase, α and β raise to the specifiers of vP (if they do not occupy this position already):

- (14) $[_{vP} \beta \alpha [_v [_{vP} [V t_p]]]]$

Once TP is merged, the agentive subject α raises to the canonical subject position of Spec-TP:

¹³ As Sener & Takahashi (2010) and Bošković (to appear a) note, the sentence in (13)b can have a sloppy interpretation which is only possible under an ellipsis analysis and not under a null pronoun/object drop analysis.

¹⁴ Chomsky (2000, 2001, 2005) does not actually explicitly assume PP to act as a phase, though the rest of the aforementioned authors do.

¹⁵ It should be noted that, under this analysis, ellipsis can never target any other constituent, such as the complement of the complement of a phase head.

¹⁶ Indeed, Fox & Pesetsky (2003, 2005), Svenonius (2004, 2005), Fowlie (2010), Richards (2011) and Aelbrecht (2012) have all argued for full phasal spell-out. See section 3.1.4 for a formalisation of how spell-out of the phasal complement or the entire phase can occur.

(15) $[_{TP} \alpha [T^{\circ} [_{VP} \beta t_{\alpha} [v [_{VP} V t_{\beta}]]]]]$

Merger of C° , the next phase head, instantly triggers spell-out of the lower phase. At this point the syntax is presented with a choice: to either spell out the phasal complement, or the entire phase. Consider what would happen in each instance. If the phasal complement, VP, was spelt out, v and its specifiers would survive spell-out. Therefore the wh-object, β , remains in the derivation and can undergo movement to Spec-CP (I grey out the constituent that has been sent to spell-out):

(16) $[_{CP} \beta [C [_{TP} \alpha [T^{\circ} [_{VP} t_{\beta} t_{\alpha} [v [_{VP} V t_{\beta}]]]]]]]$

If, on the other hand, the entire lower phase, including the phase head and edge, was spelt out, then the wh-object, β , would also be sent to spell-out and hence would be unavailable for further syntactic computations. The result therefore is that β would be unable to extract from the lower phase and raise to Spec-CP:¹⁷

(17) $[_{CP} C [_{TP} \alpha [T^{\circ} [_{VP} \beta t_{\alpha} [v [_{VP} V t_{\beta}]]]]]$

Crucially, extraction of elements from the clause-internal phase into the higher phase should always be possible. The difference is that spell-out of the entire lower phase should make extraction difficult for elements moving into the specifier of the C phase head, or positions beyond that. When only the lower phasal complement is spelt out, however, and the phase head and edge survive, all kinds of extraction are predicted to be possible.

In other words, movement from the clause-internal phase into the TP domain, hereby referred to as low movement, is always predicted to be possible out of phases. Under spell-out of the entire phase, however, movement from the clause-internal phase into the CP domain and beyond, hereby referred to as high movement, becomes problematic. So when high movement occurs, we can take this to be an indication that only the phasal complement has been sent to spell-out. However, if high movement is disallowed, we can take this to be an indication that the entire phase has been sent to spell-out.¹⁸ One such instance in which the entire phase is shipped off is under certain ellipsis phenomena wherein an entire phase is apparently elided, as reviewed above. As it so happens, Bošković (to appear a) notes that in these cases, high movement is not permitted. Shinohara (2006) and Saito (2007), for instance, observe that A'-extraction is disallowed out of the ellipsis site in Japanese CP argument ellipsis:

- (18) * Sono hon- o_i Taroo-wa [_{CP} Hanako-ga t_i katta to] itta si,
 that book-ACC Taroo-TOP [_{CP} Hanako-NOM bought that] said and,
 sono hon- o_j Ziroo-mo \emptyset itta.
 that book-ACC Ziroo-also \emptyset said.
 ‘Taroo said that Hanako bought that book, and Ziroo also said that she bought that book.’
 (Shinohara 2006 and Saito 2007, cited in Bošković to appear a:(36))

¹⁷ It has of course been argued that all operations triggered by a single head, e.g. C° , happen simultaneously (Chomsky 2005, Richards 2007). Therefore, spell-out and movement of the operator to Spec-CP would occur at the same time and no restrictions on extraction would occur. This is not the case with PIC II (Chomsky 2000), however, in which spell-out triggered by C° must precede any other operations related to C° , otherwise the spell-out domain of the clause-internal phase would be visible to C° .

¹⁸ This is obviously not the only restriction on high movement, since locality considerations and island constraints also have an effect.

This provides further support for the claim that, under certain circumstances, entire phases can be shipped off from the syntax and elided, rather than just the phasal complement.

English also appears to exhibit instances of ellipsis in which entire phases can be elided. Baltin (2006, 2007, 2012) and Aelbrecht (2010) have noted that British English *do* does not allow wh-object (high movement) extraction out of the ellipsis site:

- (19) *Although I don't know who Thomas will visit, I do know who Aga will do [~~visit~~
~~t_{who}].~~ (Baltin 2012:(14))

Bošković (to appear a) has analysed this as ellipsis of the full vP phase.¹⁹ This is contrasted with VPE, in which wh-object extraction from the ellipsis site is allowed:

- (20) Although I don't know who Thomas will visit, I do know who Aga will [~~visit~~ t_{who}].
(Baltin 2012:(13))

Therefore VPE may be analysed as ellipsis of the phasal complement, demonstrating that the choice of whether to elide the entire phase or just the phasal complement can vary within any one language. Bošković (to appear a) further claims that the choice of whether to elide the entire phase or just the phasal complement can even vary within a single type of ellipsis, and that VPE in English is one such instance. I will follow this assumption. Next I provide novel evidence in support of Bošković's (to appear a) claim.

3.1.3. *New evidence for full phasal ellipsis*

We have already seen above that generally VPE privileges the phasal complement. Evidence from existential constructions, however, demonstrates that VPE can also sometimes target the entire phase. Consider the distribution of the derived subject of a passive existential:

- (21) There were **several men** arrested for drunkenness.

In this sentence the expletive *there* appears to be occupying Spec-TP, preventing the derived subject from raising to this position. However, given that the derived subject is not occupying its base, post-verbal position, but occurs pre-verbally, some form of intermediate raising must have taken place. Chomsky (2000, 2001) analyses this sort of construction as involving stranding of the subject on the clause-internal phase edge. Essentially, the derived subject raises to the clause-internal phase edge so that it can enter into Case checking relations in the higher phase.²⁰ 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. The derived subject is thus stranded on the edge of the clause-internal phase where it precedes the lexical verb.²¹ This analysis can be extended to other types of existentials as well, such as unergative and transitive existentials and certain types of unaccusative existentials.

Returning to phases and ellipsis, but with the aforementioned analysis of existentials in mind, it is interesting to note that when VPE is applied to an existential construction, the subject does not escape ellipsis:

¹⁹ See, however, Aelbrecht (2010) and Baltin (2012) for accounts of ellipsis extraction data which argue against a (necessarily) phasal approach to ellipsis.

²⁰ 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.

²¹ See section 7 for a more thorough discussion of existential constructions and phases.

- (22) John said there were several people arrested last night, and indeed there were (*several people) arrested.

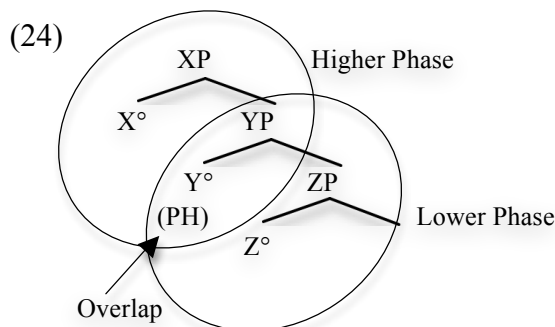
If ellipsis could only target phasal complements, and if the logical subject of an existential construction occupies the clause-internal phase edge, as has been argued, then one would expect the subject to survive ellipsis. The fact that the subject is instead included in the ellipsis site suggests that the entire phase can undergo ellipsis. Moreover, recall that when an entire phase has been elided, high movement becomes problematic. In light of this, it is remarkable, but expected under the approach I adopt, that whilst *wh*-movement is perfectly acceptable out of a non-elliptical existential construction, such extraction is impossible under VPE:

- (23) a. I don't know what there were so many people getting worked up about t_{what} .
 b. * I don't know what there were so many people getting worked up about yesterday, but I do know what there were [~~so many people getting worked up about t_{what}~~] last week.

This is quite compelling evidence that VPE, whilst generally privileging the phasal complement of the clause-internal phase, can sometimes target the entire phase.²²

3.1.4. *Formalising the choice between phase and phasal complement*

As was noted in the previous section, if ellipsis only ever targets spell-out domains, and entire phases can sometimes be elided, then an entire phase must sometimes, but not necessarily always, act as a spell-out domain. Here, I offer a tentative explanation as to how full phasal spell-out is sometimes possible, though a thorough explanation is beyond the scope of this article and is a matter for future research. A potential solution is to elaborate on an idea suggested in Bobaljik & Wurmbrand (2005) where it is claimed that phase heads are in fact domains of overlap between two phases. That is, the phase head of the lower phase is simultaneously selected by the lower phase and the higher phase, meaning that the two phases overlap at this point, as is shown in (24):



This implies that phase head Y in fact shares spell-out properties with both the lower and the higher phase. The upshot of this is that there is a degree of optionality as to when Y is spelt out. It may spell out with the higher phase as traditionally assumed, thus acting as an escape hatch for movement out of the lower phase, or it may spell out with the lower phase, resulting in full phasal spell-out, which would allow us to explain how entire phases can sometimes be targeted by ellipsis. Exactly how the derivation chooses when to spell-out the phase head is as yet not entirely clear. This remains a point of further research.

To summarise this section, discussion of the literature on phases and ellipsis has led us to the conclusion that, as claimed by Bošković (to appear a), ellipsis can privilege either the

²² This observation is difficult to explain under more standard, non-phasal accounts of ellipsis extraction data, which predict VPE to uniformly allow for all kinds of extraction.

phasal complement, or the entire phase, and that this can differ cross-linguistically, within any one language, and even within a single type of ellipsis. This was evidenced by full argument ellipsis in various languages, ellipsis of the logical subject on the phase edge in English existentials, and certain restrictions on extraction. It is not yet entirely clear nor predictable when ellipsis targets the phasal complement or the entire phase, but both options appear to be possible.

In section 3.2 I abstract away from phase theory and discuss the size of the ellipsis site in English VPE. In section 3.3 I bring together the conclusions from the previous two sections to argue that progressive aspect should be contained within the clause-internal phase in English.

3.2. *The VP Ellipsis site*

3.2.1. *Deletion of being as a first clue*

VPE has often been analysed as deletion of VP or vP (Akmajian & Wasow 1975; Sag 1976; Akmajian Steele & Wasow 1979; Lasnik 1999, 2001b; Johnson 2001, 2004; Merchant 2001, 2008, to appear; Gengel 2007, 2008; Aelbrecht 2010), containing the lexical verb and its internal arguments. However, the facts are not quite so simple. When the full range of auxiliaries is considered, we see that it is not just the lexical verb that is elided. Akmajian & Wasow (1975) and Sag (1976) both noted that the passive and copular auxiliary *being* is also obligatorily elided under VPE:

- (25) a. Goofy was being chastised, and Pluto was (***being**) ~~chastised~~, too. (passive)
 b. Goofy was being annoying, and Pluto was (***being**) ~~annoying~~, too. (copular)

If the passive and copular auxiliaries are obligatorily elided under VPE when they have raised into the progressive layer for inflectional purposes (recall that I assume *being* to raise to Prog^o), then the ellipsis site must be somewhat larger than previously assumed, extending as far as the progressive layer.

It has been claimed, however, by Lobeck (1987), Bošković (2004, to appear a), Thoms (2011) and Sailor (2012), in the spirit of Akmajian & Wasow (1975), Akmajian, Steele & Wasow (1979) and Iwakura (1977), that the obligatory ellipsis of *being* should instead be understood as non-raising of *being* out of v^o, and for VPE to therefore be ellipsis of vP. This obviously excludes VPE eliding only as much as VP, but it allows us to hold on to the notion that VPE targets vP.

The problem with claiming that *being* does not raise out of v^o is that it is a stipulation. Akmajian & Wasow (1975), Akmajian, Steele & Wasow (1979), Iwakura (1977), Lobeck (1987), Bošković (2004, to appear a), Thoms (2011) and Sailor (2012) all assume uniform raising of all other auxiliaries except for *being* without any due motivation for this exception.²³ The only evidence put forward in favour of this claim is the fact that floating quantifiers (FQs) cannot follow *being*:

- (26) a. We were <all> being <*all> expelled.
 b. We were <all> being <*all> rather annoying.

According to Sportiche (1988) and Shlonsky (1991), FQs are adjoined to subjects in their base positions and can be stranded there when the subject raises out. If subjects are merged in Spec-vP, and *being* remains in v^o, then we are able to account for why *all* must precede *being*: FQs are merged above *being*, and *being* never raises over them. However, this argument is only potentially applicable to (26)b. In (26)a the subject is the derived subject of a passive

²³ Sailor (2012) actually assumes the opposite of this. That is, he posits uniform non-raising of all non-finite auxiliaries, though he then stipulates raising of *be* and *been* without any motivation, essentially rendering his analysis subject to the same criticism.

verb, meaning it originated as the complement of V° . If floating quantifiers truly represented the base positions of subjects, we would expect the floating quantifier to appear in post-verbal position. As Sportiche (1988), Bobaljik (2001), Bošković (2004) and Cirillo (2009) note, however, *all* cannot so easily float in post-verbal position:

(27) *We were being expelled **all**.

Therefore, if *all* is not found in the base position of the derived subject, it is not entirely clear which position *all* is occupying when it appears to the left of *being*. This furthermore implies that we also cannot be entirely certain whether *all* in the copular construction in (26)b is occupying its base position. Hence the data in (26) cannot conclusively show that *being* remains in v° .²⁴

In what follows I review evidence provided by Aelbrecht & Harwood (2013) (A&H) which demonstrates that the progressive layer is indeed included in the ellipsis site in VPE. This gives a principled explanation for why *being* is obligatorily elided without needing to stipulate non-raising of this auxiliary: *being* raises into the progressive layer of the clause, but this is still included within the ellipsis site. Therefore it never escapes ellipsis.

In order to demonstrate empirically that the progressive aspectual layer should be included in the ellipsis site of English VPE, A&H turn to an additional observation of Sag's (1976), namely that certain other non-finite auxiliaries may be optionally elided under VPE:

- (28) a. Roger has been framed, and Nixon has (**been**) ~~framed~~, too.
 b. Roger will be framed, and Nixon will (**be**) ~~framed~~, too.

3.2.2. *Optional auxiliary ellipsis: auxiliary be*

There have been numerous attempts to explain the optional ellipsis data, but the different analyses can essentially be divided into two approaches: optional extension of the ellipsis site (Akmajian, Steele & Wasow 1979; Bošković to appear a), or optional raising of the auxiliaries out of the ellipsis site (Aelbrecht & Harwood 2013; Sailor 2012; Thoms 2012). However, irrespective of which analysis one chooses, the common consensus is that for an auxiliary to be optionally elided it must have, at the very least, been merged inside the ellipsis site.

I show in this section, following A&H, that the only auxiliaries that can uncontroversially be elided are those which are first merged within or below the progressive layer, i.e., the progressive, passive and copular auxiliaries. Section 3.2.3 shows that auxiliaries generated above the progressive layer, i.e., perfect *have*, cannot so easily be elided.^{25,26} This suggests VPE targets the progressive layer.

First of all, it is quite clear and fairly uncontroversial that both passive and copular auxiliaries can be elided. This is evidenced by the obligatory ellipsis of *being* illustrated in (25) above, and by the optional ellipsis of *be* and *been* (see (28) above for the passive auxiliary and (29) below for the copular auxiliary).²⁷ If the passive and copular auxiliaries are merged in v° , this shows that at least as much as vP is elided under VPE.

²⁴ See also Harwood (2013) for evidence involving the distribution of *being* in relation to low adverbs which strongly suggests that *being* indeed uniformly raises into the progressive aspectual layer for reasons of inflection.

²⁵ It is a well-known fact of English that modals also cannot be elided under VPE. Therefore there is no need to enter into any discussion of this issue.

²⁶ Another way of looking at this is to say that forms of *be* can be elided, whilst other types of auxiliaries cannot so easily elide.

²⁷ Cases in which *been* and *be* are elided give the impression that something larger is elided, such as PerfP or InfP, the heads of which these auxiliaries raise to. I argue, however, that this is an illusion. As will be demonstrated later, I take optional ellipsis of such auxiliaries to be due to optional raising of these auxiliaries out of the ellipsis site and not necessarily due to optional extension of the ellipsis site to include PerfP or InfP.

- (29) a. Betty has been in the garden, and Sam has **(been)** ~~in the garden~~, too.
 b. Betty will be in the garden, and Sam will **(be)** ~~in the garden~~, too.

A&H note that progressive *be*, merged in the progressive layer, is more complicated. Generally it looks like the progressive auxiliary, when realised as *be* or *been*, can be elided:

- (30) a. Roger will be questioning our motives, but Peter won't **(be)**.
 b. Roger has been questioning our motives, but Peter hasn't **(been)**.

However, when progressive *be* or *been* is elided, it is not absolutely clear what is contained within the elided constituent. The elided phrase is assumed to be *be/been questioning our motives*, but a mismatch interpretation is also available in which progressive aspect is entirely absent from the second conjunct, in which case the elided constituent is read as [~~question/questioned our motives~~]. This mismatch interpretation masks whether the progressive auxiliary can truly be elided.

A&H claim, however, that there is a means of showing that progressive *be/been* can genuinely be elided. Deal (2009) and Harwood (2011) have both observed that unergative existential constructions are dependent upon progressive aspect:²⁸

- (31) a. There were several hippos dancing.
 b. * There have several hippos danced.

If we apply ellipsis to an unergative existential construction, we can be certain as to the presence of progressive aspect in the underlying structure. That is, there is no potential aspectual mismatch interpretation available to mask the ellipsis of the progressive auxiliary. In such constructions, we see that the progressive auxiliary can indeed be optionally elided:²⁹

- (32) a. Bob said there had been a clown dancing at his birthday party, but we all knew that there hadn't **(been)** ~~a clown dancing~~....
 b. Bob says there will be a clown dancing at his birthday party, but we all know that there won't **(be)** ~~a clown dancing~~....

A&H also note that there are certain idiomatic constructions which are dependent upon progressive aspect, for instance *be dying to*, meaning 'to be keen to'. Without progressive aspect, the idiomatic interpretation is altogether lost:

- (33) a. Bob is dying to meet you = Bob is keen to meet you.
 b. Bob has died to meet you ≠ Bob has been keen to meet you.

²⁸ The same restriction holds for transitive and ditransitive existential constructions as well.

²⁹ 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 logical subject (the associate) is actually contained inside an RRC that modifies the DP associate and is not part of the main clause (cf. (i)). If this is correct, we cannot use existentials to make any claims about VPE in main clauses. The supposed optional ellipsis of progressive *be* would actually be optional ellipsis of copular *be*, and the supposed ellipsis of the entire phrase observed in (22) and (23) would just be ellipsis of the nominal predicate.

(i) [_{TP} There were [_{DP} several hippos [_{RRC} (who were) dancing]]]

However, although an RRC structure for existentials is possible, Milsark (1974), Barwise & Cooper (1981), Keenan (1987), Lasnik (1995), Lumsden (1998), Chomsky (2001), Huddleston & Pullum (2002), Caponigro & Schütze (2003), Rezac (2006) and Deal (2009) have shown, with numerous diagnostics, that these constructions can be equally derived from a full clausal structure. Therefore, the conclusions drawn about the behaviour of VPE in existential constructions remain valid as observations about VPE in general.

Once again, if we apply ellipsis to such idioms, and the idiomatic interpretation remains intact, this is indicative that progressive aspect is present in the underlying derivation. That is, there would be no potential mismatch interpretation available to mask the ellipsis of the progressive auxiliary. Here too, we see that the progressive auxiliary can indeed be elided:

- (34) a. Bob has been dying to meet you, even though he says that he hasn't (**been**) ~~dying to meet you~~.
 b. Q: Are you sure Bob will be dying to meet George Lucas?
 A: He most certainly will (**be**) ~~dying to meet George Lucas~~.

If the progressive auxiliary is first merged in v_{prog}° , this suggests that at least as much as the progressive aspectual layer can be included within the VP ellipsis site.

3.2.3. *Non-finite have*

A&H observe that the issue of whether perfect *have*, merged in the perfect layer, is elidable, is still more complex. This is a notable grey area in ellipsis research with two competing viewpoints. Whilst Sag (1976), Zagana (1988), Lobeck (1987), Johnson (2001), Bošković (to appear a) Sailor (2009, 2012), Wurmbrand (2012) and Aelbrecht & Harwood (2013) all take it that *have* can never be elided, Akmajian, Steele & Wasow (1979), Lasnik (1995b) and Thoms (2011) have claimed that non-finite *have* can in fact be elided. Evidence cited in favour of the latter claim are sentences such as the following, in which *have* appears to be optionally elided:

- (35) John might have called, and Bill might (**have**) [~~called~~], too. (Wurmbrand 2012:(35))

Johnson (2001) and Wurmbrand (2012) argue, on the other hand, that the presence of perfect aspect in the first conjunct does not necessarily imply the presence of perfect aspect in the ellipsis site. In other words, they claim that when perfect *have* is apparently elided, the perfect layer, including the auxiliary, is in fact entirely absent from the second conjunct and that the elided phrase is instead understood simply as [~~call~~]. This mismatch reading masks whether *have* can genuinely be elided or not. In order to rule out this mismatch interpretation Wurmbrand (2012) employs conflicting time specifications between the first and second conjuncts, thereby forcing a reading in which perfect aspect would have to be present in the underlying derivation of the ellipsis site. In such cases her informants judged ellipsis of *have* as ungrammatical. This suggests therefore that non-finite perfect *have* indeed cannot be elided.

- (36) John might have called yesterday, and Bill might ***(have)**, two days ago.
 (Wurmbrand 2012:(36))

Below I present three more contexts which can be exploited to ascertain whether or not non-finite perfect *have* can truly elide. The general finding is that *have* cannot so easily be elided, though I do not discount idiolectal or dialectal variation.

As discussed by A&H, one means of testing whether *have* can be elided is to exploit certain fixed expressions which are dependent upon perfect aspect: *have been to*, and *have been around the block*, in which *been* in both cases carries a motion reading that is otherwise unavailable without perfect aspect. In the absence of perfect aspect, these constructions are entirely ungrammatical:³⁰

- (37) a. Bob has been to Rome.

³⁰ The construction in (37) was noted by A&H. Thanks to Craig Sailor (p.c.) for pointing out the construction in (38) to me.

b. * Bob will be to Rome.

- (38) a. Bob has been around the block a few times.
b. * Bob might be around the block a few times.

If we apply ellipsis to patterns which are anteceded by such expressions, we can be certain as to the presence of perfect aspect in the underlying structure of the ellipsis site. Therefore no aspectual mismatch interpretation would interfere to mask the potential ellipsis of *have*, providing a further diagnostic for *have*-ellipsis. In such cases, we see that the non-finite perfect auxiliary cannot in fact be elided:

- (39) a. This time next year Bob will have been to Rome, and Betsy will ***(have) been to Rome**, too.
b. Betsy thinks that Bob might have been around the block a few times, and I also seem to think that he might ***(have) been around the block a few times**.

A further test noted by A&H exploits Lasnik's (1995b) and Warner's (1986) observation that, unlike lexical verbs, auxiliary verbs can only be elided if they have an identical antecedent.³¹

- (40) a. Sue has **been** eaten by cannibals, and Bob might ***(be) eaten...**, too.
b. Sue might **be** eaten by cannibals now that Bob has ***(been) eaten...**

Thus, in (41) (from Thoms 2011), the passive auxiliary in the elided constituent must be identical to its antecedent form *been*, in order for the sentence to be grammatical:

- (41) Bob might have been fired, and Morag might have **(been) fired**, too.

This means that the elided passive auxiliary is dependent upon perfect aspect in order to be realised as *been* and fulfil the identity requirement. This provides us with another sentence that is reliant upon perfect aspect. No mismatch interpretation between the antecedent and the ellipsis site is available to mask the potential ellipsis of *have*. Once again, we find ellipsis of non-finite *have* to be unacceptable:³²

- (42) Bob might have been fired, and Morag might ***(have) been fired**, too.

The results are similarly replicated with the copula:

- (43) Bob might have been in the garden, and Morag might ***(have) been in the garden**, too.

Finally, Sailor (2012) notes that *before*-clauses also force a reading that is dependent upon perfect aspect, meaning that once again no mismatch interpretation is available to obscure the potential ellipsis of *have*. In such cases, Sailor's (2012) informants rejected ellipsis of *have*:

³¹ See Lasnik (1995b) for the most standard explanation of these facts.

³² 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.

- (44) Mary could have studied harder for the exam. Before finally taking it yesterday, she really should ***(have)**. (Sailor 2012:(36))

These four tests taken together suggest that non-finite perfect *have* generally cannot be elided.

However, a proviso is in order. The data is in fact not quite so clear-cut as I have presented it here, as there tends to be disagreement with regards to the judgments. For instance, of the 20 British English speakers A&H consulted, 20% actually accepted ellipsis of *have* in (39).³³ All of their informants rejected ellipsis of *have* in sentences such as (42), though an anonymous reviewer accepts it, and this sentence has been reported as grammatical in Thoms (2011). Moreover, Wurmbrand (2012) has noted in her work a number of dissenting judgments in which ellipsis of *have* is deemed acceptable in sentences such as (36). Similarly, Sailor's (2012) work was based on American English informants, who he found to uniformly reject ellipsis of *have* in (44), though he noted that a number of Canadian English speakers appeared to accept it. The issue as to whether *have* can be elided or not can therefore not be conclusively resolved at present.³⁴

However, of the 20% of informants who accepted ellipsis of *have* in sentences such as (39), A&H reported that some still regarded the sentence as degraded in comparison to when *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.³⁵ 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 also remains that there are many speakers who indeed outright reject ellipsis of *have* in all contexts. Given the general tendency of the data, I assume that the default option for English is that *have* cannot be elided. If the perfect auxiliary is merged in the perfect layer, specifically in the head of vP_{perf} then the fact that it cannot be elided suggests that the perfect layer is not included within the VPE ellipsis site.

However, I must also concede that there is idiolectal or dialectal variation in which certain speakers in certain contexts indeed allow for apparent ellipsis of *have*. Because deletion of *have* appears to be somewhat restricted and unstable in comparison to *be/been* deletion, I claim it is not actually *have* deletion as such, but rather a rescue mechanism that is available to certain speakers in certain linguistic contexts. This would explain the restricted nature of apparent *have*-deletion. 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. Here I offer a few tentative proposals as to what operation may be involved in apparent *have*-deletion.

³³ The 20 speakers stem from all parts of the UK, though there is a concentration of speakers from the north of England and the midlands.

³⁴ An anonymous reviewer also presents the following potential counterexamples, which appear to show ellipsis of non-finite *have*:

- (i) Luke certainly could have won the race at that point, while Bill couldn't. But in the event, John then blew his chances by taking the wrong fork.
 - (ii) Hey, John might have aced that exam, and so might Bill. In which case, we will have a double celebration tonight.
 - (iii) By the time we get home tonight... wanna bet? ... John will have finished his homework, but Jane won't.
- However, of these three sentences, (iii) is the only real counterexample. Many informants judged the sentence in (i) acceptable under an ability reading in which the elided constituent could be read as *while Bill couldn't win the race at that point*, in which perfect aspect is altogether absent from the clause. Under the counterfactual reading that the reviewer intended, many speakers had trouble accepting such sentences. The sentence in (ii) presents an instance of subject auxiliary inversion, a phenomenon which is not typical of standard VPE and has often been considered to comprise a different construction entirely. This leaves the counterexample in (iii) which, whilst accepted by some informers, is still considered degraded or unacceptable by others.

³⁵ Native speakers of English will hopefully notice that the sentence they have just read involved ellipsis of *been* and that there was no question as to the acceptability of this sentence.

Modals aside, all finite auxiliaries in English have the property of being able to undergo cliticisation:

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

Perfect *have*, however, is unique in being the only non-finite auxiliary that can cliticise. This is perhaps best 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 during subject auxiliary inversion, whilst *be* cannot:

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

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. The contexts in which such a phenomenon can occur are rare, but one such instance is with finite auxiliaries in *wh*-questions in Northern varieties of British English:

- (47) 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:³⁶

- (48) a. You should've closed the door behind you.
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. I conjecture that one context in which such extreme cliticisation applies, albeit not necessarily restricted to Northern varieties of British English, is under 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.³⁷

- (49) a. John might have called, and Bill might've [~~called~~], too.
b. John might have called, and Bill mighta [~~called~~], too.
c. John might have called, and Bill might [~~called~~], too.

As an alternative analysis for apparent *have*-deletion, Kayne (1997:49) has claimed that "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 the closely related language of Swedish, as well as Norwegian

³⁶ See Kayne (1997) for an alternative analysis in which these cliticised forms actually constitute a distinct form from the perfect auxiliary, namely the complementiser *of*.

³⁷ It is well known that cliticisation of finite auxiliaries adjacent to an ellipsis site leads to ungrammaticality. However, Wood (1979) and Kayne (1997) have noted that it is perfectly acceptable for non-finite *have* to undergo cliticisation when adjacent to an ellipsis:

- (i) A: Don't you think that Roland Rat should've left the party by now?
B: Yeah, he really should've/shoulda.

(Taraldsen 1984, Julien 2002), Icelandic and Faroese (Einarsson 1945; Lockwood 1977). I illustrate this here with Norwegian:

- (50) Vi skulle gjort det før
we should done it before
‘We should have done it before’

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

To conclude this discussion, I claim 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 utilise a rescue mechanism to obtain this effect, but which is not actually ellipsis in itself. I have presented two such potential mechanisms above, though I leave thorough investigation of these proposals open to further research.³⁸

3.2.4. *Taking stock: VP elides as much as vP_{prog}*

I have so far shown, following A&H, that progressive, passive and copula auxiliaries can be elided under English VPE, whilst, under the default option, perfect *have* cannot. It is standardly assumed that in order for such auxiliaries to be elided they must have been merged within the ellipsis site. Since the auxiliaries which can uncontroversially elide are all merged within or below the progressive aspectual layer, this suggests that the ellipsis site can be as large as the progressive aspectual layer, but no larger:

- (51) [TP [ModP [InfP [vP_{perf} have [PerfP ([vP_{prog} be [ProgP [vP be [VoiceP [VP]]]]]]]]]]]]

As said above, this explains why *being* is always elided: it only raises to ProgP, which is inside the ellipsis site. *Being* never raises out of the ellipsis site, so it never escapes ellipsis:

- (52) [TP [ModP [InfP [vP_{perf} [PerfP ([vP_{prog} [ProgP BEING [vP t_{be} [VoiceP [VP]]]]]]]]]]]]
-

Note that, since I assume WYSIWYG with respect to which projections are present in the structure, I predict that in the absence of progressive aspect, the site of English VPE is vP:

- (53) [TP [ModP [InfP [vP_{perf} [PerfP ([vP be [VoiceP [VP]]]]]]]]]]

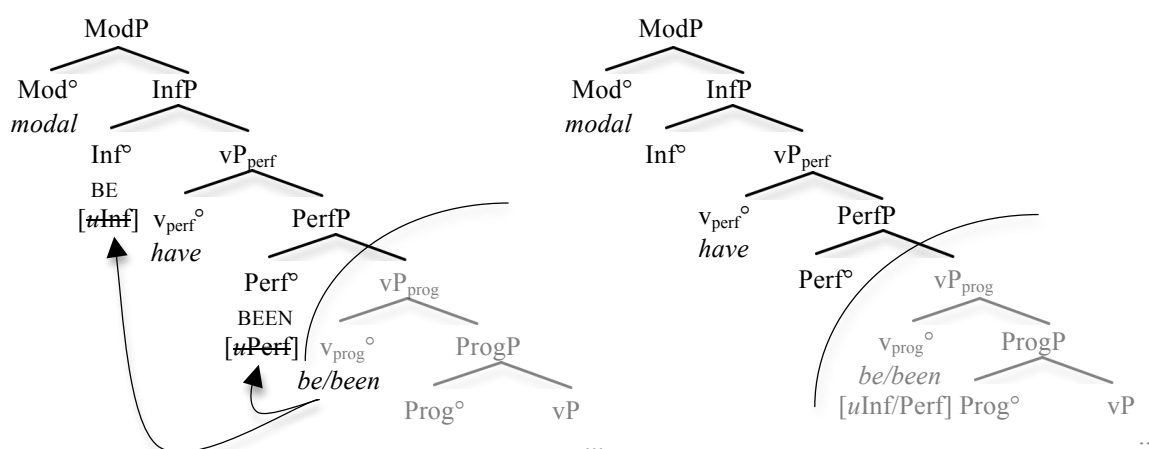
To finish this section, I briefly illustrate how I take the optional ellipsis of *be* and *been* to be derived. Here I appeal to A&H’s analysis.

Recall first of all from section 2.2 that I take the overt raising of auxiliaries to be for PF reasons. That is, the features they check must be checked before spell-out at PF otherwise a PF violation would ensue. Under this assumption, A&H claim that the optional deletion of progressive, passive and copula *be/been* is derived via optional raising of these auxiliaries out

³⁸ An anonymous reviewer suggests that the clause-internal phase, which in the next section I will argue to be as large as progressive aspect (but no larger), could act as a constraint on the amount of structure that could be minimally elided, but that ellipsis could also optionally target structures larger than this. In principle I am not opposed to this proposal, but in the following sections I show that VP fronting, idiomatic constructions and existential constructions uniformly privilege the same unit of structure, that is, the progressive aspectual layer and not the perfect layer. It would therefore be a mystery why VPE can optionally privilege domains of structure larger than this, but the other phenomena cannot.

of the vP_{prog}/vP ellipsis site to the heads of PerfP and InfP, crucially outside of the ellipsis site, in order to check their inflectional features. If the auxiliary raises and checks its feature, it survives ellipsis. If it fails to raise, it remains inside of the ellipsis site and is elided. Of course, this means that the auxiliary has failed to check its inflectional features before PF, which should cause the derivation to crash. However, ellipsis, being a PF deletion operation, is able to rescue the derivation. The problematic auxiliary, along with its unchecked feature, is deleted at PF by ellipsis, and is therefore no longer a problem for the derivation. The diagrams in (54) show how ellipsis and non-ellipsis of non-finite auxiliaries works with the progressive auxiliary. This proposal sits in line with a large body of work that claims that ellipsis can act as a PF rescue operation for various phenomena (see Ross 1969; Chomsky 1972; Chomsky & Lasnik 1993; Lasnik 1995a, 1999, 2001a,b; Merchant 2001; Fox & Pesetsky 2003; Bošković 2011; Müller 2011).

(54) Non-deletion of *be/been*



Having established that VPE in English targets as much as the progressive layer when such projections are present, the following sub-section returns to the discussion of how ellipsis can be reconciled with phase theory. I show how the conclusions just drawn indicate that progressive aspect, when it projects, is contained within the clause-internal phase in English.

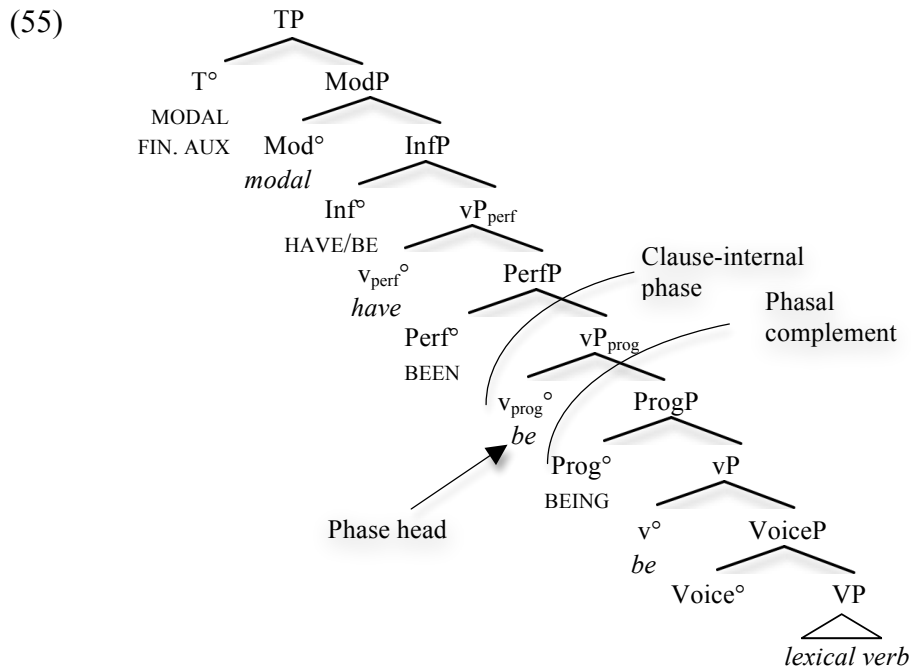
3.3. *VPE and phases*

VPE in English has been analysed by Gengel (2007, 2008), Rouveret (2012), Sailor (2012), Wurmbrand (2012) and Bošković (to appear a) as privileging that part of the clause-internal phase that is sent to spell-out. Given the conclusion drawn in section 3.2, namely that VPE targets as much as the progressive aspectual layer (but not the perfect aspectual layer), this implies that the progressive layer should be contained within the clause-internal phase in English. Therefore, the clause-internal phase can be larger than vP as was traditionally assumed.

Section 3.1, however, established that ellipsis may target either the phasal complement, or the phase itself. So whilst we have determined that the progressive layer is contained within the clause-internal phase, it is not yet clear whether the progressive layer comprises the phasal complement, or whether one of the progressive projections in fact projects the clause-internal phase itself. This section discusses the exact identity of the clause-internal phase.

In section 3.1 it was generally shown that if high movement, that is, movement into the left periphery, could take place out of an ellipsis site, this was an indication of ellipsis privileging the phasal complement. Moreover, it was noted that VPE permits, for the most part, such extraction (see Baltin 2012), except in exceptional circumstances such as in existential constructions. This suggests that VPE mostly targets the phasal complement rather than the entire phase, apart from a few rare instances. I will generally take this to be the case.

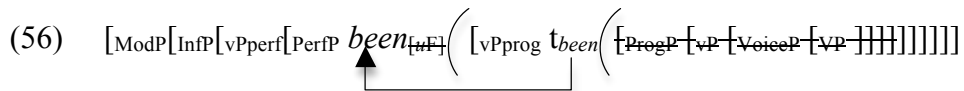
I claim that when the progressive aspectual layer is present, the head of vP_{prog} itself, v_{prog}° (in which progressive *be* is base generated), acts as the clause-internal phase head.³⁹



This implies that ProgP is consistently within the phasal complement, so it is uniformly targeted by English VPE, accounting for the obligatory ellipsis of *being* and the lexical verb.

Of course, I claimed in section 3.2 that VPE targeted vP_{prog} so as to capture the optional ellipsis of the progressive auxiliary. To remain consistent with this, I claim that optional auxiliary ellipsis is one of the rare cases in which VPE targets the entire phase rather than just the phasal complement so as to include the non-raised auxiliary within the ellipsis site. That is, if the progressive auxiliary *be/been* has not raised out of v_{prog}° to Perf° or Inf°, and therefore still bears an uninterpretable feature, ellipsis privileges the entire phase. This deletes the auxiliary along with its unchecked feature, thereby rescuing the derivation. So the optional deletion of *be* and *been* is in fact an interplay between optional raising of the auxiliary, and optionally eliding the entire phase rather than just the phasal complement. Below I illustrate the four paths available to the derivation, and explain what happens in each case:

A) The auxiliary raises and ellipsis targets the phasal complement:



Result: the auxiliary checks its feature and survives ellipsis – the derivation is accepted.

³⁹ An alternative would be to claim that Perf°, when it projects, acts as the clause-internal phase head, with the progressive aspectual layer its phasal complement. This would allow the entire progressive aspectual layer to be consistently included within the ellipsis site. Indeed, Bošković (to appear a) has claimed exactly this. See section 6.3 for a critical analysis of this approach.

Another potential option is to instead claim that v_{perf}° , headed by *have*, acts as the clause-internal phase head. In section 3.2 I established that the default option for English is that *have* cannot be elided, but this only indicates that vP_{perf} should not be included within the ellipsis. It makes no claims about PerfP itself. However, this would entail that as much as PerfP consistently sits within the phasal complement, meaning PerfP should be uniformly targeted by VPE. Since I claim *been* only raises as far as Perf°, this would incorrectly predict that *been* is obligatorily elided under English VPE rather than optionally. Moreover, as will be illustrated in sections 4, 5 and 7, there is no evidence that any part of the perfect aspectual layer constitutes part of the clause-internal phase. For these reasons, I reject this analysis also.

B) The auxiliary raises and ellipsis targets the entire phase:

$$(57) \quad [\text{ModP}[\text{InIP}[\text{vPperf}[\text{PerfP} \textit{been}_{[uF]} (\text{vPprog} \textit{t}_{\textit{been}} (\text{ProgP}[\text{vP}[\text{VoiceP}[\text{VP} \text{---}]]])]])]]]]]$$

Result: the auxiliary checks its feature and survives ellipsis – the derivation is accepted. In principle this derivation is possible. However, I claim that ellipsis of the entire phase occurs in these sorts of contexts only as a means of rescuing the derivation, i.e. deleting a non-raised auxiliary and its offending unchecked feature. Because in this instance there is no offending auxiliary to delete, ellipsis does not need to privilege the entire phase. Therefore A) is chosen over B), in which case only the phasal complement is elided.

C) The auxiliary does not raise and ellipsis targets the phasal complement:

$$(58) \quad [\text{ModP}[\text{InIP}[\text{vPperf}[\text{PerfP} (\text{vPprog} \textit{been}_{[uF]} (\text{ProgP}[\text{vP}[\text{VoiceP}[\text{VP} \text{---}]]])]])]]]]]$$

Result: The auxiliary survives ellipsis but the derivation crashes due to the presence of the unchecked feature on the auxiliary.

D) The auxiliary does not raise and ellipsis targets the entire phase:

$$(59) \quad [\text{ModP}[\text{InIP}[\text{vPperf}[\text{PerfP} (\text{vPprog} \textit{been}_{[uF]} (\text{ProgP}[\text{vP}[\text{VoiceP}[\text{VP} \text{---}]]])]])]]]]]$$

Result: the auxiliary and its unchecked feature are deleted; the derivation is rescued.

This proposal for optional auxiliary ellipsis is in the spirit of Bošković (to appear a), who also assumes that when the auxiliaries *be* or *been* have been optionally elided, VPE targets the entire phase instead of the phasal complement.⁴⁰ In favour of this claim, Bošković (to appear a) notes that high movement is severely degraded when *be* or *been* have been elided, whereas similar A'-extraction is far more acceptable when *be* or *been* are stranded by ellipsis:

- (60) a.?* You wonder by whom Betsy must have been being hassled, and I wonder by whom Jane must have.
 b. ? You wonder by whom Betsy must have been being hassled, and I wonder by whom Jane must have been. (Bošković to appear a:(85) and (86))

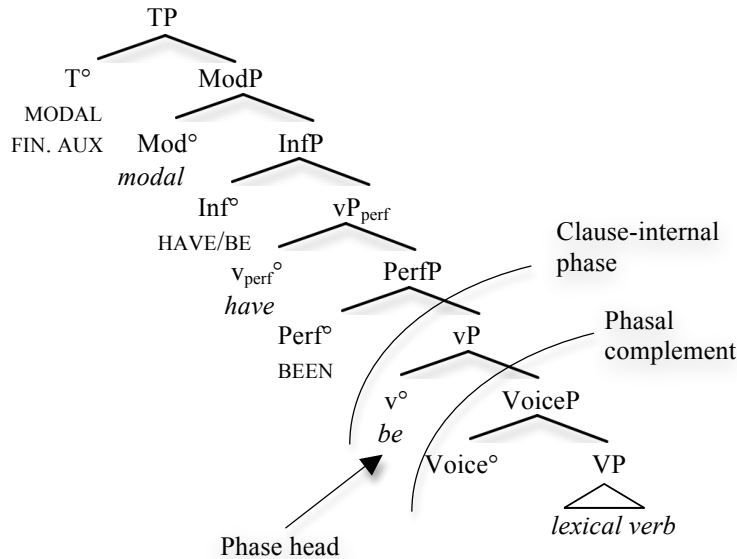
This suggests that generally VPE targets the phasal complement, except in those instances in which *be* or *been* have not raised, when VPE targets the entire phase to rescue the derivation.

In section 3.2 I also concluded that in the absence of progressive aspect, VPE targets vP. If this is correct it implies that the size of the clause-internal phase can vary depending on which projections are present in the structure. In the remainder of this section I briefly discuss what I take to be the identity of the clause-internal phase in the absence of progressive aspect.

Given the structure in (61), I take v° to act as the clause-internal phase head in the absence of progressive aspect.

⁴⁰ The difference between Bošković's (to appear a) approach and the one I advocate here is that Bošković (to appear a) assumes optional auxiliary ellipsis to only be due to a choice between eliding the phasal complement or the entire phase, whereas I assume optional auxiliary raising to also play a role. As will be illustrated in section 4, this optional raising of auxiliaries in ellipsis contexts is crucial in accounting for the VP fronting data, something which Bošković's (to appear a) account is unable to straightforwardly explain. See section 6.3 for a detailed discussion of Bošković's (to appear a) analysis.

(61)



This implies that VoiceP is the phasal complement and so is consistently targeted by VPE, whilst vP, the clause-internal phase itself, may be optionally included within the ellipsis site. I follow Bowers (2002) in assuming that the lexical verb raises consistently to Voice°, but does not necessarily raise further than this. Therefore the lexical verb never raises out of the phasal complement and so is uniformly elided under VPE. With regards to the optional ellipsis of passive and copular *be* and *been*, I assume something similar to the optional deletion of the progressive auxiliary, namely an interplay between optional auxiliary raising and VPE optionally privileging the entire phase rather than just the phasal complement. That is, standardly the auxiliaries *be* and *been* raise out of v° to either Perf° or Inf° in order to have their inflectional features checked. Generally in such instances, VPE targets the phasal complement of Voice°. However, if these auxiliaries do not raise and remain in v°, VPE privileges the entire clause-internal phase of vP so that the non-raised auxiliary is included in the ellipsis site and is therefore deleted along with its problematic inflectional feature, thereby rescuing the derivation. Again, evidence in favour of this type of analysis is the fact that, as noted by Bošković (to appear a), high movement is severely degraded when the passive auxiliary has been elided, suggesting the entire phase is privileged in such instances, whereas similar extraction is much more readily accepted when the passive auxiliary has been stranded, suggesting that only the phasal complement is targeted then:

- (62) a. ?* You wonder on which table your book must have been put, and I wonder on which table my CD must have.
 b. ? You wonder on which table your book must have been put, and I wonder on which table my CD must have been. (Bošković to appear a:(85) and (86))

To summarise, I have argued in this section that in the presence of progressive aspect, vP_{prog} acts as the clause-internal phase. Generally, VPE privileges the phasal complement of ProgP, explaining the uniform ellipsis of *being* and the lexical verb. When the progressive auxiliary *be* or *been* does not raise out of v_{prog}°, however, VPE privileges the entire phase, deleting the progressive auxiliary. In the absence of progressive aspect, on the other hand, vP acts as the clause-internal phase. VPE then elides the phasal complement of VoiceP, which contains the lexical verb and its internal arguments. But when the passive or copular non-finite auxiliary does not raise out of v°, VPE deletes the entire phase, including the offending auxiliary. This set of claims also implies that the perfect aspectual layer does not constitute part of the clause-internal phase.

If this line of reasoning is correct, it suggests that the clause-internal phase can vary in size, with vP_{prog} acting as the phase when the progressive aspectual layer is present, and vP

otherwise. In section 6 I propose a formal explanation of how such a variable phase boundary can be made possible under phase theory.

In the following section I discuss certain VP fronting phenomena which suggest, in accordance with Fowlie's (2010) and Roberts' (2010) claims that only phases can undergo movement, that the progressive aspectual layer is included within the clause-internal phase.

4. *Fronting Phenomena and Phases*

Akmajian & Wasow (1975), Zagona (1982) and Johnson (2001) have noted there is a relation between VPE and VP fronting (VPF) in that what is elided by VPE, is also fronted under VPF. That is, *being* is obligatorily fronted along with the lexical verb under VPF:

- (63) If Darth Vader says that Han Solo was being frozen in carbonite, then...
- [**being** frozen in carbonite] he was.
 - * [frozen in carbonite] he was **being**.
- (64) If Darth Vader says that Han Solo was being stubborn, then...
- [**being** stubborn] he was.
 - * [stubborn] he was **being**.

Again, akin to VPE, non-finite *have* cannot be fronted:

- (65) If Luke says he would have fought hard, then...
- [fought hard] he would **have**.
 - * [**have** fought hard] he would.

A parallel case is that of specificational pseudo-clefting, which has also been argued to involve fronting (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) has noted that such instances of fronting also seem to target the same material. That is, *being* must be fronted with the lexical verb when pseudo-clefting occurs, whilst non-finite *have* cannot be:

- (66) Elmer Fudd should be being criticised.
- No, [**being** praised] is what Elmer Fudd should be.
 - * No, [praised] is what Elmer Fudd should be **being**.
- (67) Elmer Fudd should have been criticised.
- No, [praised] is what Elmer Fudd should **have** been.
 - * No, [**have** been praised] is what Elmer Fudd should.

Thirdly, Emonds (1976), Haegeman (2008), Heycock & Kroch (1999) and Hooper & Thompson (1973) have also analysed predicate inversion contexts as involving fronting of the predicate. In such cases, *being* is obligatorily fronted, whilst *have* cannot be:

- (68) a. [Also **being** examined for body parts] is the tonnes of rubble being removed from the site. (*Guardian*, 14.9.1, p4, col 6, cited in Haegeman 2008:(19))
- * [Also examined for body parts] is **being** the tonnes of rubble being removed from the site.
- (69) a. [Also examined for body parts] will **have** been the tonnes of rubble being removed from the site.

- b. * [Also **have** been examined for body parts] will the tonnes of rubble being removed from the site.

If *being* has raised to occupy Prog^o in the progressive aspectual layer of the clause, yet does not escape fronting, this suggests that as much as the progressive aspectual layer is fronted under fronting phenomena. If non-finite *have* raises to occupy Inf^o and cannot be fronted, this suggests that the modal layer at least is not included in the fronted constituent.

Interestingly, Akmajian, Steele & Wasow (1979) and Roberts (1998) note that, contrary to VPE, *be* and *been* cannot be fronted under VPF, not even optionally. Sailor (2012) notes the same for pseudo-clefting, and Aelbrecht & Harwood (2013) for predicate inversion:

- (70) If Darth Vader says Han Solo has been frozen in carbonite, then...
 a. [frozen in carbonite] he has **been**.
 b. * [**been** frozen in carbonite] he has.
- (71) If Darth Vader says Han Solo will be frozen in carbonite, then...
 a. [frozen in carbonite] he will **be**.
 b. * [**be** frozen in carbonite] he will.
- (72) Elmer Fudd should have been praised.
 a. No, [criticised] is what Elmer Fudd should have **been**.
 b. * No, [**been** criticised] is what Elmer Fudd should have.
- (73) Elmer Fudd should be praised.
 a. No, [criticised] is what Elmer Fudd should **be**.
 b. * No, [**be** criticised] is what Elmer Fudd should.
- (74) a. [Also examined for body parts] has **been** the tonnes of rubble being removed from the site.
 b. * [Also **been** examined for body parts] has the tonnes of rubble being removed from the site.
- (75) a. [Also examined for body parts] will **be** the tonnes of rubble being removed from the site.
 b. * [Also **be** examined for body parts] will the tonnes of rubble being removed from the site.

If *be* raises to Inf^o, and cannot be fronted, this once again suggests that the modal layer cannot be included in the fronted constituent. More importantly, however, if *been* raises to Perf^o, and also cannot be fronted, this suggests that the perfect aspectual layer also cannot be included in the fronted constituent. Therefore the fronted constituent is as large as the progressive aspectual layer, but no larger.

Note that the fact that *be* and *been* cannot be optionally fronted, in contrast to the optional ellipsis data, can easily be accounted for under the system of Aelbrecht & Harwood (2013) that has been adopted in this paper: the optional ellipsis of such auxiliaries was made possible by *be* and *been* failing to raise, thereby remaining within the ellipsis site and having their unchecked inflectional features deleted at PF by ellipsis, thereby rescuing the derivation. In fronting phenomena on the other hand, no ellipsis occurs to rescue the derivation. For *be* or *been* to undergo fronting they would have to fail to raise out of the fronted constituent, leaving their inflectional features unchecked. But because no ellipsis occurs, the unchecked features remain in the structure, causing the derivation to crash at PF.

Up to this point I have argued that as much as the progressive aspectual layer is included within the fronted constituent in various VP fronting phenomena, akin to VPE. But the question now is: what does this have to do with phases? Holmberg (2001), Chomsky (2005), Roberts (2010) and Fowlie (2010) 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. Here I briefly outline the general empirical advantage to this claim. The phrasal constituents that can typically move in a sentence are commonly taken to be DPs, PPs, AdjPs, AdvPs, vPs and CPs. All of these elements have been claimed by various authors to act as phases (Aelbrecht & Den Dikken 2013; Bošković to appear a, b; Chomsky 2000, 2001, 2005; Fowlie 2010; Koopman 2010).⁴¹ It has long been known, however, that phasal complements, such as TP, cannot move independently:

(76) * [His mother likes Mary]_i everyone believes that t_i. (Bošković to appear a:(11))

This has often been attributed to the fact that such constituents would have to proceed via the specifier of the phase edge. However, such complement to specifier movement within the same phrase is deemed an anti-locality violation, hence the reason why movement of the phasal complement is impossible (Abels 2003).⁴² It has been alternatively suggested by Chomsky (2005), however, that TP cannot move simply by virtue of the fact that it is not itself a phase, implying indeed that the only phrases which can move are phases. This makes intuitive sense since phases are expected to exhibit syntactic, as well as semantic and phonological, independence from the rest of the clause. Movement of a phasal constituent is one such instantiation of this syntactic independence.

Therefore, if only phases can undergo movement, this would suggest that the VPF-type phenomena already discussed are instances of the clause-internal phase undergoing movement to the left periphery. Since I have shown that progressive aspect, yet no higher material, is included within the fronted constituent, this suggests that the progressive aspectual layer acts as the clause-internal phase when it is present in the derivation. Similarly it suggests that higher aspectual forms such as perfect aspect are not included within this lower phase. Since I assume WYSIWYG, I propose that in the absence of the progressive aspectual layer, the vP constituent is fronted, suggesting that vP acts as the phase in the absence of progressive aspect.

Up until now, the strongest evidence for the progressive aspectual layer constituting part of the clause-internal phase is the fact that *being* is obligatorily elided and fronted under VPE and VPF phenomena. Of course, as mentioned in section 3.2, an alternative analysis is that *being* is the only auxiliary which does not raise out of v^o (Lobeck 1987; Bošković 2004, to appear a; Thoms 2011; Sailor 2012). Despite being something of a stipulation, the advantage this analysis affords us is that we are able to maintain the notion that VPE and VPF consistently target the vP domain, rather than having to posit some kind of variable phase boundary as I have been arguing for in this paper. In section 3.2 I attempted to dispel the non-raising of *being* account, but these arguments aside, the analysis remains so far a possible alternative to the one proposed in this paper.

In the next section, however, I show how Svenonius' (2005) claim that idiomatic constructions should be constrained by phases predicts that the progressive aspectual layer

⁴¹ Of course, more work needs to be done on this area to explain how stranding of PPs and quantifiers is able to occur, and potentially roll-up movement also. These issues, however, are beyond the scope of this paper.

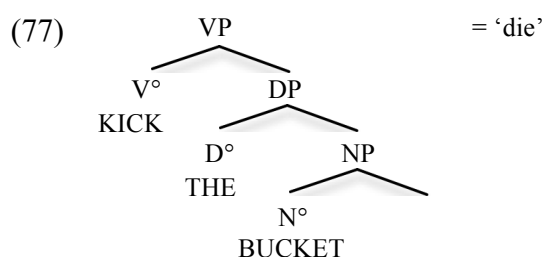
⁴² However, the status of Abels' anti-locality condition is itself rather dubious - Abels claims that it follows from economy (the head H should be perfectly capable of checking its features against its complement, so movement of the complement to H's specifier position is unmotivated), but this misses the point that all movement to specifier positions is taken to be driven by a special property of (a feature of) H which cannot be checked under Agree, such as a strong feature or an EPP property.

should be included within the clause-internal phase to the exclusion of higher aspectual forms. This abstracts away from auxiliaries and shows that progressive aspect in general shares properties with the lexical verb and its arguments that higher aspectual forms do not. This suggests therefore that the unique behaviour of *being* which we have so far observed is not attributable to a unique property of this auxiliary in particular, but a unique property of progressive aspect in general, namely that it constitutes a part of the clause-internal phase whilst higher aspectual forms do not.

5. Idiomatic Constructions and Phases

A question puzzling syntacticians and semanticists is exactly how we are able to deduce the meaning of an idiomatic construction when it can in no way be derived from the meanings of any of the individual lexical items that comprise it.

Jackendoff (1997) accounts for this puzzle by claiming that, as well as individual lexical items being listed in the lexicon, so are actual chunks of syntactic structure. For instance, as well as *kick*, *the* and *bucket* being individually listed in the lexicon, so too is the following syntactic structure:



Whenever this specific structure shows up in the derivation, our lexicon instantly recognises it as (potentially) corresponding to the meaning 'die'.

Further to this, Chomsky (1980, 1981) and Marantz (1984) have noted a certain regularity to idiomatic expressions, in that they often correspond to verb phrases, such as *kick the bucket*, *spill the beans*, *call the shots*, *bring down the house*. There are also a number of idioms which go beyond the initial verb phrase and incorporate the subject as well, i.e., *heads will roll*, *the shit hit the fan*, or *the cat is out of the bag*, suggesting that idioms potentially correspond to as much as vP. In this sense, idioms seem to correspond to syntactic constituents.

Svenonius (2005) has noticed that there seems to be a strict separation between the vP and TP domains with regards to idioms. Whilst verbs regularly form idioms with their arguments and other material contained within vP, they do not form idioms with material generated outside of it. That is, idioms seem not to exist in which a particular tense, modality or aspect contribute to the idiom. Whilst material in the TP domain can obviously be used in conjunction with idioms, as in (78) for instance, the particular idiomatic interpretation is not dependent upon these items. As (79) illustrates, the idiomatic expression is maintained if the material from the TP domain is changed:

(78) He might kick the bucket = He might die.

- (79) a. He kicked the bucket = He died.
 b. He has kicked the bucket = He has died.
 c. Did he kick the bucket? = Did he die?

This contrasts with the material from the vP domain upon which the idiom is dependent. If material from this lower domain is altered, the idiom is lost:

(80) a. He hit the bucket ≠ He died.

- b. He kicked the tub ≠ He died.
- c. He kicked a bucket ≠ He died.

This has led Svenonius to state that there is a size limitation to idioms, namely that of vP. Whilst idioms may indeed be smaller than this boundary, they can be no larger than it. He claims that this limit corresponds to that of a phase. This makes intuitive sense: if phases are shipped off from the syntax and interpreted separately from one another, there is no way in which a particular syntactic structure can be idiomatically interpreted by the lexicon if there is still material left behind in the syntax in the higher phase upon which the idiom is reliant. Svenonius therefore concludes that idioms are constrained by phases in that, whilst they can be smaller than the phasal domain, they can definitely be no larger than it. So essentially, idioms are unable to straddle the phase boundary.⁴³

One problem that Svenonius notes with this analysis, however, is the fact that there are a number of idioms which are reliant upon progressive aspect. Consider for instance the idiom that we previously encountered in section 3.2:

(81) XP_{subj} be dying to VP (e.g. Bob **is dying to** meet you.)

Most native speakers of English recognise this string as corresponding to the idiomatic interpretation ‘X is keen to do something’. Recall however, what happens when we lose the progressive aspect from the idiom:

(82) Bob has died to meet you ≠ Bob has been keen to meet you.

In the absence of progressive aspect, we lose the idiomatic interpretation, and are only left with the rather obscure literal meaning. This is a clear instance of an idiom which relies upon progressive aspect for its interpretation. Under a more traditional approach to phases in which only vP constitutes the clause-internal phasal domain, this is a definite violation of Svenonius’ claim that idioms may not straddle the phase boundary. However, given the arguments put forward so far in this paper, it acts as further evidence in support of the idea that the progressive aspectual layer constitutes a part of the clause-internal phase.

The idiom in (81) is not the sole counterexample to Svenonius’ (2005) claims either. There are a number of such idioms that are dependent upon progressive aspect:⁴⁴

- (83) a. Something is eating Bob = Something is bothering Bob.
- b. Bob is pushing up daisies = Bob is dead.
- c. You are cruising for a bruising = You are heading for trouble.
- d. They were chomping at the bit = They were keen to get started.

Furthermore, there appear to be no verbal idiomatic constructions dependent upon perfect aspect or any other higher material.⁴⁵ Given Svenonius’ claim that idioms are constrained by

⁴³ Interestingly it has been noted that idioms can be comprised of both the vP and CP phasal domains collectively:

- (i) a. Is the Pope Catholic?
- b. Do bears shit in the woods?

But these idioms are notably different in not being productive. They are closed-off constructions that cannot be incorporated into a normal sentence since nothing about them is adaptable, not even their clause type (the hash marker indicates loss of the idiomatic meaning):

- (ii) a. # The Pope is Catholic.
- b. # Bears shit in the woods.

⁴⁴ Svenonius (2005) notes the idiomatic construction in (83)a. Thanks to Craig Sailor (p.c.) for making me aware of the idiomatic constructions in (83)b and (83)c.

phasal domains, this suggests that progressive aspect is contained within the clause-internal phase, whilst perfect aspect is not. This illustrates a unique property of progressive aspect independent from auxiliaries. This suggests that the peculiar behaviour of *being* observed so far in sections 3 and 4 is not derived via any unique properties of *being* itself, but is instead a general property of progressive aspect, namely, progressive aspect constitutes part of the clause-internal phase at the exclusion of higher aspectual forms.

In the next section I demonstrate how we can formalise the claim that the progressive aspectual layer acts as the clause-internal phase when present in the derivation, and that vP does when the progressive layer is absent.

6. *Formalising the Variable Phase Boundary*

Here I provide a formal explanation for how a variable phase boundary, of the sort I have argued for, is possible within the Minimalist framework. Section 6.1 provides the formal analysis itself, 6.2 tries to provide a deeper understanding of the aspectual divide in terms of predication, whilst 6.3 places the analysis within the general move towards a more dynamic understanding of phases, and briefly discusses some of the prior literature on this topic.

6.1. *The variable phase boundary*

Essentially I propose that we should maintain the notion of phases being determined by sub-numerations (Chomsky 2000, 2001). As discussed in section 2, the main clausal spine is divided into two sub-numerations, one containing the lexical verb and all related projections, and the second containing tense and the various heads that potentially make up Rizzi's (1997) CP layer (though I will collectively refer to them as C). Each of these sub-numerations acts as a phase when it has been merged into the syntactic workspace. Under the original formulation of phases it was assumed that once v was merged into the workspace, the first phase was complete, and upon merger of C the second phase was complete. However, determining the completion of a phase upon the merger of a particular head seems to be rather stipulatory, and

⁴⁵ Two apparent counterexamples, which we already encountered in section 3.2, exist to this claim. As previously noted, the following two constructions are dependent upon perfect aspect:

- (i) John has been to Rome.
- (ii) John has been around the block a few times.

Whilst I do not have a definite explanation for these counterexamples, it is possible that these constructions are not idioms in the same sense that the progressive idioms are. It should be noted that other than perfect aspect, a common element across these two sentences is that neither contain a lexical verb, and instead employ the auxiliary *been*. It is possible that this auxiliary is an independent lexical item that carries with it some meaning of transit. This is evidenced by the fact that the same auxiliary can be used to similar effect in the closely related language of Dutch:

- (iii) Ik ben naar de kapper
I am to the hairdressers
'I am going to the hairdressers.'

Of course, the fact that the Dutch instance of this auxiliary is not dependent upon perfect aspect but the English equivalent is remains to be explained. One possibility is that this particular auxiliary is always listed in the English lexicon as *been*, but is listed more abstractly in the Dutch lexicon.

It should also be noted that most idioms may lose their idiomatic interpretation if you alter the material upon which they are reliant, but the result is still a grammatical sentence. When perfect aspect is removed from the sentences in (i) and (ii) on the other hand, the resulting sentence is entirely ungrammatical, suggesting that these types of constructions are not in fact idioms, but something else entirely:

- (iv) * John is to Rome.
- (v) * John might be around the block a few times.

Another idiom which is sometimes raised as a possible counterexample is the saying *The cat has got your tongue*, meaning *You seem speechless*, which at first glance appears to be dependent upon perfect aspect. However, the following two sentences demonstrate that the idiom can be maintained in the absence of perfect aspect:

- (vi) The cat has your tongue = You are speechless.
- (vii) The cat got his tongue = He was speechless.

a needless complication to the system. Moreover, it is often claimed that such heads are not always present in the structure, yet evidence suggests that the phase remains intact. Specifically v° has been taken to be absent with unaccusative verbs (Hale & Keyser 1993). Legate (2003) has shown, however, that a clause-internal phase still seems to be projected in the structure even with an unaccusative verb.

There is a way of solving these issues. I claim that sub-numerations do indeed constitute phases when they have been merged into the workspace, but that they are not dependent upon the merger of a specific head. Instead, when building a phase, the phase itself is not complete until the last item in the sub-numeration has been merged into the workspace, irrespective of what that last item is. This last item is given the status of phase head and the phrase it projects acts as the phase, implying that all projections below this do not have phasal status. This removes the sovereignty of vP acting as the clause-internal phase, and allows for a variable phase boundary.⁴⁶

Of course, one may ask how the system knows when to grant the status of phase head. The answer to this is: once the sub-numeration has been exhausted. The derivational system continues to merge items from the sub-numeration until there is no more material left to (externally) merge. This tells the syntax that the sub-numeration has been exhausted and therefore that the phase is complete. Therefore the last merged item is crowned as the phase head, and the phrase it projects is the phase.

To summarise, we have arrived at the following system for variable phases:

- (84) a. Phases are determined by sub-numerations.
 b. The last item from a sub-numeration to be merged into the workspace projects the phase, irrespective of what that item is.

I now show how this allows the progressive aspectual layer (but no higher aspectual material) to project the clause-internal phase when present in the derivation, and vP (or VP) otherwise.

So far I have argued that the boundary for the clause-internal phase is located between progressive and perfect aspect. This implies that the two sub-numerations of the main clausal spine potentially consist of the following elements:

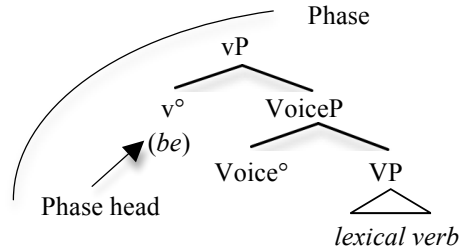
- (85) a. [Prog *be*, ProgAsp, Passive/Copula *be/v*, Voice, V]
 b. [C, T, *Modal*, Inf, Perf *have*, PerfAsp]

The most important divide here is that progressive aspect and the progressive auxiliary are contained within the first sub-numeration, along with the voice layer and the lexical verb, whilst perfect aspect and the perfect auxiliary *have* are contained in the second sub-numeration, along with the modal layer, tense and the CP layer.

Applying the variable phase approach to this division in the sub-numerations provides us with the following phasal system: if progressive aspect is absent from the derivation, the last item to be merged from the first sub-numeration would be that of passive/copula *be* in v° , or simply v° itself, depending on whether the sentence is active, passive, or a copular construction. This means that in the absence of progressive aspect, vP is the highest projection of the first sub-numeration, and so acts as the phase. Once vP has projected onto the workspace, we find that the first sub-numeration is exhausted and so assign vP its phasal status:

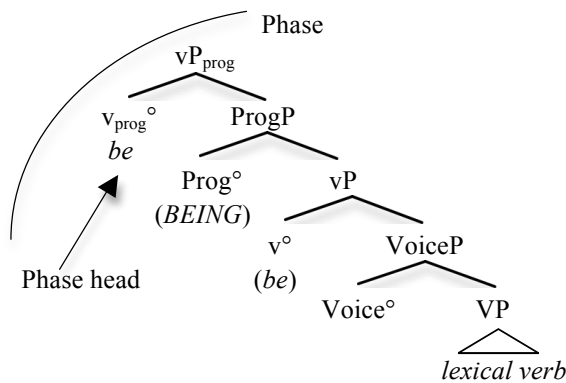
⁴⁶ Rizzi (2005) has made similar suggestions for a variable phase boundary with respect to the CP layer.

(86)



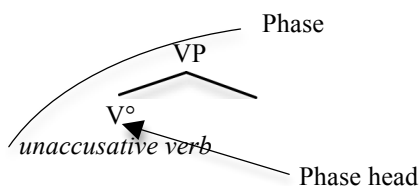
If progressive aspect is present on the other hand, the progressive auxiliary *be* is the last item to be merged from the first sub-numeration. Therefore, the phrase it projects, vP_{prog} , acts as the clause-internal phase, crucially denying vP of any kind of phasal status:⁴⁷

(87)



Finally, note that, if one follows Hale & Keyser (1993) by assuming only VP to be present in unaccusative constructions, then the variable phase approach offers a means in which the clause-internal phase can still project in such instances, in accordance with Legate's (2003) observations. In the case of an unaccusative (and in the absence of progressive aspect), only V, i.e., the unaccusative verb itself, would be contained within the first sub-numeration. Therefore V is the first and, more importantly, last item to be merged from the sub-numeration. Once VP projects, we find the sub-numeration to be exhausted and so grant VP phasal status:

(88)



The question arises of course as to why the aspectual system should be divided in this way. That is, why should perfect aspect be contained in the second sub-numeration and therefore, the higher phase, along with tense and modality, whilst progressive aspect is contained within the first sub-numeration and therefore, the lower phase, along with voice and the lexical verb? Although I have no definite solution, I tentatively propose that the first sub-numeration is made up of material that comprises the predicate layer of the clause, and that progressive aspect, yet not higher material, forms part of the predicate. In the next section I provide support for this claim.

⁴⁷ Note that if perfect aspect and *have* were to be included within the first sub-numeration of the clause, they would constitute part of the clause-internal phase when they project. Since this paper has argued at length that perfect aspect does not constitute part of the clause-internal phase, but rather makes up part of the higher phase along with modals, TP and CP, this would be an undesirable consequence. Therefore perfect aspect should be consigned to the second sub-numeration of the clause.

6.2. *The progressive predicate*

There is no common consensus within the generative literature as to how large the predicational layer can be. Grimshaw (2000, 2005) for instance assumes that the domain of the verbal predicate can extend as far as T°. I follow Bowers (1993, 2001, 2002), however, in assuming that the predicational layer generally corresponds to the vP domain. I furthermore assume that this predicational layer comprises the first sub-numeration. I speculate that progressive aspect, yet no higher material, is included within the first sub-numeration because it forms a part of the predicate. Indeed, Bowers (2002:204) also tentatively assumes that the progressive aspectual layer may constitute part of the predicational layer. Furthermore, Heycock (2011) has noted that progressive aspect can be co-ordinated with nominal, adjectival and prepositional predicates at the predicate level:

- (89) Julia is tired and suffering from a cold and (thus) [a good candidate for a miracle cure]/[in a terrible mood].

This potentially shows the predicational nature of progressive aspect.⁴⁸

Another possible indication that progressive aspect is part of the predicate is that it is the complement of *be* in English. This is identical in form to copular *be*, which appears alongside AP, DP and PP predicates. It is thus possible that progressive and passive *be* are simply instances of a copula selecting 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 perfect aspect, unlike progressive, is not a part of the predicate.⁴⁹

This evidence together may therefore indicate the reason why progressive aspect is contained within the first sub-numeration of the main clausal spine, and so constitutes part of the clause-internal phase when it projects. Of course, this is a tentative claim that requires further research. At present, whilst I have offered a reasonable formalisation of how a variable phase boundary can be made possible, it remains a stipulation that the sub-numerations should be divided in the way I have argued and requires further research to understand exactly why they should be divided in this way.⁵⁰

In the next section I discuss previous attempts at establishing a dynamic approach to phases.

6.3. *Prior approaches to dynamic phases*

⁴⁸ Potential further evidence for the predicational nature of progressive aspect is the fact that it is sensitive to lexical restrictions (Haegeman, p.c). That is, progressive aspect cannot occur with stative verbs, whilst there are no apparent lexical restrictions for perfect aspect:

- (i) * John is knowing French.
(ii) John has known French (for a long time).

This suggests that progressive aspect is much more closely tied to the lexical verb/predicate than higher aspectual forms.

⁴⁹ Many languages, such as French, Dutch, Serbo-Croatian and many of the Celtic languages (to name but a few), realise perfect aspect with a copular auxiliary as well. As will be briefly discussed later, this suggests that certain languages are able to include perfect aspect within the predicate, causing a larger clause-internal phase than in English. This may be a point of cross-linguistic variation.

⁵⁰ Ramchand & Svenonius (2013) have attempted to provide a deeper understanding of the reason for this cut between perfect and progressive aspect, though this research is still in its early stages. Essentially they define the aspectual divide I have identified along event-situation lines. This may begin to provide a more in-depth understanding of the structural split between perfect and progressive aspect. Nevertheless, further research is required on this topic, especially in the semantics, before any conclusive understanding can be offered. See also Hinzen (2012) for discussion of phases from a more semantic perspective.

To summarise, I have shown how a variable phase boundary can be achieved within the Minimalist Framework, and all that is needed to achieve this is the rule in (84), repeated here:

- (90) a. Phases are determined by sub-numerations.
b. The last item from a sub-numeration to be merged into the workspace projects the phase, irrespective of what that item is.

This system is not too dissimilar from the dynamic approach to phases as argued for by Bobaljik & Wurmbrand (2005), Wurmbrand (2012, to appear) and Bošković (to appear a, b). Bobaljik & Wurmbrand (2005) argue that phases should be context dependent. Wurmbrand (2012, to appear) has claimed that aspectual layers should be contained within the clause-internal phase when such projections are present in the derivation, whilst Bošković (to appear a, b) has formalised this by proposing a dynamic approach to phases known as the ‘highest phrase is a phase’ approach. To close this section I provide a brief discussion of Bošković’s (to appear a) proposal.

Whilst the approach I advocate in this paper defines the phase boundary as being determined by the last item to be merged from the sub-numeration, irrespective of what that item is, Bošković’s (to appear a) ‘highest phrase is a phase’ approach instead defines the phase boundary as being demarcated by the highest functional category within the extended projection (Grimshaw 2000, 2005) of a lexical item. That is, the lower bound of each phase is always determined by a lexical item, whether that be a verb, preposition, noun, adjective or adverb, whilst the higher bound of the phase is demarcated by the highest functional projection to be merged in the functional sequence stemming from the lexical item. In the case of the clause-internal phase, its lower bound is demarcated by either the verbal, prepositional, adjectival or nominal lexical predicate of the clause. The higher bound is demarcated by the final functional projection to be merged into the extended projection line of that lexical predicate. In the absence of any aspectual layers, this would be v° . However, the aspectual layers are also part of the extended domain of the lexical predicate, meaning that when progressive aspect projects, this would be the highest functional projection, and so would act as the phase. If perfect aspect is present, this would be the clause-internal phase since it is merged higher than progressive aspect, yet is still a part of the extended projection of the lexical predicate.⁵¹

Bošković (to appear a) uses this approach to also provide an account of the auxiliary ellipsis paradigm in English VPE that was discussed in sections 3.2 and 3.3. Here I provide a critical overview of Bošković’s analysis, outlining why the account offered in this paper should be preferred.

Labelling aside, Bošković essentially assumes the same functional hierarchy that was established in (8), and also assumes the same analysis with regards to auxiliary raising (though he motivates this through a morphological requirement rather than through feature checking). A WYSIWYG approach is also adopted. As previously mentioned in this paper, Bošković also claims that ellipsis may target either the phasal complement, or an entire phase.

In the absence of any aspectual projections, Bošković takes vP to act as the clause-internal phase, as also claimed in this paper. This implies that, under VPE, ellipsis is able to target either the entire vP phase, or the phasal complement of VP (there is no $VoiceP$ intervening between vP and VP in his system). Similar to the analysis advocated in this paper, Bošković claims that the lexical verb does not raise to vP (at least in ellipsis contexts in his account, following Lasnik (1999)), therefore it never escapes the ellipsis site.

⁵¹ A problem with this analysis that Bošković himself notes is that if the lower bound of every phase is demarcated by a lexical item, what serves as the lower bound of the CP phase? TP is obviously not a lexical item, and there does not in fact appear to be any consistent lexical item which can act as the lower bound of this phase.

- (91) a. [TP ([vP ([~~vP~~-lex V])])]
 b. [TP ([~~vP~~ ([~~vP~~-lex V])])]

As previously stated, progressive aspect, being part of the extended projection of the lexical predicate, extends the size of the clause-internal phase when it projects. However, Bošković claims that when the progressive aspectual layer is present, ProgP acts as the clause-internal phase rather than the vP_{prog} shell above it. This is the first fundamental 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 ProgP should in fact act as the clause-internal phase rather than the vP_{prog} shell. Moreover, by allowing ProgP 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 in vP_{prog} should be separated from its aspect in ProgP by a phase boundary, as Bošković implies.

These matters aside, with ProgP acting as the phase VPE has the option of privileging either the entire ProgP phase itself, or the vP phasal complement. In order to account for the obligatory ellipsis of *being*, Bošković then claims that *being* is the only auxiliary that does not raise for inflectional purposes and instead has its inflection lowered onto it in its v^o base position. The reason for this is clear: if *being* raises to Prog^o 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.

- (92) a. [TP [vP_{prog} ([ProgP ([~~vP~~-*being* [~~vP~~-lex V])])]]]
 b. [TP [vP_{prog} ([~~ProgP~~ ([~~vP~~-*being* [~~vP~~-lex V])])]]]

However, as this paper has already argued, there is no principled reason as to why *being* should be the only auxiliary not to raise and is therefore a pure stipulation.

In the presence of perfect aspect, which Bošković also assumes to constitute part of the extended projection of the lexical verb, PerfP acts as the clause-internal phase. Again, the vP_{perf} shell above PerfP curiously does not act as the phase. This implies that VPE may target either the PerfP phase itself, or the complement of PerfP (vP_{prog} or vP, depending on whether the progressive aspectual layer is present or not). The optional deletion of *been* now falls out of this analysis: *been* raises for inflectional purposes to Perf^o, which is optionally targeted by ellipsis.

- (93) a. [TP [vP_{perf} ([PerfP *been* ([~~vP~~_{prog} ~~*t_{been}*~~ [~~ProgP~~ [~~vP~~-*being* [~~vP~~-lex V])])])]]]
 b. [TP [vP_{perf} ([~~PerfP~~-*been* ([~~vP~~_{prog} ~~*t_{been}*~~ [~~ProgP~~ [~~vP~~-*being* [~~vP~~-lex V])])])]]]

The analysis however has very little to say about the optional ellipsis of *be* and so is generally unable to capture the entire auxiliary ellipsis paradigm. Bošković tentatively claims in a footnote that InfP, the landing site of *be*, could also potentially act as the clause-internal phase when it projects, meaning ellipsis could target either InfP or its complement, therefore possibly capturing the optional ellipsis of *be*. However, Inf^o is also the landing site of *have*, meaning we would predict optional ellipsis of *have* to be as widely available as the optional ellipsis of *be*. As was argued in section 3.2.3 however, ellipsis of *have* is highly unstable and restricted and often rejected, something which Bošković's proposal would be unable to

capture if it tried to seriously explain the ellipsis of *be*. Moreover, if in the presence of InfP the complement of Inf^o must always be elided under VPE, we should expect everything below the infinitival auxiliary to be obligatorily elided under ellipsis. Consider, however, (94), with non-finite *have* in Inf^o, and *been* in Perf^o, in the complement of Inf^o. Here one incorrectly expects *been* to be obligatorily elided.

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

These issues, when taken together, mean that Bošković's approach does not correctly capture the auxiliary ellipsis paradigm of English.

Abstracting away from these matters, the most fundamental problem with the 'highest phrase is a phase' approach is that it is unable to capture the unique behaviour of progressive aspect that sets it apart from higher aspectual forms in English. That is, the 'highest phrase is a phase' approach is unable to exclude perfect aspect from the clause-internal phase, something which this paper argues is necessary in order to explain many of the quirks that only progressive aspect exhibits. For this reason I maintain that the variable phase approach advocated in this paper is better suited for explaining the English data since it is able to capture the aspectual divide that I have shown to exist not only in VPE, but also VPF phenomena and idiomatic constructions (and in section 7, existentials).⁵²

In the next section I show how existential constructions, under Chomsky's (2000, 2001) analysis, add further support to the notion that progressive aspect is the clause-internal phase (when present).

7. *Existential Constructions and Phases*

The data discussed so far shows that progressive aspect shares a number of unique properties with the lexical verb and its arguments to the exclusion of higher aspectual forms, leading us to conclude that the progressive aspectual layer acts as the clause-internal phase when present in the derivation. A question that one might ask at this point is, if the progressive aspectual layer does genuinely project the clause-internal phase in English, shouldn't we be able to observe edge effects at the periphery of the progressive aspectual layer? The answer is that we do potentially see such edge effects, namely in English existential constructions, to which I return in this section. Consider the following sentence:

(95) **Several men** were arrested for drunkenness

The standard Minimalist analysis for this sentence is that the derived subject is merged as complement of V^o. It surfaces in the canonical subject position by first raising through the clause-internal phase edge (Spec-vP according to Chomsky 2000, 2001), and then raising to Spec-TP to satisfy the EPP feature. Consider, however, the distribution of a derived subject in an existential construction:

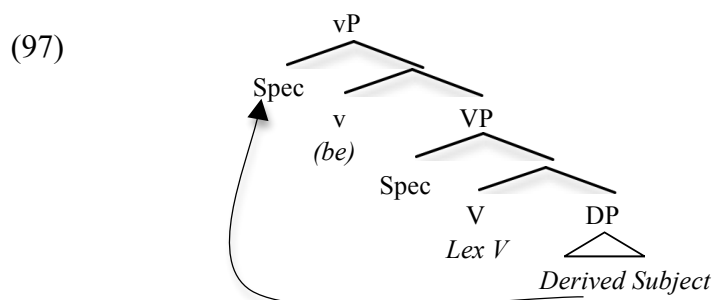
(96) There were **several men** arrested for drunkenness.

Recall from the discussion in section 3.1 that in this sentence the expletive *there* occupies Spec-TP, preventing the derived subject from raising to this position. However, given that the derived subject is not occupying its base, post-verbal position, but occurs pre-verbally, it must have undergone some form of intermediate raising. As previously discussed, Chomsky (2000, 2001) analyses this sort of construction as involving stranding of the subject on the clause-

⁵² Despite these differences I am grateful to the 'highest phrase is a phase' approach which has been rather influential in the writing of this paper, and generally the two approaches sit in line with a move towards a more dynamic understanding of phases.

internal phase edge. Here I show in more detail how the derivation proceeds under Chomsky's assumptions (and under a minimal C-T-v-V structure):

- (i) The first phase is built up using material from the first sub-numeration up to the point when v° is merged, thereby completing the phase. The derived subject is merged as complement of V° .
- (ii) Bearing unchecked Nominative Case features, the subject must undergo further operations in the higher phase. Therefore, the derived subject raises to Spec-vP, the phase edge.



- (iii) The second phase is then constructed. Once T is merged we have an EPP feature to check. There are two ways of checking this feature: either the subject in Spec-vP raises to Spec-TP, or the expletive *there*, contained in the second sub-numeration, is merged directly into Spec-TP. Since external Merge takes priority over Move, it is less costly to Merge the expletive into this position than to Move the subject. Therefore, expletive *there* is merged from the second sub-numeration into Spec-TP, satisfying the EPP on T° . The subject is therefore stranded in the Spec-vP phase edge, where it has its Case feature checked by T° via Agree and subsequently values T's phi-features in the process. Sitting on the Spec-vP phase edge, the subject precedes the lexical verb, but is situated below material in T° .

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

- (98)
- 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*:

- (99) *be/been*>**Subj**>*being*

If *being* surfaces in Prog° as argued for in this paper, then 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 I have argued to occupy Inf° , we can rule out the subject occupying Spec-InfP. Even more crucially however, since the subject follows *been*, which I have argued to surface in Perf° , we can rule out the subject occupying Spec-PerfP. Given the structural hierarchy we posited in (8) and (10), the only two other positions available are Spec- ProgP and Spec- vP_{prog} .

Note that if vP_{prog} projects the clause-internal phase when present, as I have argued, then Spec- vP_{prog} would act as the clause-internal phase edge. This potentially gives us a position for the subject to raise to that would automatically explain the distribution of the subject, and would furthermore provide a motivation for this movement. Following Chomsky's basic analysis the subject, driven by a 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*.

(100) [TP *There* [T *may* [ModP t_{may} [InfP *have/be* [vP_{perf} t_{have} [PerfP *been* [vP_{prog} **subject** [v_{prog} t_{been} [ProgP *being* [vP ...]]]]]]]]]]]

Thus, the variable phase approach as argued for in this paper correctly explains the distribution of existential subjects without having to resort to any additional mechanisms.

Note furthermore that if the perfect aspectual layer constituted part of the clause-internal phase as argued by Wurmbrand (2012, to appear) and Bošković (to appear a), 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 provides further evidence to suggest that perfect aspect, unlike progressive aspect, is not contained within the clause-internal phase.

Of course, a lot of work still needs to be done on the topic of existentials for such an analysis to go through. For starters, the aspectual restrictions of unaccusative, transitive and ditransitive existential constructions, as discussed in section 3.2, still need accounting for (see Deal 2009 and Harwood 2011 for attempted explanations). Furthermore, an explanation still needs to be given for how post-verbal subjects in unaccusative existentials can be derived:

- (101) a. There arrived **several letters**.
 b. There have arrived **several letters**.
 c. There will arrive **several letters**.

Here we still predict a VP or vP phase to be projected, to the specifier of which the subject should raise in order to escape spell-out, leading us to predict that the subject should surface in pre-verbal position, contrary to fact. It is interesting to note though that when progressive aspect is present on the unaccusative verb, edge effects are once again observable. That is, the subject appears in pre-verbal position:

(102) There were **several letters** arriving (all at the same time).

These matters aside, when one considers the facts in detail, Chomsky's (2000, 2001) phase-based analysis of English existential constructions actually seems to lend independent support to the variable phase approach argued for in this paper.

In the next section I briefly address a number of further issues.

8. *Further Issues*

In section 6, the issue was raised that it is not yet entirely clear why progressive aspect should be contained within the first sub-numeration, whilst higher aspectual material is contained in the second. Some evidence tentatively suggests that progressive aspect constitutes part of the predicational layer to the exclusion of higher aspectual forms, and that this is the reason for such a divide, although ultimately a topic for further research is to better understand why this division in the aspectual hierarchy should exist. It is possible that the answer lies in the semantics, though this is beyond the scope of the current paper. As previously stated, Ramchand & Svenonius (2013) have begun to advance a semantic analysis for this aspectual divide along event-situation lines, to which I refer the interested reader.

In the remainder of this section I briefly address two further issues that the analysis in this paper raises. First, I discuss the cross-linguistic implications of the analysis, and then I further discuss the notion suggested in 3.1 that phase heads are derived from overlapping domains.

The first issue to be addressed is how exactly the conclusions drawn from this paper carry over cross-linguistically. There is evidence to suggest that progressive aspect, but no higher aspectual forms, should be included in the clause-internal phase in languages other than English. Sailor & Kuo (2010) for instance, have claimed that VPE in Taiwanese appears to target the progressive aspectual layer, whilst Aboh (2005) and McCloskey (2012) have observed phase edge effects in the presence of progressive aspect in languages as disparate as Gungbe and Irish. This potentially suggests that the separation of the aspectual hierarchy in the way I have argued for is more than just a language specific property of English, although far more work needs to be done on these languages before any reasonable conclusions can be drawn. I do not claim, however, that this separation in the aspectual hierarchy is necessarily a universal property. There are obviously many languages that do not realise progressive aspect, in which case it is currently unclear where the clause-internal phase boundary may lie in such languages. Furthermore, the diagnostics I have used for English to demonstrate that progressive aspect projects the clause-internal phase when present suggest, when applied cross-linguistically, that some languages may include as much as perfect aspect within the clause-internal phase. Rocquet (2010) for instance, motivated by data from past participle agreement, has argued that perfect aspect should be included in the clause-internal phase for French, and with regards to VPE, there are many languages which appear to demonstrate ellipsis of perfect aspect, contrary to the English and Taiwanese data. Rouveret (2012) shows that this is potentially the case for Welsh, and Aelbrecht (2010) for Dutch Modal Complement Ellipsis. I suggest therefore that the size of the clause-internal phase may vary cross-linguistically, and leave this for further research.

A second issue to be addressed is the point established in section 3.1 that ellipsis appears to optionally target either the phasal complement, or the entire phase, which contradicts Gengel's (2007, 2008) initial claim that ellipsis is non-pronunciation at PF of the phasal spell-out domain, i.e., the phasal complement. In order to explain the possibility of full phasal ellipsis, it was assumed that full phasal spell-out must sometimes be possible. To understand this, I tentatively expanded on a claim made by Bobaljik & Wurmbrand (2005) to the effect that phase heads and their specifiers are domains of overlap between two phases. That is, the phase head and its specifiers are simultaneously selected by both the lower and higher phases and share properties with both, meaning there may be a degree of optionality as to whether the phase head and its specifiers spell out with the first phase or the second phase. This may be compatible with a traditional, rigid approach to phases in which v° always acts as the clause-internal phase, in which case v° would always be selected by both the first and second sub-numerations of the clause. There is a tension, however, between the notion of overlapping domains and the variable phase approach I have proposed in this paper, since the phase head is never fixed. If one wished to maintain the notion of both a variable phase boundary, and overlapping domains, one would have to claim that sometimes v_{prog}° , when present, is simultaneously selected by the first and second sub-numerations, but nothing else, but that in the absence of progressive aspect, v° is simultaneously selected by both sub-numerations. This is an undesirable consequence. At present I have no means of resolving this tension and leave it as a matter for future research.

9. Summary and Conclusion

This paper has aimed to show that progressive aspect shares a number of unique properties with the lexical verb and its arguments to the exclusion of higher aspectual forms. This can be seen in VP ellipsis, VP fronting phenomena, idioms and existential constructions in English. I have analysed this apparent divide in the aspectual hierarchy as an indication that progressive aspect, yet no higher aspectual forms, should be a part of the clause-internal phase. Under the assumption that aspectual projections are not always present in the underlying derivation, this kind of separation is allowed for if one supposes a variable phase approach in which the last merged item from a sub-numeration projects the phase, irrespective of what that item is. If

progressive aspect, yet no higher aspectual forms, is contained within the same sub-numeration as the lexical verb, and is merged after *v*, this denies *vP* its perpetual status as the clause-internal phase and allows the progressive aspectual layer to take on the properties of the clause-internal phase when present. When progressive aspect is not present, however, *vP* acts as the phase as standardly assumed. This split in the aspectual hierarchy I argued to be due to progressive aspect forming a part of the predicational layer in English, whilst perfect aspect does not.

At the very least, this paper has set out to demonstrate the uniqueness of progressive aspect. That is, in English, there appears to be a split in the structural hierarchy in which progressive aspect, and everything below it, can be considered a discrete unit of structure, separate from perfect aspect and all projections above it. Even if one would rather not define this split in terms of phases, I have hopefully at least shown this aspectual divide in English to be genuine.

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