Phased and Confused: 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 is unique amongst aspectual forms in English in that it is part of the clause-internal phase, whilst all higher aspectual forms 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. Cross-linguistically I argue there is variation as to where the phase boundary lies with respect to the aspectual projections.

On the theoretical front I argue 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) and Bošković (2011, 2012).

1. Introduction

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] in which vP is usually assumed to act as the phase. But what happens if we look at phases in the light of more articulated structures? Consider, for instance, the sentence below:

(1) Betsy must have been being hassled by the police.[2,3]

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 much confusion as to where the phasal boundary lies. It has been assumed by a number of authors that the entire range of aspectual projections may constitute separate clause internal phases (Butler 2004, Deal 2009, Henry & Cottell 2007), or, conversely, are simply a part of the higher TP/CP phase (Chomsky 2000, 2001, Svenonius 2004, 2005). Alternatively, Bošković (2012) has claimed that the entire range of aspectual projections 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.

The focus of this paper is this specific aspect of phase theory. In particular I propose that the clause internal phase boundary, which under standard minimalist

[1] See however Kidwai (2010) and Rizzi (2005) 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.
[3] Sentences involving four auxiliary verbs are often difficult to parse for many native speakers of English. Throughout this paper however, I will mostly use maximal structures such as that in (1) to illustrate the auxiliary paradigms we will be observing for ease of explanation. However, if one applies the phenomena that I discuss to sentences with fewer auxiliaries, the same patterns emerge.

assumptions is vP, may extend as far as the progressive aspectual layer when such projections are present in the structure. Perfect aspect however, 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 proposal 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. VP ellipsis in Taiwanese, edge effects in Irish and split ergativity in Basque, Chol, and the Nakh-Dagestanian languages suggest that this property may carry over to certain other languages that realise progressive aspect, though there may indeed be a certain amount of cross-linguistic variation as to which aspectual forms are contained within the clause internal phase, and which are contained within the higher phase.

The rest of this paper is structured as follows: in the next section I outline a few background assumptions with regards to the enriched structure of the aspectual hierarchy in English. In section 3 I show how Gengel's (2007, 2008) understanding of ellipsis in terms of phasal spell-out domains predicts that the progressive aspectual layer of the clause should be contained within the clause internal spell-out domain. Section 4 shows 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 shows how Svenonius' (2005) understanding of idioms as being constrained by phasal domains again predicts that progressive aspect should be contained within the clause internal phasal spell-out domain. Section 6 provides a formal explanation for how progressive aspect can constitute a part of the clause internal phase. Section 7 seeks further support for this proposal from existential constructions, whilst section 8 looks at its potential cross-linguistic implications. Finally, section 9 concludes.

2. Background Assumptions

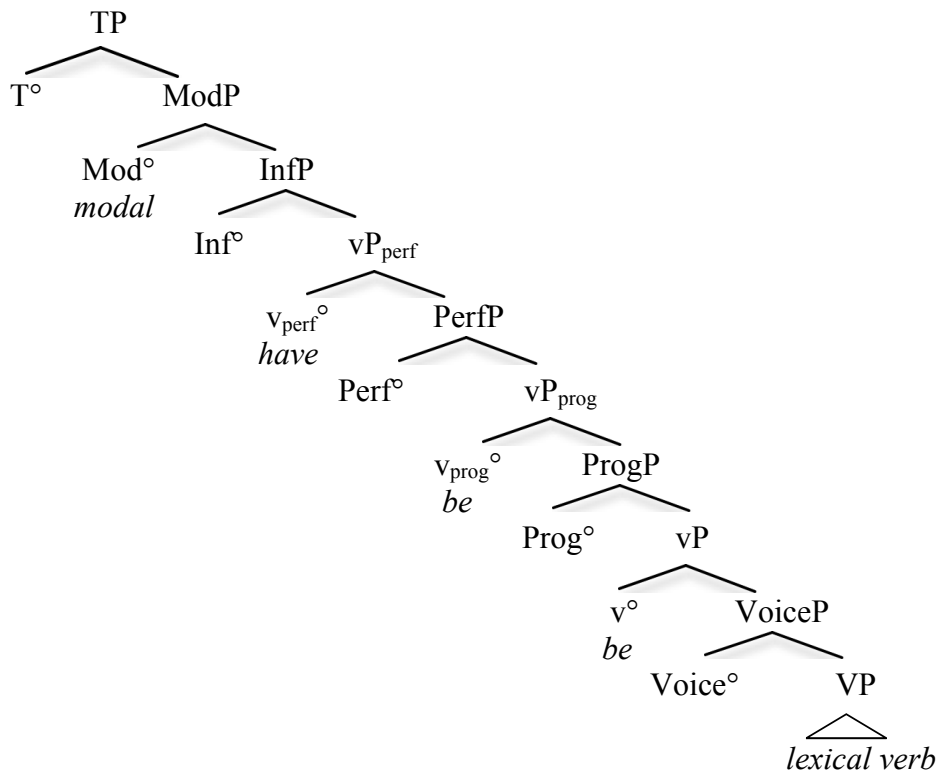
As Cinque (1999) has observed, there is a universal functional hierarchy of the form: tense > modality > perfect aspect > progressive aspect > voice > verb:

(2) Betsy must have been being hassled by the police.[4]

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 Aelbrecht & Harwood (2012), Bošković (2012), Cinque (1999) and Harwood (2011) and propose the articulated structure in (3) (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:

[4] In this paper I will stay away from discussion of infinitival 'to' which goes beyond the scope of my current research.

(3)



First and foremost I assume a paired layering in which auxiliaries head their own vP shells independent of the aspectual projections that they accompany. 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 raising into one another's trace positions.

Starting with the modal layer, I assume modals to be merged in ModP, which immediately selects for the infinitival phrase InfP, which licenses the infinitival forms of lower verbs. Below this we have 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*, followed by the progressive aspectual phrase, ProgP, which licenses the progressive forms of lower verbs. I follow Aelbrecht & Harwood (2012), Baker (1997), Bošković (2004, 2012), Bowers (2002), Eide & Åfarli (1997) and Harwood (2011) in assuming that passive and 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.[5]

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,[6] 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

[5] 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 and VP, is also possible, and would not effect the analysis.

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

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 6.2 however for a brief discussion of this issue.

Moreover, I take auxiliaries to uniformly raise for inflectional purposes. Specifically, I suppose that auxiliaries raise for reasons of feature checking, as per Aelbrecht & Harwood (2012) and Lasnik (1995). That is, an auxiliary enters the derivation readily inflected but bearing an unchecked inflectional feature 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. Let us briefly consider what this implies for the distribution of auxiliaries.

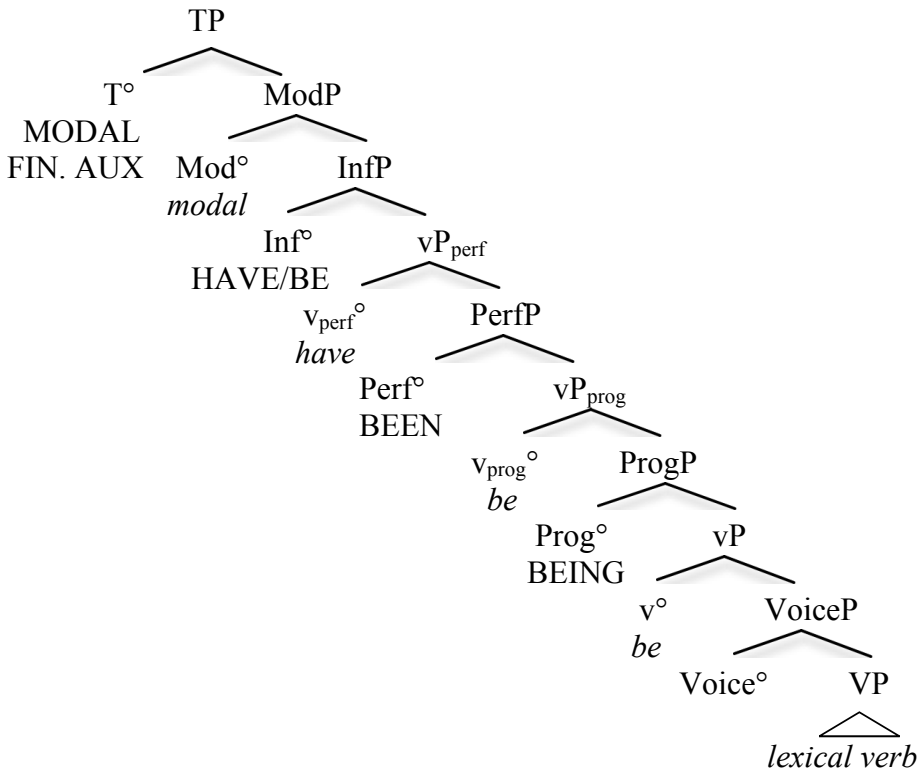
I assume that, when realised as *being*, passive or copula *be* bears an uninterpretable progressive inflectional feature: [*u*Prog]. In order to check this feature, *being* raises out of v° to Prog°, which bears a matching interpretable feature of the form [*i*Prog]. Once in Prog°, *being* is able to check its feature and is spelt out in this position. *Been* on the other hand, whether progressive, passive or copular, bears an uninterpretable perfect inflectional feature: [*u*Perf], causing it to raise out of v°/v_{prog}° to Perf° in order to check this feature. *Be* raises from v°/v_{prog}° to check its uninterpretable infinitival [*u*Inf] feature in Inf°, whilst finite *be* raises out of v°/v_{prog}° to check its [*u*T] tense feature in T°. Non-finite *have* raises out of v_{perf}° to Inf° to check its infinitival [*u*Inf] feature, and to T° when finite and bearing a [*u*T] tense feature. Finally, modals always raise from Mod° to T° to check their [*u*T] feature.

This type of auxiliary raising, which is driven by unchecked features being located on the moving element itself, is achieved via Bošković's (2007) proposal for foot-driven movement. Under this approach, an unchecked item probes inside of its c-command domain in search of a goal with a matching interpretable feature. Failing to find such a goal, the item with the unchecked feature then raises to the next available position, which in the case of auxiliaries is the next head up, and probes again. It continues to raise and probe until a matching interpretable feature sits within its c-command domain.[7]

This gives us the distribution of auxiliaries in (4), where the italicised forms represent the base positions of auxiliaries in their abstract uninflected forms, and the capitalised forms are their spell-out positions:

[7] In the case of auxiliaries, the matching interpretable feature is found on the actual head that the auxiliary raises to. I consider this to still be within the c-command domain of the probing auxiliary.

(4)



It is unclear how exactly the lexical verb behaves under this system, though it is standardly assumed that in English the lexical verb does not raise beyond v°. 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 1995) or merger under PF adjacency (Baker 2003; Bobaljik 1994; Lasnik 1995; Marantz 1988) are compatible under the assumptions made so far.

Having outlined the background assumptions to 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. VP Ellipsis and Phases

English VP Ellipsis (VPE) is the non-pronunciation of the lexical verb and its internal arguments:

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

It has been assumed that the elided constituent in such instances is that of VP (Bošković 2012; Gengel 2007, 2008; Lasnik 1999, 2001). A long-standing issue, however, has been why this constituent in particular should be targeted by ellipsis in English. Holmberg (2001) and Gengel (2007, 2008) have suggested a potential solution to this problem by connecting ellipsis sites to phasal spell-out domains. That is, the elided constituent is always that part of the phase which is shipped off to Spell-Out, namely the complement of the phase head. This makes sense on an intuitive level. Consider that we build up a phase and, at some point in the derivation, ship off the spell-out domain. All that then needs to be said is that at

PF, we choose to either pronounce, or not pronounce, the spell-out domain. Ellipsis is then essentially non-pronunciation of the spell-out domain.[8,9]

This proposal, along with the original formulation of phase theory (Chomsky 2000, 2001), allows us to better understand the identity of the elided constituent under English VPE: if we suppose that v° is the clause internal phase head, then VP, which includes the lexical verb and its internal arguments, is the spell-out domain, since it sits in the complement of v°, and is therefore also the ellipsis site.

This phasal approach has been adopted by various authors (Bošković 2012; Rouveret 2012; Sailor 2012) as a reasonable means of observing ellipsis. 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 copula auxiliary *being* is also obligatorily elided under VPE:

(6) a. Betsy was being fired, and Peter was (***being**) ~~fired~~, too.
b. Betsy was being annoying, and Peter was (***being**) ~~annoying~~, too.

If the passive and copula auxiliary is obligatorily elided under VPE when it has raised into the progressive aspectual layer for inflectional purposes (recall that I assume *being* to raise to Prog°), then it seems that the ellipsis site must be somewhat larger than VP, extending as far as the progressive aspectual layer. Therefore, by implication, the spell-out domain of the clause internal phase must also be as large as the progressive aspectual layer.

It has been claimed, however, by Akmajian, Steele & Wasow (1979), Akmajian & Wasow (1975), Bošković (2004, 2012), Sailor (2012) and Thoms (2011) that the obligatory ellipsis of *being* should instead be understood as non-raising of *being* out of v°, and for VPE to therefore be ellipsis of vP. This obviously excludes VPE eliding only as much as VP, but it instead allows us to maintain a consistent ellipsis site in the form of vP always being elided under VPE. Indeed, many authors consider vP to be the ellipsis site anyway (Aelbrecht 2010; Johnson 2001, 2004; Merchant 2001, 2008, to appear), and such proposals can still easily be incorporated into the phasal understanding of ellipsis. One simply needs to claim that Voice is positioned above vP and that Voice itself acts as the phase head, as per Baltin (2007), in which case vP would be the spell-out domain.

The problem with claiming that *being* does not raise out of v° however is that it is a pure stipulation. The above-mentioned authors all assume uniform raising of all other auxiliaries except for *being* without any due motivation for this exception.[10] The only evidence put forward in favour of this claim is the fact that floating quantifiers, which supposedly represent the base positions of subjects (Sportiche 1988; Shlonsky 1991), cannot follow *being*:

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

[8] Ellipsis can also be non-pronunciation of multiple spell-out domains, but the ellipsis site must always be at least one entire spell-out domain.
[9] See Aelbrecht (2010), however, for arguments against such an approach.
[10] 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.

If subjects are merged in Spec-vP, and *being* remains in v°, then we have an instant explanation for the distribution of *all*. However, this argument is only potentially applicable to (7)b. In (7)a the subject is the derived subject of a passive 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, contrary to fact:

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

Therefore, if *all* is not found in the base position of the derived subject, it is not entirely clear what position *all* is occupying when it appears to the left of *being*. This furthermore implies that we can also not be entirely certain whether *all* in the copular construction in (7)b is occupying its base position. Hence the data in (7) cannot conclusively show that *being* remains in v°.

In the following two sub-sections I demonstrate that the progressive aspectual layer is indeed included in the ellipsis site in VPE. This therefore gives a principled explanation why *being* is obligatorily elided without needing to stipulate non-raising of this auxiliary: *being* raises into the progressive aspectual layer of the clause, but this is still included within the ellipsis site. Therefore *being* never escapes ellipsis.

By illustrating that progressive aspect is included in VPE this will also show, by implication, that the progressive aspectual layer constitutes a part of the clause-internal phasal spell-out domain if one submits to the phasal understanding of ellipsis.

In section 3.1 I discuss aspectual mismatch data and in section 3.2 I deal with further ellipsis of auxiliaries. Section 3.3 concludes the section on ellipsis.

3.1 Aspectual Mismatches

Lasnik (1995), Quirk et al (1972), Sag (1976) and Warner (1986) have all noted that aspectual mismatches are permitted between the antecedent of an ellipsis clause, and the ellipsis clause itself, when a lexical verb is bearing the aspectual inflection:

(9) a. First Ted **ate** a bunny burger, and now Robin will [~~**eat** ...~~] too.
b. First Ted **ate** a bunny burger, and now Robin has [~~**eaten** ...~~].
c. Ted will **eat** a bunny burger because Robin has [~~**eaten** ...~~].
d. Ted has **eaten** a bunny burger, and now Robin might [~~**eat** ...~~].

There is usually assumed to be a strict identity condition on ellipsis in that the constituent that is elided must be identical in form to its antecedent in order for it to be fully recoverable. And yet here, the lexical verb is not identical in form.

This led Lasnik (1995) to suppose that lexical verbs enter the derivation bare and only receive inflections later under PF linearisation. Therefore, the lexical verb in the ellipsis site is identical to the lexical verb in the antecedent clause at some point during the derivation, irrespective of how it is inflected, and so would be fully recoverable. Lasnik (1995) and Quirk et al (1972) note however the following contrast:

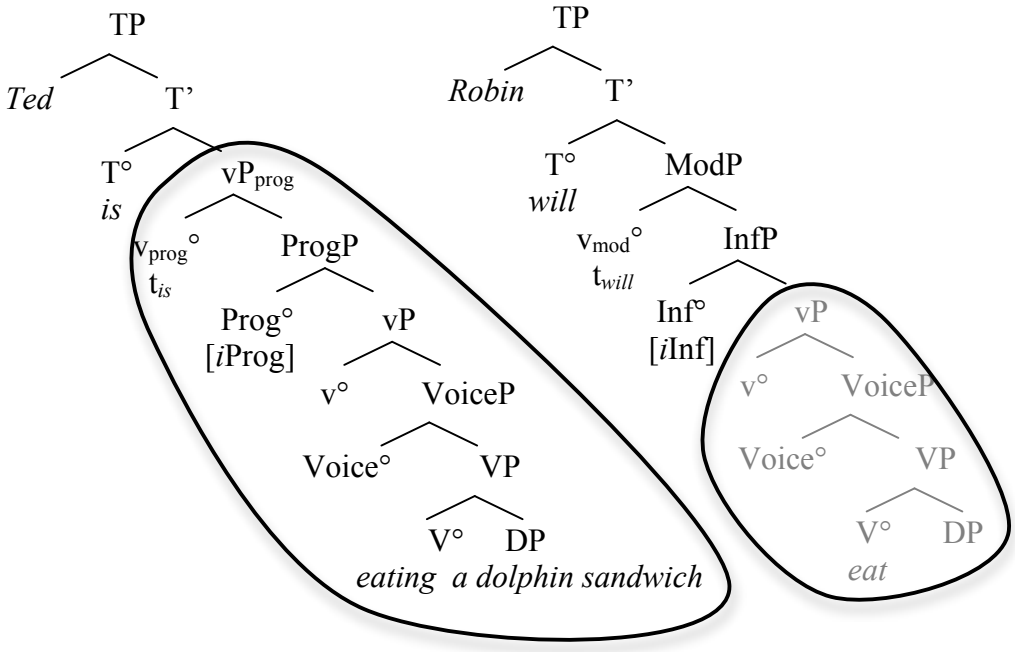
(10) a. Ted is **eating** a dolphin sandwich and Robin will [~~**eat** ...~~], too.
b. * Ted will **eat** a dolphin sandwich because Robin is [~~**eating** ...~~].

Here we have a counterexample to Lasnik's claim: whilst it is perfectly acceptable for a progressive lexical verb to be contained in the antecedent and for a non-progressive verb to be in the ellipsis site, it is unacceptable to have a non-progressive verb in the antecedent and a progressive verb in the ellipsis site. So, contrary to Lasnik's predictions, not all aspectual mismatches are acceptable.

Aelbrecht & Harwood (2012) account for this by claiming that progressive aspect, when present in the derivation, is included in the ellipsis site. Assuming the strict identity condition to be correct, this accounts for the contrast in (10): if we have a progressive antecedent but a non-progressive ellipsis site, the ellipsis site is only as large as vP, which is also present within the antecedent. Therefore, when vP is elided, it is fully recoverable from the antecedent, satisfying the identity condition:

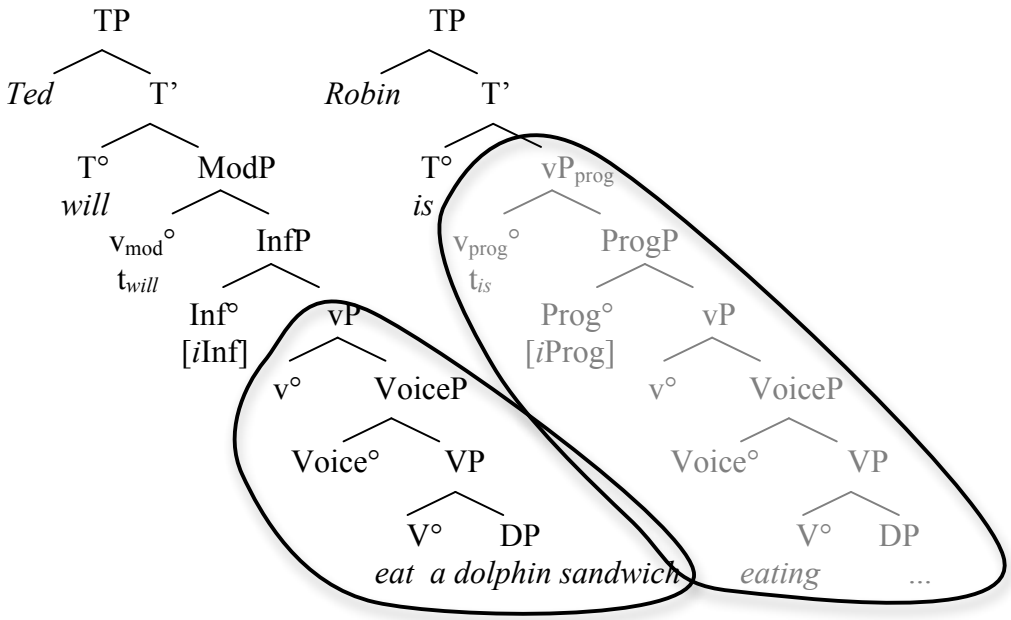
(11) a. Ted is **eating** a dolphin sandwich, and Robin will [~~**eat a …**~~] too.

b. Antecedent: Ellipsis site:



However, if we have a non-progressive antecedent but a progressive ellipsis site, the derivation runs into problems. The ellipsis site includes the progressive layer, though the antecedent has no such progressive layer. This makes the ellipsis site larger than the antecedent. Therefore, when the progressive layer is elided, it cannot be fully recoverable because its antecedent lacks the progressive projections, leading to a violation of the identity condition, see (12):

(12) a. * Ted will **eat** a dolphin sandwich because Robin is [~~**eating** a …~~].
b. Antecedent: Ellipsis site:



This suggests (i) that the progressive layer is contained within the ellipsis site; and (ii) that perfect aspect is located outside the ellipsis site: recall that in (9)b,c, it is acceptable for a perfect lexical verb to be elided when the antecedent lexical verb is not inflected for perfect aspect, in contrast to the case with the progressive. This implies that the perfect aspectual layer is positioned outside of the ellipsis site, therefore it is never elided and hence is not subject to the strict identity requirement that progressive aspect is subject to.

3.2 Optional Auxiliary Ellipsis

Sag (1976) observes that certain other non-finite auxiliaries may be optionally elided under VPE:

(13) Betsy has been fired, and Peter has (**been**) ~~fired~~, too.

There have been numerous attempts to explain this 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 2012), or optional raising of the auxiliaries (Aelbrecht & Harwood 2012; Sailor 2012; Thoms 2012). However, irrespective of which analysis one chooses to analyse this data, the common consensus between all of the approaches is that for an auxiliary to be optionally elided it must have, at some point in the derivation, been included in the ellipsis site.

I show in this section that the only auxiliaries that can be elided are those which are first merged within or below the progressive layer, i.e. the progressive, passive and copula auxiliaries, but not those generated above the progressive layer, i.e. perfect *have* and modals.[11] This suggests that the ellipsis site is as large as the progressive layer, but no larger.

First of all, it is quite clear and fairly uncontroversial that both passive and copula *be*, which I take to be merged in v°, can be optionally elided when realised as *be* or *been*:

[11] Another way of looking at this is to say that forms of *be* can be elided, whilst other types of auxiliaries cannot.

(14) a. Betsy has been fired, and Peter has (**been**) ~~fired~~, too.
b. Betsy will be fired, and Peter will (**be**) ~~fired~~, too.

(15) a. Betsy has been in the garden, and Peter has (**been**) ~~in the garden~~, too.
b. Betsy will be in the garden, and Peter will (**be**) ~~in the garden~~, too.

With progressive *be*, however, which I take to be merged in the progressive aspectual layer, the facts are more complicated. On the surface it appears as though progressive *be*, when realised as *be* or *been*, is optionally elided:

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

However, when progressive *be* or *been* is elided, it is not entirely clear what is contained within the elided constituent. The elided constituent is often assumed to be *be/been questioning our motives*, but an aspectual mismatch interpretation could also be available in which progressive aspect is altogether absent and the elided constituent is in fact *question/questioned our motives*. This mismatch interpretation masks whether or not the progressive auxiliary can genuinely be elided. Sailor (2012) has even claimed that the mismatch interpretation is the only interpretation available, and that the progressive auxiliary cannot in fact be elided.

There is a means however 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:[12]

(17) a. There were several hippos dancing.
b. * There have several hippos danced.
c. * The will several hippos dance.
d. * There danced several hippos.

If we apply ellipsis to an unergative existential construction, then 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:[13]

[12] The same restriction holds for transitive and ditransitive existential constructions as well.

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

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

However, although an RRC structure for existentials is possible, progressive existentials may also behave as mono-clausal constructions, and moreover, so can those cases involving ellipsis. This is evidenced by the fact that these progressive existentials exhibit properties which relative clauses do not. For instance, Deal (2009) has observed that whilst reduced relatives must precede full relatives, no such restriction occurs on existentials:

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

(18) 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...~~.

There are also certain idiomatic constructions which are dependent upon progressive aspect, for instance *be dying to*, meaning 'to be keen'.[14] Without progressive aspect, the idiomatic interpretation is altogether lost:

(19) 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.
c. Bob will die to meet you ≠ Bob will be keen to meet you.
d. Bob died to meet you ≠ Bob was keen to meet you.

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 aspectual mismatch interpretation available to mask the ellipsis of the progressive auxiliary. In such constructions, we see that the progressive auxiliary can indeed be elided:

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

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

Furthermore, Chomsky (2001) has observed that existential constructions permit idiom chunks, whereas existential constructions containing a relative clause do not:

(iv) There was all hell breaking loose downstairs.
(v) * There was all hell which was breaking loose downstairs.

Once again, in conjunction with VPE, existentials behave according to the mono-clausal structure:

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

Finally, Milsark (1974); Rezac (2006) and Caponigro & Schütze (2003) have all observed that existential constructions without a lexical verb, that is, those in which only copula *be* is present, are illicit under an eventive interpretation:

(vii) *There's just been a dog.

Even in instances in which a relative clause is present, the derivation cannot be rescued since the lexical verb is contained inside the relative clause and therefore has no effect upon the acceptability of the main clause:

(viii) *There's just been a dog which was dancing on stage

Therefore, if existential constructions could only ever be formed from RRCs, and not from mono-clausal constructions, then all existentials in English should be illicit under an eventive interpretation. That is, the lexical verb that we see in existentials is predicted to always be embedded inside an RRC and so should not be able to render the main clause as licit. This is not the case however, since existentials with a progressive unergative verb are licit under eventive aspect:

(ix) There has just been a dog dancing on stage.

This suggests that progressive existentials have an underlying mono-clausal structure available to them. Once again, in conjunction with VPE, existentials behave according to the mono-clausal structure:

(x) Barney said there had just been a dog dancing on stage, but I don't think there had ~~just been a dog dancing on stage~~.

All this implies that ellipsis in existential constructions is a normal case of main clause VPE with the progressive auxiliary being optionally included within the ellipsis site.

[14] Thanks to Craig Sailor (p.c) for pointing out this particular idiom to me.

(20) 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~~.

This suggests that the progressive aspectual layer is included in the ellipsis site.

With regards to the non-finite perfect auxiliary *have*, which is merged in the perfect aspectual layer, it is also difficult to ascertain whether such an auxiliary can be elided. Though Bošković (2012), Sag (1976) and Sailor (2012) all assume that *have* cannot be elided, on the surface it appears as though *have* can in fact be deleted, as has been claimed by Akmajian, Steele & Wasow (1979) and Thoms (2011):

(21) Luke could have defeated the evil empire, and Yoda could (**have**), too.

However, akin to the ellipsis of the progressive auxiliary, it is again not entirely certain what is included in the ellipsis site when the perfect auxiliary is apparently elided. Whilst the ellipsis site is understood to be *have defeated the evil empire*, it could just as easily be *defeat the evil empire*, in which the perfect aspectual layer is entirely absent from the derivation. This aspectual mismatch interpretation masks whether or not perfect *have* can genuinely be elided.

There is a means however of testing whether or not *have* can be elided. Two types of constructions exist which are dependent upon perfect aspect: *have been to*, and *have been around the block*. Without perfect aspect, these constructions are entirely ungrammatical:

(22) a. Bob has been to Rome.
b. * Bob was being to Rome.
c. * Bob might be to Rome.
d. * Bob was to Rome.

(23) a. Bob has been around the block a few times.[15]
b. * Bob was being around the block a few times.
c. * Bob might be around the block a few times.
d. * Bob was around the block a few times.

If we apply ellipsis to such constructions, we can be certain as to the presence of perfect aspect in the underlying derivation. Therefore no aspectual mismatch interpretation would interfere to mask the potential ellipsis of *have*. In such cases, we see that the non-finite perfect auxiliary cannot in fact be elided:[16]

(24) 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~~.

[15] Once again, thanks to Craig Sailor (p.c.) for pointing out this particular construction to me.
[16] Having tested these sentences on a number of native British English speakers, I find there to be a minority of roughly 10% who sometimes accept such sentences. These speakers however do not uniformly accept ellipsis of *have*, in contrast to the 90% who uniformly reject it. This minority may at best be demonstrating a genuine instance of linguistic variation for which I have no explanation, or could somehow be finding some other means of accommodating such sentences.

A second means of testing whether *have* can genuinely be elided is to do with Lasnik's (1995) and Warner's (1986) observation that, unlike lexical verbs, auxiliary verbs can only be elided if they have an identical antecedent:[17]

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

Thus, in the following sentence (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:

(26) 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 dependent upon perfect aspect. No aspectual mismatch interpretation is available to mask the potential ellipsis of *have*. Once again, we find ellipsis of non-finite *have* to be unacceptable:

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

Finally, given that VPE is dependent upon the presence of a modal or an auxiliary in T°, it is no surprise that modals cannot be elided:

(28) Bob said he might run for president, and indeed he *(**might**) ~~run for president~~.

To recapitulate, I have so far shown that progressive, passive and copula auxiliaries can be elided under English VPE, whilst perfect *have* and modals cannot. Furthermore, it is standardly assumed that in order for such ellipsis of auxiliaries to occur they must have, at some point in the derivation, been included within the ellipsis site. Since the elidable auxiliaries are all merged within or below the progressive aspectual layer, this suggests that the ellipsis site is potentially as large as the progressive aspectual layer, but no larger.

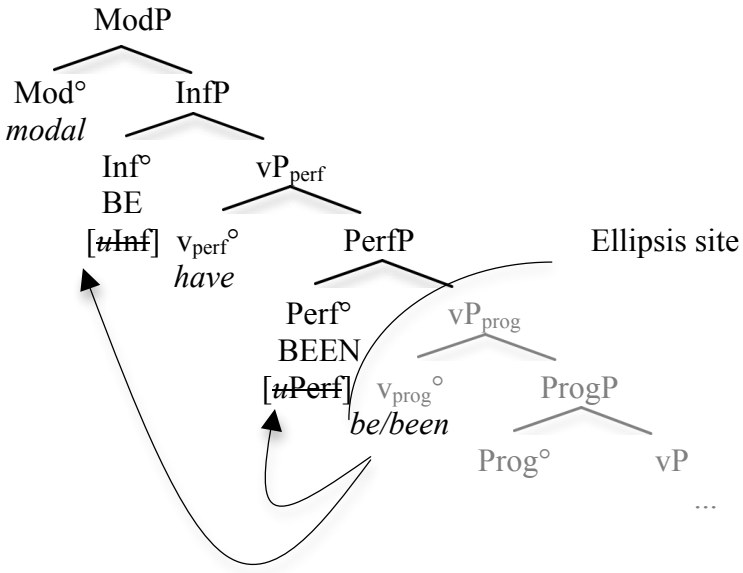
One remaining issue with regards to this is how exactly optional ellipsis should be derived in the kind of system being argued for in this paper. Here I appeal to Aelbrecht & Harwood's (2012) analysis.

Essentially the raising of auxiliaries to higher aspectual heads for reasons of feature checking is taken to be a concern for PF. This is not controversial. All overt raising of elements is standardly considered to be in order to satisfy a requirement at PF. And since verb raising typically does not carry any apparent semantic import, it makes sense that such movement should not really be a part of the LF interface, or at least not solely. It is still of course entirely possible that the inflectional features found on the auxiliaries must be checked at the LF interface as well, but this may be done covertly. The main concern is that the overt raising of auxiliaries is a matter for PF.

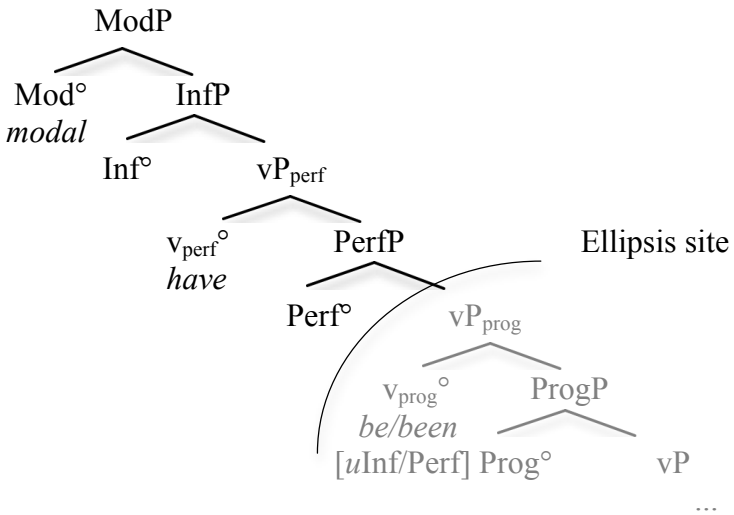
[17] Due to space restrictions I am unable to enter into an explanation for these facts and instead refer the reader to Lasnik (1995) for the most standard account.

Aelbrecht & Harwood (2012) then assume that the optional deletion of progressive, passive and copula *be/been* is derived via optional raising of these auxiliaries out of the vP_{prog} 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 so is elided. Of course, this means that the auxiliary has failed to check its inflectional features at PF, which should cause the derivation to crash. However, ellipsis, being a PF operation, is able to rescue the derivation. The problematic auxiliary, along with its unchecked feature, is deleted at PF by ellipsis, therefore it is no longer a problem for PF, so the derivation is saved.[18] The diagrams below illustrate how ellipsis and non-ellipsis of non-finite auxiliaries works with the progressive auxiliary:

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



(30) Deletion of *be/been*



[18] A potential problem with this approach is that it wrongly predicts that the finite copular, passive and progressive auxiliary should also be optionally elided. Aelbrecht & Harwood (2012) propose that in this instance there is a feature on T° which requires checking by the finite auxiliary. If the finite auxiliary does not raise, and since T° is outside of the ellipsis site, then this feature cannot be rescued by deletion.

3.3 Summing Up

The preceding two sections have demonstrated that the site of VPE in English can be as large as the progressive aspectual layer, but never any larger. This provides a principled explanation as to why *being* is obligatorily elided under VPE: *being* only raises as far as ProgP, which is contained within the ellipsis site. It never raises out of the ellipsis site, so it never escapes ellipsis. This seems a far more appealing proposal than stipulating that *being* is the only auxiliary which doesn't raise. 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 VPE ellipsis site in English is vP.

Returning now to phases, if Gengel's (2007, 2008) pairing of ellipsis and phasal spell-out domains is correct, then the data discussed in this section suggests that the progressive aspectual layer should be included within the clause internal phasal spell-out domain. Therefore, the clause internal phase is larger than vP or VoiceP as was traditionally assumed. However, in the absence of progressive aspect, the VPE ellipsis site is only as large as vP, implying that vP acts as the clause internal phasal spell-out domain in the absence of the progressive aspectual layer.

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 appears to be elided, is also fronted under VPF. That is, *being* is obligatorily fronted along with the lexical verb under VPF:

(31) If Darth Vader says that Han Solo was being frozen in carbonite, then...
  a. [**being** frozen in carbonite] he was.
  b. * [frozen in carbonite] he was **being**.

(32) If Darth Vadar says that Han Solo was being stubborn, then...
  a. [**being** stubborn] he was.
  b. * [stubborn] he was **being**.

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

(33) If Luke says he would have fought hard, then...
  a. [fought hard] he would **have**.
  b. * [**have** fought hard] he would.

A parallel case is that of specificational psuedo-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:

(41) Ted should be being criticised.
  a. No, [**being** praised] is what Ted should be.

d. * No, [praised] is what Ted should be **being**.

(34) Ted should have been criticised.
a. No, [praised] is what Ted should **have** been.
b. * No, [**have** been praised] is what Ted should.

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:

(35) a. [Also **being** examined for body parts] is the tonnes of rubble being removed from the site.
(*Guardian*, 14.9.1, p4, col 6. From Haegeman 2008)
b. * [Also examined for body parts] is **being** the tonnes of rubble being removed from the site.

(36) 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 risen to occupy Prog° 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° 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) have noted that, contrary to VPE, *be* and *been* cannot be fronted under VPF, not even optionally:

(37) 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.

(38) 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.

Sailor (2012) notes the same with pseudo-clefting:

(39) John should have been praised.
a. No, [criticised] is what John should have **been**.
b. * No, [**been** criticised] is what John should have.

(40) John should be praised.
a. No, [criticised] is what John should **be**.
b. * No, [**be** criticised] is what John should.

Finally, the same distribution can be seen in predicate inversion contexts:

(41) 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.

(42) 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°, 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°, and also cannot be fronted, this suggests that the perfect aspectual layer also cannot be included in the fronted constituent. Therefore the fronted constituent seems to be 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 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 vP_{prog} ellipsis site and having their unchecked inflectional features deleted at PF by ellipsis, thereby rescuing the derivation. In fronting phenomena however, 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 that we hypothesise to be vP_{prog}. Therefore their inflectional features would go 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 should be 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 (to appear) and Koopman (2010). The technicalities of why phrasal movement should be constrained to phases is beyond the scope of this paper, although I will 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 to appear; Bošković 2011, 2012; Chomsky 2000, 2001, 2005; Fowlie 2010; Koopman 2010).[19] It has long been known, however, that the complements of phase heads, such as TP, cannot move independently (Abels 2003). This has often been attributed to the fact that such constituents would have to proceed via the specifier of the phase edge. However, such complementiser to specifier movement within the same phrase is deemed an anti-locality violation, hence the reason why movement of the complement of the phase head is impossible. An alternative means of looking at this however is simply that the

[19] 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.

complement of a phase head is not a phase, and therefore cannot undergo movement, as suggested by Chomsky (2005).

Therefore, if only phases can undergo movement, this would suggest that the VPF-type phenomena already discussed is an instance 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 such projections are present in the derivation.[20]

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.

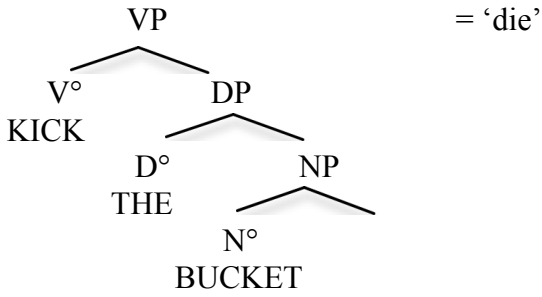
In the next section I show how Svenonius' (2005) claim that idiomatic constructions should be constrained by phasal domains predicts once again that the progressive aspectual layer should be included within the clause internal phase.

5. *Idiomatic Constructions and Phases*

A question which has puzzled syntacticians and semanticists for some time is exactly how we are able to deduce the idiomatic interpretation of an idiom 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. So for instance, as well as 'kick', 'the' and 'bucket' being individually listed in the lexicon, so too is the following syntactic structure:

(43)



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. That is, 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. In other words, idioms seem

[20] An interesting contradiction arises here. The VPE data suggests that the progressive aspectual layer is included within the spell-out domain of the clause internal phase, i.e. the complement of the phase head, whilst the VPF data suggests that the progressive aspectual layer acts as the actual clause internal phase when present. I return to this matter in section 6.1.

not to exist in which a particular tense, modality or aspect actually contribute to the idiom. Whilst material in the TP domain can obviously be used with idioms, for instance:

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

the particular idiomatic interpretation is not dependent upon these items. That is, the idiomatic expression is maintained if the material from the TP domain is changed:

(45) 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 idiomatic interpretation is lost:

(46) 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 phasal domain. This makes intuitive sense: if phasal domains 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 phasal domains 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.[21]

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:

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

[21] 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?
c. Has the cat got your tongue?
These idioms are notably different, however, since they are not 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.
c. # The cat has got your tongue.

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:

(48) 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.
c. Bob will die to meet you ≠ Bob will be keen to meet you.
d. Bob died to meet you ≠ Bob was keen to meet you.

In the absence of progressive aspect, we lose the idiomatic interpretation, and are only left with the literal reading in which the Agent of the clause has purposefully died in order for a certain event to happen. 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 phasal domain.

The idiom in (47) is not the sole counterexample to Svenonius' (2005) claims either. There are a number of such idioms that are dependent upon progressive aspect:[22]

(49) a. Something is eating Bob = Something is bothering Bob.
b. Something has eaten Bob ≠ Something has bothered Bob.

(50) a. Bob is pushing up daisies = Bob is dead.
b. Bob pushes up daisies ≠ Bob is dead.

(51) a. You are cruisin' for a bruisin = You are heading for trouble.
b. You will cruise for a bruisin ≠ You are heading for trouble.

(52) a. They were chomping at the bit = They were keen to get started.
b. They had chomped 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.[23] Given Svenonius' claim that idioms

[22] Svenonius (2005) notes the idiomatic construction in (49). Thanks to Craig Sailor (p.c.) for making me aware of the idiomatic constructions in (50) and (51).

[23] Two apparent counterexamples exist to this claim however, which we already encountered in section 3.2. 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 they both contain the auxiliary *been*. It is possible that this auxiliary is a separate lexical item from the normal copula, and carries with it some meaning of transit. This is evidenced by the fact that the same auxiliary can be used in languages such as Dutch and colloquial French to similar effect:

(iii) Ik ben naar de kapper
I am to the hairdressers
'I am going to the hairdressers.'
(iv) J' ai été à Rome en avion.
I have been to Rome in plane

are constrained by phasal domains, this suggests that progressive aspect is contained within the clause internal phasal domain, whilst perfect aspect is not.

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

In this section I provide a formal explanation for how a variable phase boundary, of the sort I have been arguing for, is possible within the Minimalist framework (Chomsky 1995). The section is divided into two sub-sections. First I clarify exactly what I propose the clause internal phase and subsequent spell-out domain to consist of. Then I propose a system for allowing for a variable phase boundary.

6.1 The Phase and its Spell-Out Domain

Recall first of all that under the traditional view of phase theory (Chomsky 2000, 2001), phases and spell-out domains are considered to be two different things. Phases are the phrasal projections of phase heads, whilst spell-out domains are the complements of phase heads.

In the data discussed so far however, we appear to run into a contradiction. Gengel's (2007, 2008) claim that ellipsis sites constitute phasal spell-out domains, and Svenonius' (2005) claim that idiomatic constructions are also constrained by phasal spell-out domains have led us to conclude that the progressive aspectual layer should constitute a part of the clause internal phasal spell-out domain when present in the structure. However, following Fowlie's (2010) and Roberts' (2010) claims that phrasal movement is in fact movement of a phase, we have been led to the conclusion that the progressive aspectual layer seems to act as the clause internal phase when present, and not just the spell-out domain. Since none of the material merged above progressive aspect, i.e. the perfect aspectual layer, the modal layer and the tense layer, appear to demonstrate any properties that connect them to the clause internal phase (most obviously their inability to undergo fronting), it seems that it is the progressive aspectual layer itself that projects the clause internal phase when present. But this implies that the progressive aspectual layer acts as both the clause internal phase and the spell-out domain when present, a contradiction in terms of the traditional view on phases. Before going any further, this issue needs addressing.[24]

'I went to Rome by plane.'

Usually idioms are language specific, so the fact that this instance of the copula appears in various languages suggests it is a separate lexical item bearing a meaning of transit rather than contributing but one part to a larger idiomatic construction. Of course, the fact that the Dutch instance of this auxiliary is not dependent upon perfect aspect but the English and possibly the colloquial French equivalents are remains to be explained. One possibility is that this particular auxiliary is always listed in the English (and French) lexicon as *been*.

Moreover, 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) however, the resulting sentence is entirely ungrammatical, suggesting once again that these types of constructions are not in fact idioms:

(v) * John is to Rome.

(vi) * John might be around the block a few times.

[24] The first, and most obvious means of escaping this problem is to exploit the fact that each aspectual layer is split into two projections: the aspectual projection itself, and the vP shell above it in which the associated auxiliary is first merged. It might be tempting to claim that in such cases vP_{prog} projects the clause internal phase when present, making ProgP the spell-out domain. However, recall that in section 3.2 we showed that in order for an auxiliary to be elided, it must have originally been included in the VPE ellipsis site, i.e. the spell-out domain of the clause

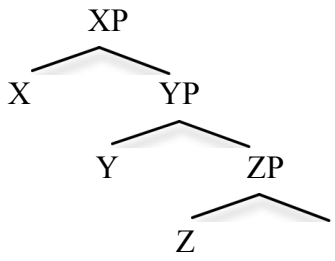
The solution I appeal to here is to do away with the concept of spell-out domains being separate from phases. Whilst the notion of the phase head and its specifier surviving spell-out has been conceptually necessary in order for these positions to act as an escape hatch for movement out of the phase, Fox & Pesetsky (2005) and Richards (2011) have argued against this proposal on account of its theoretical inadequacy. There appears to be no principled reason why only part of a phase is spelled out rather than the entire phase. That is, why exactly should the phase head and its edge, which are generally taken to be a part of the phase, survive spell-out of the phase? Why should they be dissociated from the phasal spell-out domain in this way? To date it is a pure stipulation of the Minimalist Program of the way in which syntax behaves. For this reason Fowlie (2010), Fox & Pesetsky (2005), Richards (20011) and Svenonius (2004) have all suggested that the entire phase should act as a spell-out domain rather than just the complement of the phase head.

However, work done by Fox (1998) and Nissenbaum (1998) has shown phase edge effects to genuinely exist in language. So the issue that arises for approaches in which the entire phase acts as the spell-out domain, is how such phase edge effects can be derived.[25]

Although not without its own problems (see Fox & Pestsky 2003), Fox & Pesetsky's (2005) approach is able to derive edge effects whilst allowing the entire phase to act as a spell-out domain. Essentially, when a phase is completed, linearisation occurs in which the items within the phase are linearised with respect to one another. The output is a set of ordering statements that act as instructions for pronunciation at PF. Crucially, once linearisation has occurred, the ordering statements are set and cannot be altered. Further linearisation of higher phases can only add to the already existing set of ordering statements, it cannot change those that have already been created.

Consider for instance a phase consisting of elements X, Y and Z:

(53)



internal phase. Since we demonstrated that the progressive auxiliary, first-merged in $v_{prog}°$, can indeed by elided, this indicates that even vP_{prog}, which appears to project the clause internal phase when present, is still included within the spell-out domain.

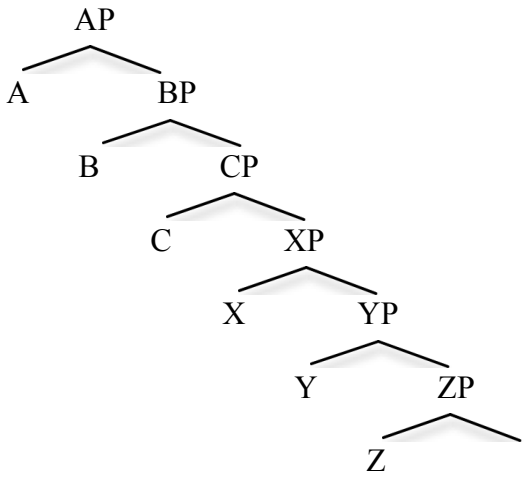
[25] Richards (2011) solves this problem by having the phase only coming into play once the first item of the second phase has been merged. This makes the first projection of the second phase available as a position for movement for elements which must undergo further syntactic operations. This means that such elements can move out of the lower phase entirely, raising into the first projection of the second phase at the point that the first phase is identified and sent to spell-out. Essentially this means that the head and specifier of the first projection of the second phase act as the phasal escape hatch, rather than the head and specifier of the final projection of the first phase. This would allow us to derive the relevant edge effects, though it forces Richards to postulate some rather controversial phase boundaries. Sticking simply to a minimal structure of C-T-v-V, Richards is forced to claim that VP constitutes one phase, TP and vP together constitute a second phase, and CP a third phase. In terms of the phase boundary being argued for in this paper, Richards' proposal would force us to predict that edge effects should be seen on PerfP, InfP or TP, depending on what is present in the structure. As will become evident in section 7 however, edge effects appear to occur on Spec-vP_{prog} itself, on the very edge of the clause internal phase. For this reason I reject Richards' approach to the problem (see footnote 31, section 7), and instead will adopt Fox & Pestsky's (2005) solution.

Once linearised, this phase yields the following set of ordering statements:

(54) X>Y, Y>Z

By transitivity this furthermore implies that X>Z. If we then add a second phase on top of the first phase, containing items A, B and C, we have the following structure:

(55)



Once the second phase has been linearised, the total set of ordering statements are as follows (the new ordering statements are marked in bold):

(56) **A>B, B>C, C>X**, X>Y, Y>Z

Consider what happens however if Z then raises above AP. This would provide us with the following set of ordering statements (the new ordering statements are marked in bold):

(57) **Z>A**, A>B, B>C, C>X, X>Y, Y>Z

The problem here is that, by transitivity, Z>Y, but we already have an ordering statement in which Y>Z. This is a contradiction which results in a derivational crash. Fox & Pesetsky (2005) solve this issue by claiming that elements which must undergo further operations move to the left of all other material within the phase before linearisation occurs. By moving to the edge of the phase, these elements will then precede all other material within the phase once linearised. Therefore, such elements can subsequently move into the higher phase without any contradictions in ordering statements arising. In this sense then, movement to the edge of the phase occurs before linearisation not to escape spell-out, but as a means of preserving the linear order of the phase (the actual operation of phasal spell out does not occur until much later in the derivation, perhaps upon merger of the higher phase head, in accordance with PIC 2 (Chomsky 2001)).

To illustrate, suppose that Z moves to the edge of the first phase once this phase is complete. This derives the following ordering statements:

(58) Z>X, X>Y

If Z then moves above A in the second phase, we have the following ordering statements (the new ordering statements are marked in bold):

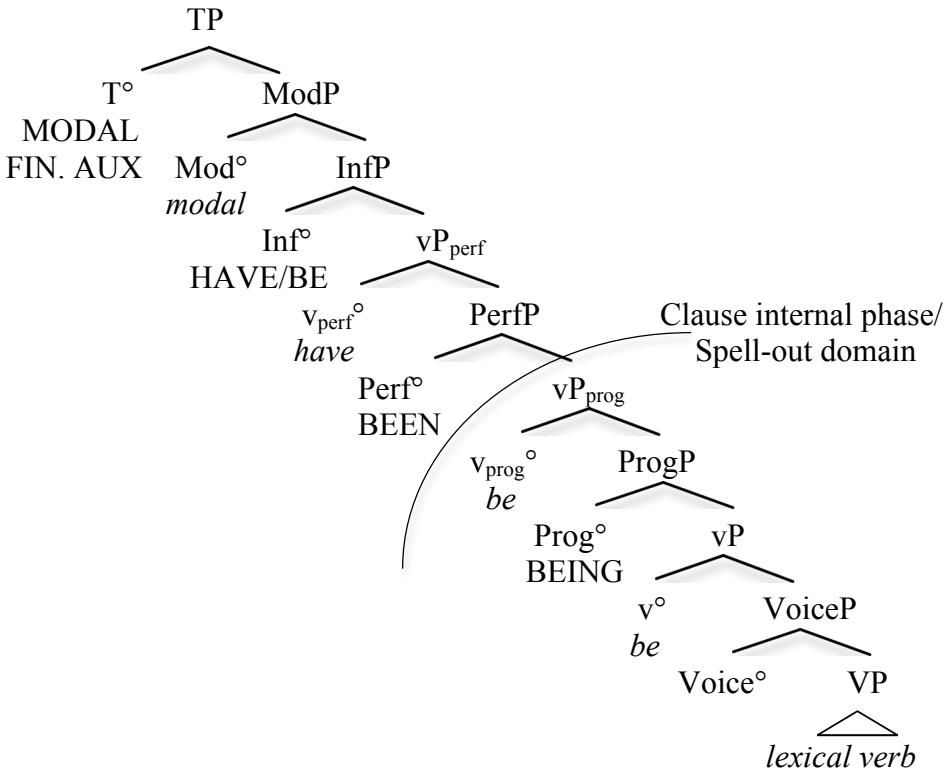
(59) **Z>A, A>B, B>C, C>X**, Z>X, X>Y

Note here that the ordering statements Z>A and Z>X is not a contradiction, because Z>A means, by transitivity, that Z also precedes X.

For the purposes of this paper, I will assume Fox & Pesetsky's (2005) system as a means of deriving edge effects. This allows the entire phase to act as the spell-out domain.

To summarise up to this point, I claim that vP_{prog} acts as both the clause internal phase and the spell-out domain when present in the structure:

(60)



In the absence of progressive aspect however, I assume vP to act as the clause internal phase and spell-out domain.

In the next sub-section I explore how such a variable phase boundary could be formalised.

6.2 Variable Phase

Essentially I propose that we should return to the notion of phases being sub-numerations (Chomsky 2000). Under this understanding of phases, the main clausal spine is essentially divided into two sub-numerations, one containing the 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-numeration acts as a phase when it has been merged into the syntactic workspace. Ignoring arguments for reasons of simplicity, and keeping only to a very minimal C-T-v-V structure for the time being, the two basic sub-numerations of the clause are detailed as follows:

(61) [C, T] [v, V]

Under the original formulation of phases it was assumed that once v was merged into the workspace, the first phase was complete. 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 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° is often taken to be absent with unaccusative verbs (Hornstein, Nuñes & Grohmann 2005). Legate (2003) has shown however, that a clause internal phase still seems to be projected in the structure even when an unaccusative verb is present.

There is a way of solving these issues however. 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. It is the phrase that this last item projects that is ultimately given the status of 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.[26]

Of course, one may ask how the system knows when to grant the status of phase. 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 projection of the last merged item is crowned as the phase.

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

(62) 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 not 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:

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

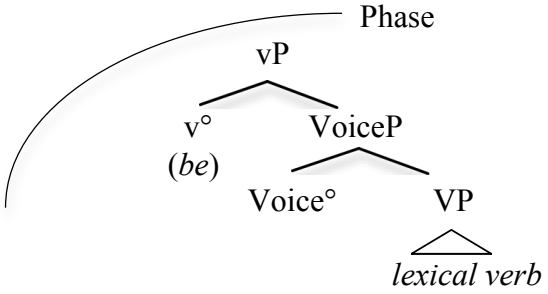
The most important divide here is that progressive aspect and the progressive auxiliary are contained within the first sub-numeration, along with the voice layer and the lexical verb, whilst perfect aspect and the perfect auxiliary are contained in the second sub-numeration, along with the modal layer,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

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

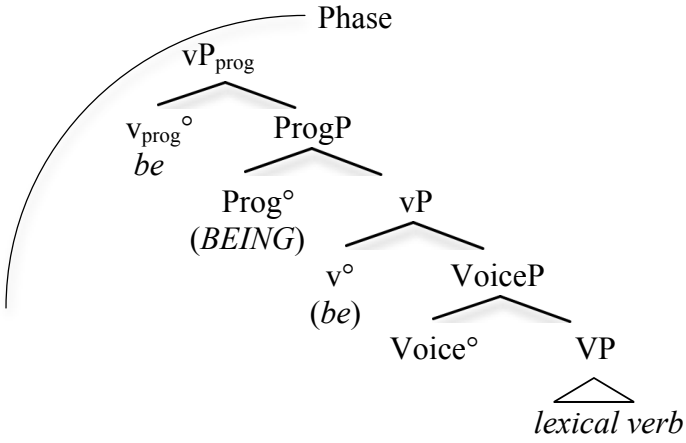
that of passive/copula *be* in v°, or simply v° itself, depending on whether the sentence is active, passive, or a copular construction. This means that in the absence of progressive aspect, vP is the highest projection of the first sub-numeration, and so acts as the phase. Once vP has projected onto the workspace, we find that the first sub-numeration is exhausted and so assign vP its phasal status:

(64)



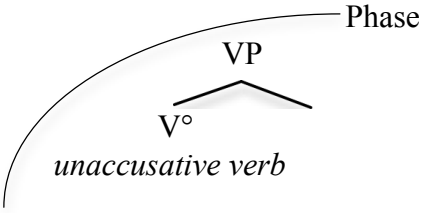
If progressive aspect is present on the other hand, the progressive auxiliary *be* is the last item to be merged from the first sub-numeration. Therefore, the phrase it projects, vP_{prog}, acts as the clause internal phase, crucially denying vP of any kind of phasal status:[27]

(65)



Finally, note that, if one follows Hornstein, Nuñes & Grohmann (2005) 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 unnacusative (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:

(66)



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-

[27] I will not make any claims as to when exactly the phase is spelled out over the course of the derivation. This remains a point of further investigation.

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?

In order to answer this question, one must first ask what determines these two sub-numerations in the first place. In the spirit of Bowers (1993, 2001, 2002), and Grohmann's (2003) prolific domains, I assume that the first sub-numeration is comprised of material that makes up the predicate layer of the clause, and that the second sub-numeration is comprised of material that makes up the referential and information structural layer.

I now speculate that progressive aspect, yet no higher material, is included within the first sub-numeration because it forms a part of the predicate. This is not wholly uncontroversial. Bowers (2002) has claimed that at least as much as the passive voice layer should be included within the predicate of the clause, and has tentatively assumed that progressive aspect forms part of the predicate as well.

Furthermore, Heycock (2011) has noted that progressive aspect can be co-ordinated with adjectival predicates at the predicate level, whilst all higher forms can only be co-ordinated with such predicates at the TP level:

(67) a. Julia is tired and suffering from a cold.
b. * Julia is tired and suffered from a cold.
c. * Julia is tired and suffer from a cold.
(Predicate level co-ordination)

(68) a. Julia is tired and has suffered from a cold.
b. Julia is tired and may suffer from a cold.
(TP level co-ordination)

This potentially shows the predicational nature of progressive aspect.[28]

Another possible indication that progressive aspect (and potentially passive voice) is part of the predicate, is that it is the complement of *be* in English. This is identical in form to copula *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.[29]

Whilst further work needs to be done here, this is at least suggestive that a division of progressive aspect and perfect aspect into the predicational layer and referential layer of the clause respectively, may be along the right lines.

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[28] A further, though speculative, piece of evidence that progressive aspect forms a part of the predicate layer 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.

[29] Obviously many languages such a French, Dutch, Serbo-Croatian and many of the Celtic languages (to name but a few) realise perfect aspect with a copula auxiliary as well. As will be 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.

To summarise this section, 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 (62), repeated here:

(69) 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) and Bošković (2011, 2012), namely the 'highest phrase is a phase' approach. Bošković (2012) even uses this system to try to account for some of the same English VPE facts that were discussed in this paper. The main difference however is that the 'highest phrase is a phase' approach defines the phase boundary as being the highest functional category within the extended projection (Grimshaw 2000) of a lexical item. Due to space limitations I will avoid discussion of this work here (though see Aelbrecht & Harwood 2012 for a brief discussion of certain aspects of the approach), except to say that under the 'highest phrase is a phase approach' it is difficult to capture the unique behaviour of progressive aspect that sets it apart from higher aspectual forms in English.

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

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 however 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. Consider the following sentence:

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

The standard Minimalist analysis for this sentence is that the derived subject is merged as complement of V°. It surfaces in the canonical subject position however 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:

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

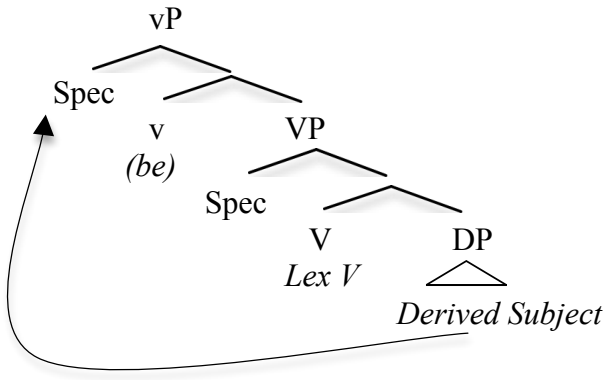
In this sentence the expletive *there* appears to be occupying Spec-TP, preventing the derived subject from raising to this position. However, given that the derived subject is not occupying its base, post-verbal position, but occurs pre-verbally, some form of intermediate raising must have taken place. Chomsky (2000, 2001) analyses this sort of construction by postulating Merge over Move. That is, external Merge is a less costly operation than Move, i.e. internal Merge. Second

of all, he claims that the expletive *there* is contained within the second sub-numeration of the clause, when present. Let us consider how the derivation proceeds under Chomsky's assumptions:

(i) The first phase is built up using material from the first sub-numeration up to the point that 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.[30]

(72)



(iii) The second phase is then constructed. Once T is merged we have an EPP feature to check. However, there are two ways of checking this feature. Either the subject, sitting 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 and subsequently values T's phi-features via Agree. Sitting on the Spec-vP phase edge, the subject therefore precedes the lexical verb, but is situated below material in T°.

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

(73) 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* and *been*:

(74) *be/been*>**Subj**>*being*

[30] Chomsky (2001) actually assumes the vP phase in passive constructions to be a weak phase, though Legate (2003) has shown this to be false. Chomsky still postulates raising to the edge of this weak phase however.

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 however, 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 (3) and (4), 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. In Fox & Pesetsky's (2005) terms, the subject would raise to this position before linearisation occurs so that it precedes all other material within the phase. Therefore, when the subject raises into the higher phase, no contradicting ordering statements would arise. Obviously the subject in existential constructions does not raise any higher since merger of *there* blocks any further movement of the subject and strands it on the clause internal phase edge. But during the derivation of the clause internal phase there is no prior warning that an expletive will be inserted, so the syntax behaves as if it were a normal declarative construction. Finally, with the subject occupying the Spec-vP_{prog} position, it correctly precedes *being*, but follows *be* and *been*.

(75) [$_{TP}$ *There* [$_{T}$ *may* [$_{ModP}$ t_{may} [$_{InfP}$ *have/be* [$_{vPperf}$ t_{have} [$_{PerfP}$ *been* [$_{vPprog}$ ***subject*** [$_{vprog}$ t_{been} [$_{ProgP}$ *being* [$_{vP}$ ...]]]]]]]]]]

Thus, the variable phase approach provides us with a simple means of explaining the distribution of existential subjects without having to resort to any additional mechanisms.[31]

Of course, a lot of work still needs to be done on this topic. 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 however for attempted explanations), as well as the definiteness effect of existentials:

(76) There was [**a man/*the man**] waiting outside.

Furthermore, an explanation still needs to be given for how post-verbal subjects in unaccusative existentials can be derived:

(77) 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 avoid contradicting linearisation statements, leading us to predict that the subject should surface in pre-verbal position,

[31] Note that if one had followed Richards' (2011) proposal in which the first projection of the second phase acts as the phase edge, then PerfP would have acted as the clause internal phase edge. Therefore the subject would have risen to Spec-PerfP, leading us to incorrectly predict that the subject of existentials should precede *been*.

contrary to fact. It is interesting to note however 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:

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

A more fundamental issue however is the following: if, in accordance with Fox & Pesetsky's (2005) proposals, the subject of existential constructions raises to the Spec-vP_{prog} clause internal phase edge before linearisation so as to prevent any contradictory ordering statements from arising in the next phase, then the subject at the point of linearisation should precede all auxiliaries merged in the clause internal phase, i.e. progressive, passive or copula *be*:

(79) [$_{vPprog}$ ***subject*** [$_{vprog}$ Prog *be* [$_{ProgP}$ [$_{vP}$ Pass/Cop *be* [$_{Voice}$ [$_{VP}$ *verb*]]]]]]

Ignoring extraneous details, this basically gives rise to the following ordering statement:

(80) Subj>*be*[32]

Consider what happens during the derivation of the second phase however. In existential constructions the subject remains stranded on the phase edge, but the auxiliaries may raise into the higher phase to either Perf°, Inf° or T° in order to be realised as *been*, *be* or finite *be* respectively. Once linearised, this will essentially give rise to the following ordering statement:

(81) *Be*>Subj

The ordering statement in (81) is essentially a contradiction to the ordering statement in (80), which should lead to the derivation crashing, contrary to fact. At present I have no means of resolving this issue.

There is however evidence to suggest that Fox & Pesetsky's (2005) means of deriving edge effects, even in the case of existentials, is on the right track. When VPE is applied to an existential construction, the subject does not escape ellipsis:

(82) John said there were several people being arrested, and indeed there were (***several people)** ~~being arrested~~.

If ellipsis targets spell-out domains, as Gengel (2007, 2008) argues, and if the subject of an existential construction occupies the clause internal phase edge, as has been argued, then the fact that the subject is still elided under VPE suggests that the entire phase, including the phase edge, is simultaneously sent to spell-out. So raising to the phase edge does not, as Fox & Pesetsky (2005) predict, mean escaping spell-out. Therefore material must move to the edge of the phase for other reasons, such as to avoid contradicting linearisation statements.

These matters aside however, 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.

[32] Where *be* could refer to either progressive, passive or copula *be*.

The next section explores the inclusion of progressive aspect within the clause internal phase from a cross-linguistic perspective.

8. The progressive phase: a cross-linguistic perspective

So far I have concentrated on providing evidence for English that the progressive aspectual layer determines the clause internal phase when present. In this section I show three cross-linguistic phenomena which suggest once more that progressive aspect, but no higher aspectual forms, should be included in the clause internal phase. This 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. I argue, however, that it is not a universal property. There are obviously many languages that do no realised progressive aspect, in which case it is currently unclear where the clause internal phase boundary may lie. 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 contain as much as perfect aspect within the clause internal phase. I conclude therefore that the size of the clause internal phase may be a point of linguistic variation.

I first discuss VPE in Taiwanese in section 8.1 before dealing with edge effects in Irish in section 8.2 and then split-ergativity in Basque, Chol and the Nakh-Dagestanian languages in section 8.3. 8.4 summarises this section and provides further discussion of the data.

8.1 Taiwanese VPE

Taiwanese does not exhibit auxiliary verbs or aspectual inflections. Rather, perfect and progressive aspect are realised through independent aspectual markers:

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

Sailor & Kuo (2010) assume these markers to be merged directly onto the heads of their relevant aspectual phrases.

Sailor & Kuo have noted that VPE is possible in Taiwanese and that, parallel to English, VPE in Taiwanese cannot target perfect aspectual markers or any higher material:

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

However, VPE obligatorily elides the progressive aspectual marker:

(85) A-Ying b-o teh chhih kau, tan-si, A-Ha u (***teh**) [~~chhih~~
A-Ying NEG-PERF PROG feed dog but A-Ha **PERF PROG** ~~feed.~~
'A-Ying hadn't been feeding the dog, but A-Ha had been.'

This shows, similar to the English data, that the progressive layer must be included within the ellipsis site in Taiwanese. Under Gengel's (2007, 2008) phasal approach to ellipsis, this suggests that progressive aspect in Taiwanese is

included in the clause internal phasal spell out domain, at the exclusion of perfect aspect and any higher material.

8.2 Irish Edge Effects

McCloskey (2012) has argued that progressive aspect in Irish also constitutes the clause internal phase when it is present in the derivation. Irish is typically a VSO language in which the subject appears to remain in its base position of Spec-vP. However, in the presence of progressive aspect the subject must precede the progressive marker, akin to the subject of existential constructions in English:

(86) Bhí siad ag cuntas na vótaí.
Were **they** **PROG** count the votes
'They were counting the votes.'

McCloskey (2012) has also demonstrated via agreement phenomena that wh-elements move cyclically through the specifiers of progressive aspectual projections in Irish.[33] Therefore it appears that the progressive aspectual layer in Irish also projects the clause internal phase when present in the derivation.

It is also worth noting that edge/EPP effects have also been noted in the presence of progressive aspect in Gungbe (Aboh 2005), though unfortunately due to the complexity of the data, and space restrictions, I am unable to enter into a discussion of the phenomenon. This does however suggest that progressive aspect may also constitute the clause internal phase in Gungbe as well.

8.3 Split ergativity

Whilst nominative-accusative languages always mark both the Agent of a transitive verb and the Single argument of an intransitive verb with nominative Case, and mark the Patients of transitives with accusative Case, ergative-absolutive languages draw a different distinction. They mark the transitive Patient and the intransitive Single argument with absolutive Case, and the transitive Agent with ergative Case. A number of languages, however, exhibit split ergativity: in certain contexts, the ergative-absolutive Case system is lost and all arguments are marked for absolutive Case.

Crucially, this phenomenon occurs in the presence of progressive aspect, but not in the presence of perfect aspect. This has been noted for Basque by Laka (1996, 2006) and Coon & Preminger (to appear), for the Mayan language of Chol by Coon (2010), and for the Nakh-Dagestanian languages by Forker (2010). I illustrate this phenomenon with Basque only for reasons of space, though the facts are identical for the other languages mentioned:[34]

(87) The Basque perfect (ergative-absolutive pattern)
[$_A$ Ehiztari-**ak**] [$_P$ otso-**a**] harrapatu du
hunter-$DET_{sg.}$**ERG** wolf-$DET_{sg.}$**ABS** caught AUX(have)
'The hunter has caught the wolf.'

(88) The Basque progressive (non-ergative pattern)
[$_A$Emakume-**a**] [$_P$ ogi-**a**] ja-te-n ari da.
woman-$DET_{sg.}$**ABS** bread-$DET_{sg.}$**ABS** eat-NMZ-LOC PROG. AUX(be)
'The woman is eating the bread.'

[33] This data is much more complex and hence, due to space restrictions, I am unable to discuss it.
[34] A = Agent, P = Patient.

In order to explain this phenomenon, Coon (2010), Coon & Preminger (to appear) and Laka (1996, 2006) have all claimed that in the presence of progressive aspect the clause is divided into two separate Case-assignment domains at this aspectual boundary. This entails that the two arguments of the clause are divided across the Case domains and are therefore invisible to one another. Under Marantz's (1991) Case-competition approach this means that the two arguments do not compete against one another and so can be assigned the same absolutive Case.[35] The above-mentioned authors assume that, in contrast to progressive aspect, no such clausal division takes place in the presence of perfect aspect.

A detailed overview of split ergativity is beyond the scope of this paper, though the data and analyses once again suggest not only that a (phasal) boundary exists between progressive and perfect aspect, but also that this particular division in the functional hierarchy seems to extend beyond English to a number of disparate languages.

More work of course needs to be done on this area before any reasonable conclusions can be made. For instance, under the variable phase approach I have proposed, the clause internal phase still exists in the absence of progressive aspect. Therefore, we might expect split ergativity to occur in the aforementioned languages even in the absence of progressive aspect, contrary to fact. This is problematic if the split ergativity data is to be analysed under the variable phase approach I have argued for.

8.4 Summary and Discussion

The data discussed in this section potentially implies that progressive aspect constitutes a part of the clause internal phase in languages as disparate as Taiwanese, Irish, Gungbe, Basque, Chol and the Nakh-Dagestanian languages. However, I do not want to suggest that this is a universal phenomenon. Rocquet (2010) for instance 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. Welsh also exhibits VPE, but, like Taiwanese, realises aspectual forms with particles rather than inflections. Under VPE, the particle realising perfect aspect can be ellided under VPE, suggesting that as much as perfect aspect is included in the ellipsis site (examples from Rouveret 2012 (44)):

(89) Mai Siôn wedi bod yn gweithio am awr rwan…
is Siôn PERF be PROG work around hour now...
a. …a mae Mair hefyd.
and is Mair too.
b. *…a mae Mair wedi bod hefyd.
and is Mair PERF be too.
'Siôn has been working for an hour now and Mair has been too.'

This would suggest that perfect aspect in Welsh is included in the VPE ellipsis site and therefore in the clause internal phasal spell-out domain. Note that in Welsh however, the perfect aspectual auxiliary is a form of the copular,

[35] There is also a means of deriving the same result under a Probe-Goal Case approach in conjunction with the assumption that progressive aspect divides the clause into two Case domains, see Coon & Preminger (to appear) for the details.

potentially indicating that in Welsh, but not in English, perfect aspect forms a part of the predicate.

Whilst Dutch lacks VPE, it does demonstrate modal complement ellipsis (MCE) (Aelbrecht 2010) in which everything in the complement of the modal is elided, including perfect aspect:

(90) Q. Zal Charlotte tegen morgenavond haar kamer hebben opgeruimd?
Will Charlotte by tomorrow evening her room have cleaned?
'Will Charlotte have cleaned her room by tomorrow evening?'

A. Ze zal wel moeten ~~haar kamer **hebben** opgeruimd~~.
She will PART must ~~her room **have** cleaned~~.
'She'll have to have.'

Whilst I will not go into the obviously different licensing mechanisms involved in MCE that are not involved in VPE, it is possible to analyse this difference in the size of the ellipsis size as being indicative that perfect aspect is also included in the clause internal phase in Dutch. Once again, perfect aspect is sometimes realised with a copula auxiliary rather than *have*, suggesting that Dutch differs from English in including perfect aspect with the predicate:

(91) Ik ben naar Rome gegaan.
I am to Rome gone.
'I have gone to Rome'

This concludes the cross-linguistic perspective of this paper. In the final section I summarise the main arguments of the article.

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 of 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 forms a part of the referential layer of the clause.

Finally, evidence from VPE in Taiwanese, edge effects in Irish and Gungbe, and split ergativity in Basque, Chol and the Nakh-Dagestanian languages suggests that such a divide in the aspectual hierarchy carries over to other languages, though I speculate that it is not a universal property. Rather, it is a point of linguistic variation. Whilst some languages only include as much as progressive aspect in the clause internal phase, others may include as much as perfect aspect

in the lower phase. It is not yet clear if any languages exist in which more or less material than this can constitute a part of the clause internal phase. These cross-linguistic issues would be an interesting avenue for future research.

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 tense and higher aspectual forms. 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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