British English *do*-Ellipsis Is Full Phase Ellipsis

Beccy Lewis

1. Introduction

Traditional VP ellipsis (TVPE) involves non-pronunciation of the verb and its complement under a matching antecedent VP. When the VP contains only a finite lexical verb and its complement (1), a dummy verb *do* is inserted to host the stranded finite Tense affix in T. Finite auxiliary verbs/modals raise to T. They survive ellipsis and do not trigger *do*-insertion (2).

(1) Tom wrote a paper and Emma [$_{TP}$ T **do + [past] = did** [$_{VP}$ △] too.
(2) a. Tom should write a paper and Emma should [$_{VP}$ △] too.
b. Tom has written a paper and Emma has [$_{VP}$ △] too.

Interestingly, in addition to TVPE in (2), British English (BE) also allows a non-finite auxiliary *do* to be inserted before the ellipsis site (3a-c). It is ungrammatical in non-elliptical contexts (3d).

(3) a. Tom should write a paper and Emma should **do** [$_{VP}$ △] too.
b. Tom has written a paper and Emma has **done** [$_{VP}$ △] too.
c. Tom should have written a paper and Emma should have **done** [$_{VP}$ △] too.
d. *Tom should write a paper and Emma should **do** write a paper too.

There has been a good deal of work on BE *do*-ellipsis, largely because it does not pattern like TVPE. Consider (4), which shows A-extraction of a derived subject out of TVPE and *do*-ellipsis with a raising (a) and unaccusative (b) verb and passive *be* (c). In each case the subject moves from within the ellipsis site to its surface position. While subject extraction with unaccusative and raising verbs is possible with both TVPE and *do*-ellipsis, only TVPE licenses such extraction with passive *be*.

(4) a. The students have seemed to enjoy this class and the professors$_i$ have **(done)** <seemed **t$_i$** to enjoy this class> too.
b. The students should arrive on time, and the professors should **(do)** <arrive **t$_i$** on time> too.
c. The pasta has been eaten and the fish has been **(*done)** <eaten **t$_i$**> too.

Although a number of works discuss BE *do,* none have captured all of its complex and sometimes puzzling properties. This paper is an attempt to rectify that. The solution has two components: (i) BE *do* is a dummy auxiliary verb that hosts stranded non-finite affixes and (ii) *do*-ellipsis is ellipsis of the entire verbal phase. This account is shown to support Bošković's (2014) claim that both phases and phase complements can be the target of ellipsis. The paper is organized as follows. In the next section I give an overview of the properties of BE *do*. Section 3 outlines existing accounts of *do*-ellipsis and highlights where they fall short. Section 4 details the new analysis. Finally, in Section 5, I offer an adaptation of Bošković's (2014) analysis of phases in the middle field based on the *do*-ellipsis facts.

2. Traditional VPE versus *do*-ellipsis

We have seen that *do*-ellipsis is disallowed under passive *be,* whereas TVPE is not (4c). This cannot be due to a ban on A-extraction out of the ellipsis site because other cases involving derived subjects

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(4a-b)—are well-formed. Interestingly, passives with *get/need* are well-formed with *do*-ellipsis too (5). Thus, the restriction on *do*-ellipsis arises with passive *be* specifically.

(5) a. The cookies definitely won't get eaten, but the cakes might (**do)**.
b. The car doesn't need washed right now, but it will (**do)** by Tuesday. (Thoms and Sailor 2018)

Wh-object extraction out of *do*-ellipsis is also disallowed, while it is allowed in TVPE (6a). Likewise, long-distance (LD) *wh*-subject extraction is barred from *do*-ellipsis but not TVPE (6b).

(6) a. Although I don't know what Tom will read, I do know what Fred will (***do)**. (Baltin 2006)
b. I don't know who Tom thinks will leave, but I do know who Emma thinks will (***do**).

Some authors have gone so far as to say no *wh*-extraction is possible out of *do*-ellipsis (Baltin 2006, 2012, Haddican 2006, Thoms 2011, Thoms and Sailor 2018, den Dikken and Griffiths 2022). However, local *wh*-subject extraction is compatible with *do*-ellipsis as well as TVPE.[1]

(7) a. A: Sue wouldn't kiss Peter last night. B: Well, who WOULD **(do)**?
b. If even Sue wouldn't kiss Peter last night, then I don't know who WOULD (**do**).

Other Ā-movements compatible with *do*-ellipsis are topicalization (8) and QR (9).[2] In (9a) the object scopes over the subject and in (9b) over negation.

(8) Hazelnuts, I won't eat. Peanuts, I might (**do)**.
(9) a. Some man must read every book and some woman must (**do)** too. [∃ > ∀, ∀ > ∃] (Abels 2012)
b. Rab won't try more than two thirds of the exam. I won't **(do)**, either. [¬ > +2/3, +2/3 > ¬]
(Thoms and Sailor 2018)

Finally, there are two contexts where BE *do* can't precede an ellipsis site. First, *do* can't appear in its *-ing* form (Thoms 2011, Ramchand 2018, den Dikken and Griffiths 2022). This is reminiscent of the inability of the auxiliary *be* to surface as *being* in elliptical contexts (Sag 1976; cf. (10a-b)).[3] Second, *do* cannot precede an ellipsis site if the finite dummy *do* is also present.

(10) a. *Rab is throwing a TV out the window, and Morag is doing, too.
b. *Rab is being an idiot, and Mary is being, too. (Thoms 2011)
(11) *Tom wrote a paper and Emma did **do** too.

[1] Den Dikken and Griffiths (2022) is the only work I am aware of that explicitly claims local *wh*-subject extraction to be disallowed. 6 BE speakers surveyed find local subject *wh*-extraction out of *do*-ellipsis acceptable.

[2] Haddican (2007), Aelbrecht (2010), Thoms (2011), Baltin (2012) and Thoms and Sailor (2018) argue that object>subject is not possible with *do*-ellipsis. Inverse scope readings can be forced in a generic context. The generic context in (i) is perfectly compatible with *do*-ellipsis.

(i) At linguistics conferences, I will talk to everybody and a professor will **do** <talk to everybody> too.

[3] Aelbrecht gives one example of *do*-ellipsis with *doing* as grammatical in addition to those where *doing* is degraded. My investigation has revealed speaker variation in this respect. However, it is known that some BE speakers have what is called the anti-*ing* constraint (Thoms 2019)—they allow *being* to survive ellipsis.

(ii) A: Rory, be careful with her! B: I am **being** though! (Thoms 2019)

Section 4 argues that *doing* is obligatorily elided for the same reason that *being* is (the inflectional affix *-ing* is obligatorily in the ellipsis site). It's then expected that variation with *doing* correlates with variation with *being*.

Table 1: Properties of British non-finite do

A-movement		Ā-movement		Other	
Unaccusatives	✓	Local subject *wh*-movement	✓	Doing △	✗
Subject raising	✓	Quantifier Raising	✓	{Does / did} do △	✗
Passive *be*	✗	Topicalization	✓	Non-elliptical contexts	✗
Passive *get/need*	✓	Object wh-movement	✗		
		Long distance subject *wh*-movement	✗		

There have been two key proposals regarding BE *do*-ellipsis, which are discussed in the next section.

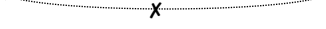
3. Previous approaches (and what they cannot handle)

As shown in (12), for Aelbrecht (2010) and Baltin (2012) BE *do* instantiates little *v* and involves ellipsis of VP, which occurs as soon as *v* is merged. Phrases marked for ellipsis are frozen for further operations. VoiceP, above *v*P, is the clause-internal phase.

(12) $[_{\text{VoiceP = phase}}$Voice $[_{\text{vP}}$ *v* **do** $[<_{\text{VP}}$ ellipsis site$>]]]$

Both authors propose that *wh*-objects (and by extension LD *wh*-subjects, though they don't discuss them) can't be extracted from *do*-ellipsis because they haven't moved out of VP prior to ellipsis. In (13), the *wh*-object is the complement of V, *v* (lexicalizing *do*) then merges, marking VP for ellipsis, followed by Voice, the phase head. Since the phrase that contains the *wh*-object is marked for ellipsis when *v* is merged, and is thus frozen to further operations, the *wh*-object fails to move to the phase edge.

(13) Although I don't know what Tom will read, I do know…
$[_{\text{CP}}$ $[_{\text{TP}}$ Fred will $[_{\text{VoiceP}}$ Voice $[_{\text{vP}}$ v *do* $[_{\text{VP}}$ <read what>$]$



However, the accounts do not explain why other Ā-movements like topicalization or QR are possible (in fact both authors claim the latter is not possible, but QR to a position above negation is widely accepted (see (9b)) and QR over the subject is somewhat accepted (see (9a) and fn 2)). As for A-movement, these authors propose that this does not target the phase edge (Spec-VoiceP) but Spec-*v*P. *v* is then the locus of two operations: (i) it attracts a derived subject to its Spec and (ii) it marks VP for ellipsis. Baltin claims that these two operations are unordered, and thus a derived subject moves to Spec-*v*P before VP is elided. From here it can move to Spec-TP.

(14) The students should arrive on time and the professors$_i$ should $[_{\text{VoiceP}}$ Voice $[_{\text{vP}}$ **t$_i$** v **do** $[_{\text{VP}}$ △$]]]$ too.

Only Baltin offers an explanation as to why *do*-ellipsis is incompatible with passive *be*. He adopts Collins' (2005) analysis of the passive: there is a PartP between VP and *v*P, the thematic object is in Spec-VP, the thematic subject is in Spec-*v*P and *by* heads passive VoiceP (15a). The entire PartP moves to Spec-VoiceP and the DP in Spec-VP moves to Spec-TP to satisfy the EPP (15b).

(15) a. $[_{\text{TP}}$ T was $[_{\text{VoiceP}}$ Voice by $[_{\text{vP}}$ Tom *v* $[_{\text{PartP}}$ -en $[_{\text{VP}}$ the pie V eat$]]]]]$
b. $[_{\text{TP}}$ the pie$_i$ T was $[_{\text{VoiceP}}$ $[_{\text{PartP}}$ $[_{\text{VP}}$ t$_i$ V eaten$]]_j$ Voice by $[_{\text{vP}}$ Tom *v* $[$t$_j$ $]]]]$

In *do*-ellipsis, VP is deleted upon merger of *v*. There is then no DP in Spec-VP to move to Spec-TP and the EPP is not satisfied (16).

(16) *The cake was eaten and $[_{\text{TP}}$ was $[_{\text{VoiceP}}$ $[_{\text{PartP}}$ -en $[_{\text{VP}}$ △$]]_j$ Voice $[_{\text{vP}}$ v **do** $[$t$_j$ $]]]]$ too.

But Baltin's analysis fails to capture the fact that *do*-ellipsis is compatible with passive *get/need*. Unless the structure of passives headed by different verbs is vastly different, this analysis wrongly predicts that *all* passives will be ill-formed with *do*-ellipsis. Finally, these works say nothing about the ungrammaticality of BE *do* with the finite dummy *do* or in its *-ing* inflected form.

Thoms (2011), Thoms and Sailor (2018) (TS) also assume *do* lexicalizes *v*, with VP elided, but argue *do* is an enclitic on the auxiliary verb. **{ }** indicates the prosodic regrouping of *do* and the auxiliary.

(17) Tom should write a paper and Emma **{**should [$_{vP}$ v **do}** [$_{VP}$ △]] too.

Under TS, extraction out of *do*-ellipsis is always possible. What is disallowed is material (overt or covert) between *v* and the auxiliary to host *do.* Consider *wh*-object extraction in (18). The copy of the object in Spec-*v*P, though null, prevents *do* from cliticizing onto the modal because they are not adjacent.

(18) Although I don't know what Tom will read, I do know [$_{CP}$ what$_i$ [$_{TP}$ Fred ***{**will [$_{vP}$ **t$_i$** v **do}** [$_{VP}$ △]].

TS claim the Ā-dependencies that are allowed don't involve copy-based movement but a null Op bound by an overt XP, as (19) shows for topicalization. The null Op does not prevent cliticization.

(19) Hazelnuts, I won't eat. Peanuts$_i$ [$_{TP}$ I **{**might [$_{vP}$ Op$_i$ v **do}** [$_{VP}$ △]]]

To explain why A-movement is allowed (with the exception of passive be, which they don't explain) TS argue that either copies of A-movement don't block cliticization, or A-movement does not involve copy-based movement. But under this approach local *wh*-subject movement should be disallowed with *do*-ellipsis—the copy in Spec-*v*P should prevent *do* from cliticizing to the modal (20)—contrary to fact.

(20) A: Sue wouldn't kiss Peter last night. B: Well, who$_i$ [$_{TP}$ **{**would [$_{vP}$ **t$_i$** v **do}** [$_{VP}$ △]]. =Predicted *

There is a larger issue with this account—*overt* material can intervene between *do* and an auxiliary. While epistemic adverbs are degraded, lower aspectual adverbs are acceptable (cf. 21a-b).

(21) a. *I don't know if she'll come, but she should **obviously** do.
b. John has often eaten octopus at restaurants. Mary has **often** done too.

TS also argue that *do* cannot cliticize to an auxiliary that has itself cliticized to a verb (22a) (* is TS's judgment). But *do* occurs after the clitic form of perfective *have* in (22b).[4]

(22) a. *Sarah will arrive on time, and Tom**'ll do** too. b. If we didn't do it, we should'**ve done**.

The cliticization analysis is thus untenable. Like Aelbrecht (2010), Baltin (2012), TS do not explain the impossibility of BE *do* with dummy *do* or in its *-ing* form. These analyses thus fail to capture the full range of properties from Table 1. I will then propose a new account: *do* hosts non-finite stranded affixes (an extension of traditional *do*-support) and *do*-ellipsis is deletion of the full verbal phase.

4. A new analysis

4.1. British non-finite do is traditional do-support

I propose that BE *do*-ellipsis is in part an extension of traditional *do*-support seen in all varieties of English.[5] Whereas the dummy *do* of traditional *do*-support only occurs in finite clauses, BE *do* is inserted to host a *non-finite* inflectional affix. I adopt a paired layering approach to modal/auxiliary verbs and their inflectional affixes. The modal is generated in the head of ModP, perfective *have* in vP$_{PERF}$, progressive *be* in vP$_{PROG}$, passive *be* in VoiceP and the lexical verb in VP. The inflectional affixes

[4] "Failure's Contagious." Slow Horses, season 1, episode 1, Apple TV+ 2022.
[5] Baker (1984), Thoms (2011), Ramchand and Svenonious (2014) all argue that BE *do* is an extension of traditional *do*-support. However, this work shows that this alone is not enough to capture the full distribution of BE *do.*

associated with these verbs head their own projection immediately below the selecting heads (Harwood 2013, Bošković 2014, Harwood and Aelbrecht 2015).

(23) [$_{ModP}$ **modal** [$_{InfP}$ *-Ø* [$_{vPPERF}$ **have** [$_{AspectPPERF}$ *-en* [$_{vPPROG}$ **be** [$_{AspectPPROG}$ *-ing* [$_{VoiceP}$ **be** [$_{vP}$ *-en* [$_{VP}$ **verb**]]]]]]]]

BE *do* arises when one of the inflectional layers in (23) survives ellipsis. Consider (24). The modal raises from Mod^0 to T^0. Mod^0 selects for InfP that hosts the (null) infinitival affix. Perfective *have* is base-generated in the head of vP_{PERF} and raises to Inf^0. Perfective *-en* heads $AspectP_{PERF}$. The lexical verb is in *v* (after V-*v* raising). Following Aelbrecht (2010), the verbal phase is VoiceP. Bošković (2014) argues that only phases and phase complements can be elided. I also adopt this view. Given that VoiceP is a phase and only phases and their complements can be elided, only VoiceP or *v*P can be elided. Whichever is elided, *-en* survives ellipsis and *do* is inserted to host it.

(24) Tom should have written a paper and …
Emma should$_i$ [$_{ModP}$ t$_i$[$_{InfP}$ have$_j$ + *-Ø* [$_{vPPERF}$ t$_j$[$_{AspectPPERF}$ **do + -en** [**$_{VoiceP}$**[**$_{vP}$** *v* write a paper]]]]]] too.

Thus, like dummy *do*, BE *do* is inserted as last resort to host an inflectional affix. But whereas dummy *do* hosts finite affixes, BE *do* hosts non-finite ones. Under the view that BE *do* is an extension of traditional *do*-support, it's clear why it is only licensed in elliptical contexts—in non-elliptical contexts, a non-finite affix is never stranded (25a). Similarly, recall BE *do* cannot co-occur with the traditional dummy *do* (25b). This follows since there is no non-finite affix for BE *do* to host here either.

(25) a. *Tom has written a paper and Emma has **done** written a paper too.
b. *Tom wrote a paper and Emma did **do** △ too.

I propose that the unacceptability of *do*-ellipsis with passive *be* is also due to the lack of an affix for *do* to host. Consider (26). Passive *be* is in Voice and *-en* is in *v*.[6] VoiceP is the clause-internal phase, meaning ellipsis can target VoiceP or *v*P. Either way, passive inflectional morphology is in the ellipsis site. Since the passive *-en* affix is not stranded in the first place, *do* cannot be inserted to host it.

(26) a. The cake was eaten and the pie was **(*done)** too.
b. … and [$_{TP}$ the pie T was$_i$ [**$_{VoiceP}$** t$_i$ [**$_{vP}$** **<u>-en</u>** [$_{VP}$ eat]]] too.

Now recall passives with *get/need* are compatible with *do*-ellipsis (27a). Crucially, *get/need* behave like lexical verbs and do not raise to combine with an inflectional affix (27b). Thus, when the phrase containing *get/need* is elided (VoiceP), *-Ø* in Inf^0 is stranded and BE *do* can be inserted to host it.

(27) a. The cookies definitely won't **get** eaten but the cakes might **do**. (Thoms and Sailor 2018)
b. The cookies definitely won't$_i$ [$_{ModP}$ t$_i$ [$_{InfP}$ **[$_{VoiceP}$ get + -Ø** [$_{vP}$ eaten]]]]
c. … but [$_{TP}$ the cakes T might$_i$ [$_{ModP}$ t$_i$ [$_{InfP}$ **do + -Ø** [$_{VoiceP}$ △]]] too

BE *do* hosting stranded non-finite affixes explains why it only occurs in elliptical constructions, why it cannot occur with the finite dummy *do* and why it is incompatible with passive *be* (but not passive *get/need*). However, this does not explain why A-extraction is possible (with the exception of passive *be*, which I have shown to not involve a ban on extraction at all), as well as local *wh*-subject extraction, QR and topicalization, while *wh*-object and LD *wh*-subject extraction are not. Why BE *do* does not surface in its *-ing* form was also not explained so far. I turn to these puzzles in the next section.

[6] Though I place passive *be* in Voice and its corresponding inflectional morphology *-en*, this is just a matter of labels. If VoiceP is between *v*P and VP, *be* would be in *v* and *-en* would be in Voice (and *v*P would be the clause-internal phase). Nothing hinges on VoiceP being above *v*P; the analysis is compatible with either structure.

4.2. Do-ellipsis is full phase ellipsis

That ellipsis targets phase complements has been argued for by many authors (see e.g. Gengel 2007, van Craenenbroeck 2010). Bošković (2014) argues that in addition to phase complement ellipsis, full phases can also be elided. Thus, in (28) where YP is a phase, either YP or ZP may be marked for ellipsis. Bošković (2014) also takes the higher phase head to mark the relevant phrase for ellipsis. That is, YP or ZP is marked for ellipsis only once X, a higher phase head, is merged. Once the relevant phrase has been marked for ellipsis it is frozen to further syntactic operations.

(28) [X [… [**YP** Y [**ZP** Z […

Empirical evidence for full phase ellipsis is given in (29), a case of argument ellipsis (AE) in Japanese where the CP phase is elided (Saito 2007).

(29) Taroo-wa Hanako-ga sono hon-o katta to itta si,
Taroo-TOP Hanako-NOM that book-ACC bought that said and
Ziroo-mo <$_{CP}$ Hanako-ga sono hon-o katta to> itta.
Ziroo-also said
'Taroo said that Hanako bought that book, and Ziroo also said that she bought that book.'

I propose that like Japanese AE, *do*-ellipsis involves phase ellipsis, in particular, ellipsis of the full clause-internal phase. The derivation of (30a) is shown in (30b): the clause-internal phase, VoiceP, is marked for ellipsis once the higher phase head C is merged and *do* is inserted to host *-en* in AspectP$_{PERF.}$

(30) a. Tom has written a paper and Emma has **done** too.
b. …and [$_{CP}$ C [$_{TP}$ Emma T has$_i$ [$_{vPPERF}$ t$_i$ [$_{AspectPPERF}$ **do + -en** [$_{VoiceP}$ △]]]]] too.

I will show that full phase ellipsis accounts for all the remaining *do*-ellipsis facts, but first I offer independent evidence that it is always the entire clause-internal phase that is elided in *do*-ellipsis. Consider (31a), involving TVPE. (31a) is ambiguous: if the adverb is interpreted inside the ellipsis site, the second train has not derailed completely (it has partially derailed). If the adverb is not interpreted inside the ellipsis site, the second train has not derailed at all, it remains on the track. Importantly, with *do*-ellipsis (31b), only the first interpretation, with the adverb in the ellipsis site, is possible—the second train has partially derailed. Such adverbs also cannot survive ellipsis (32) (Aelbrecht 2010).

(31) This train has derailed completely,
a. but that one hasn't < derailed completely / derailed >
b. but that one hasn't **done** <derailed completely / *derailed >.
(32) Morgan will write that paper slowly… a. but Yaron will fast. b. ?*but Yaron will **do** fast.

I propose these modifiers attach to the clause-internal phase, VoiceP. In TVPE, ellipsis can target the phase itself or the phase complement, *v*P. If VoiceP is elided the adverb is inside the ellipsis site and must be interpreted there (33a). If *v*P is elided, there is no adverb inside the ellipsis site to be interpreted (33b). Moreover, a VoiceP-adjoined adverb can survive *v*P ellipsis (33c).

(33) a. This train has **[$_{VoiceP}$[$_{vP}$derailed] completely]**, that one hasn't **[<$_{VoiceP}$[$_{vP}$derailed] completely>]**
b. This train has [$_{VoiceP}$**[$_{vP}$ derailed]** completely], that one hasn't [$_{VoiceP}$**[<$_{vP}$ derailed>]**]
c. Morgan will [$_{VoiceP}$[$_{vP}$ **write that paper]** slowly], Yoron will [$_{VoiceP}$**[<$_{vP}$ write that paper>]** fast]

On the other hand, *do*-ellipsis must involve full phase ellipsis. The VoiceP-adjoined adverb is then always inside the ellipsis site. Likewise, a VoiceP-adjoined adverb can never survive *do*-ellipsis.

(34) a. This train has **[$_{VoiceP}$[$_{vP}$ derailed] completely]** but
that one hasn't [$_{AspectPPERF}$ **do + -en** [<$_{VoiceP}$ [$_{vP}$ derailed] completely>]
b. Morgan will **[$_{VoiceP}$ [$_{vP}$ write that paper] slowly]** but
Yoron will [$_{InfP}$ **do + -Ø** [<$_{VoiceP}$ [$_{vP}$ write that paper] fast>]

Further, while voice mismatches are possible with TVPE, they are not tolerated with *do*-ellipsis.

(35) I thought the books would have been organized by now, but it seems like nobody will (**??do**).

Voice mismatches are permitted only if the head responsible for specifying voice (Voice) is *not* inside the ellipsis site (Merchant 2008). Since voice mismatches are not tolerated in *do*-ellipsis, Voice must be inside the ellipsis site, as I proposed, yielding a violation of the identity condition on ellipsis.

(36) I thought the books would have been [$_{VoiceP\text{-}pass}$ [$_{vP}$ organized]] by now…
a. but it seems like nobody will [$_{VoiceP\text{-}act}$ [$_{vP}$ △]]
b. *but it seems like nobody will **do** [$_{VoiceP\text{-}act}$ △]

Having shown that *do*-ellipsis is phasal ellipsis, recall that *do* is unable to host progressive *-ing* (37a). This is reminiscent of the restriction that auxiliary *being* can't survive ellipsis (37b) (Sag 1976).

(37) a. *Rab is throwing a TV out the window, and Morag is doing, too.
b. *Rab is being an idiot, and Mary is being, too. (Thoms 2011)

(37b) has been accounted for under a contextual approach to phases, where the highest phrase in the extended projection of a phasal domain (e.g. verbal, clausal, nominal) is the phase (see Bošković 2014). Namely, Bošković (2014) argues that VoiceP is not always the clause-internal phase; in progressive clauses, AspectP_{PROG} is (in fact, the highest AspectP delimits the clause-internal phase; see Sec 5). Bošković also argues that auxiliaries combine with inflectional affixes via syntactic head-movement in all cases except for progressive *-ing; be* combines with *-ing* via PF merger (Akmajian and Wasow 1975, Lobeck 1987, a.o). Since either phases or phase complements can be elided, the possible targets of ellipsis in progressive clauses are AspectP_{PROG} (a phase) or VoiceP. Whichever is elided, *being* is always inside the ellipsis site (38a). BE *doing* can't precede ellipsis for the same reason—*do*-ellipsis obligatorily targets the phase, thus *-ing* is not stranded (38b).

(38) a. Rab is being an idiot, and Mary is [$_{AspectPPROG}$ [$_{VoiceP}$ being an idiot>]] too.
b. *Rab is throwing a TV out the window, and Mary is **doing** [$_{AspectPPROG}$ -ing [$_{VoiceP}$ …]] too.

Returning to extraction, Bošković (2014) argues that when Ā-extraction is disallowed out of ellipsis we must be dealing with full phase ellipsis. Consider (39a), where XP and YP are phases and the YP phase will be elided. α first moves to Spec-YP given the PIC (39b). Merger of X marks YP for ellipsis (39c). No further syntactic operations can then take place, trapping α at the edge of the YP phase.[7]

(39) a. [**$_{XP}$** [X … [**$_{YP}$** Y [$_{ZP}$ Z [… [α b. [$_{YP}$ $α_i$ [Y [$_{ZP}$ Z [… [t_i c. [X … [~~$_{YP}$ $α_i$ [Y [$_{ZP}$ Z [… [t_i~~

The effect in question can be illustrated with the case of CP ellipsis in (40). This involves full phase ellipsis and extraction out of the ellipsis site is indeed disallowed (Saito 2007).

(40) *Hon-o Taroo-wa Hanako-ga t_i katta to itta ga,
book-ACC Taroo-TOP Hanako-NOM bought that said and,
zassi-o$_j$ Ziroo-wa <$_{CP}$ Hanako-ga **t_j** katta to> itta.
magazine-ACC Ziroo-also said
'Taro said that Hanako bought a book, but Ziro said that she bought a magazine'

[7] This does not mean that when Ā-extraction is allowed we are not dealing with full phase ellipsis. The landing site of movement matters. If α in (39) targets a position between XP and YP, it can extract.

In *do*-ellipsis, *wh*-object and LD *wh*-subject extraction are ungrammatical for the same reason—ellipsis of the full phase traps the *wh*-element in the phase edge in (41) (cf. (39c)).

(41) Although I don't know what Tom will read, I do know
[$_{CP}$ C [$_{TP}$ Fred T will [$_{InfP}$ **do** + -Ø [<$_{VoiceP}$ what$_i$ [$_{vP}$ read t$_i$>]]]]].

As Bošković shows for other phase ellipsis cases, *do*-ellipsis is compatible with A-extraction. This is because A-movement targets a position below C. Consider (42). The subject moves to Spec-TP via the clause-internal phase edge. Since VoiceP is marked for ellipsis, and "frozen", only after C is merged, nothing goes wrong with this movement. *Do* is inserted to host -Ø in Inf^0.

(42) The students should arrive on time, and
[C [$_{TP}$ the professors$_i$ T should [$_{InfP}$ **do + -Ø** [<$_{VoiceP}$ t$_i$ arrive t$_i$ on time>]]]]> too.

Topicalization is also allowed out of *do*-ellipsis. Under the split-CP approach (Rizzi 1997), the left periphery contains a number of projections: ForceP>TopP>FocusP>FinP. As the highest phrase in the clausal phasal domain, ForceP is a phase. Thus, under *do*-ellipsis, Force marks the clause-internal phase for ellipsis *after* the topic has already moved to SpecTopP. *Do* hosts -Ø in Inf^0.

(43) Hazelnuts, I won't eat. [Force [$_{TopP}$ Peanuts$_i$ [$_{FinP}$ [$_{TP}$ I might$_j$ [$_{ModP}$ t$_j$ [$_{InfP}$ **do + -Ø** [<$_{VoiceP}$ eat t$_i$>]]]]]]]

Next consider local *wh*-subjects, which can also be extracted out of *do*-ellipsis. This is surprising: if local *wh*-subjects move to Spec-CP, these too should be trapped inside the ellipsis site.

(44) a. A: Sue wouldn't kiss Peter last night. B: Well, who WOULD **do**?
b. If even Sue wouldn't kiss Peter last night, then I don't know who WOULD **do**.

First, local *wh*-subjects do undergo *wh*-movement. Thus, if they were to stay in Spec-TP we could not account for the fact that subjects in Spec-TP in West Ulster English don't allow Q-float ('*They were arrested all last night') but local *wh*-subjects do ('Who was arrested all in Duke Street?'); for a number of additional arguments see Bošković (in press) and Messick (2020). Interestingly, Bošković (in press) shows local *wh*-subjects don't move to the same position as *wh*-objects/LD *wh*-subjects. Thus, they do not pattern like *wh*-objects/LD *wh*-subjects: e.g. local *wh*-subjects don't obey Kaisse's (1983) one-word host restriction on aux-contraction (45); only local *wh*-subjects can be separated from a verb by a polarity item (46); in Defaka, the focus marker for a local subject is different from that for focused objects, LD subjects, or adjuncts (47). All this suggests different landing sites for local *wh*-subject movement and object/LD subject *wh*-movement.

(45) a. Whose food's burning? b. *Whose food's the dog eating?
c. *Which man's Peter claiming will leave first?
(46) a. Who under no circumstances should Peter ever hire?
b. *What under no circumstances should Mary ever buy?
c. *Who under no circumstances should Ann ever say stole it?
(47) a. ì **kò** Bòmá ésé-kà-rè Local-subject focus
I foc.sbj Boma see-fut-neg
'I will not see Boma.'
b. Bòmá **ndò** ì ésé-kà-rè-**kè** Object focus
Boma **foc** I see-fut-neg-**ke**
'I will not see Boma.'

One argument that the landing site of local subject *wh*-movement is *lower* than that of *wh*-objects and LD *wh*-subjects comes from topicalization. The landing site of *wh*-objects and LD *wh*-subjects is above the topic (48a), while the landing site of local *wh*-subjects is below it (48b).

(48) a. ?Mary wonders which book, for Kim, Peter should buy.
b. *Mary wonders which student, for Kim, should buy that book. (Bošković in press)

Based on these facts, Bošković argues for two *wh*-positions, one higher and one lower (49a). Local *wh*-subjects occupy the lower *wh*-position (Spec-A/ĀP) while *wh*-objects and LD *wh*-subjects occupy the higher one. Under this hierarchy, local *wh*-subjects move out of the phase before C is merged (49b).

(49) a. [**CP** *wh*-objects/LD *wh*-subjects [**A/ĀP** local *wh*-subjects [**TP** non-wh subjects
b. [C [$_{A/ĀP}$ who$_j$ [$_{TP}$ T would$_i$ [$_{ModP}$ t$_i$ [$_{InfP}$ **do + -Ø** [<$_{VoiceP}$ t$_j$ kiss Peter>]]]]]]

Finally, given the standard assumption that QR involves TP adjunction, quantifiers also raise (covertly) out of the clause-internal phase before C is merged and are compatible with *do*-ellipsis.

4.3. Interim Summary

I have argued that there are two necessary components to the right analysis of *do*-ellipsis: BE *do* hosts stranded non-finite affixes—an extension of traditional *do*-support—and *do*-ellipsis targets the full clause-internal phase. The variable extraction facts fall out under phasal ellipsis: when the final landing site of α is below the clausal phase head α can be extracted from *do*-ellipsis; when it is above the clausal phase head α is trapped inside the ellipsis site and thus incompatible with *do*-ellipsis. Other properties of BE *do* are not tied directly to phasal ellipsis, but are due to there being no stranded affix for *do* to host. This includes the ungrammaticality of *do*-ellipsis with passive *be* (but not passive *get/need*), BE *do* not occurring in the *-ing* form and BE *do* not being able to co-occur with dummy *do.*

In the remainder of the paper, I offer an adaptation of Bošković's (2014) analysis of contextual phases in the middle field. Bošković argues that the highest AspectP is the highest phrase in the verbal phasal domain. This means AspectP$_{PERF}$ is the clause-internal phase in perfective clauses. Based on *do*-ellipsis, I propose AspectP$_{PERF}$ is not always the clause-internal phase, but only when *be* raises to it.

5. Phases in the middle field

A central claim of this paper is that *do*-ellipsis involves deletion of the entire clause-internal phase. Often this is VoiceP, but we saw evidence that it can be a higher phrase when additional phrases are present. Thus, Bošković (2014) argues the highest aspectual projection (AspectP$_{PROG}$ or AspectP$_{PERF}$) delimits the clause-internal phase, with phrases above AspectP belonging to the clausal domain. This is motivated by the behavior of auxiliaries: *being* cannot survive TVPE but modals, *have, be* and *been* can.

(50) a. Tom will write papers and Emma ***(will)** too. b. Tom has written papers and Emma ***(has)** too.
c. Tom has been writing papers and Emma has **(been)** too.
d. My paper isn't being written but your paper is **(*being).**

Consider (50a-d) under Bošković's approach. In (50a), VoiceP is the clause-internal phase since there are no AspectP projections. Ellipsis may only target VoiceP or the phase complement, *v*P. The modal is above VoiceP (in T), hence must survive ellipsis. In (50b) AspectP$_{PERF}$ is the clause-internal phase so only AspectP$_{PERF}$ or VoiceP can elide. *Has* is outside both possible ellipsis sites (in T) and survives ellipsis. In (50c), AspectP$_{PERF}$ is the relevant phase again and so only AspectP$_{PERF}$ or the phase complement vP$_{PROG}$ may elide (because this is a perfect progressive). When *been* survives ellipsis the phase complement is elided (51a); when *been* is elided, the full phase is (51b).

(51) Tom has been writing papers and…
a. [$_{TP}$ Emma T has$_i$ [$_{vPPERF}$ t$_i$ [$_{AspectPPERF}$ **be$_j$ + -en** [$_{vPPROG}$ △]]]]] too.
b. [$_{TP}$ Emma T has$_i$ [$_{vPPERF}$ t$_i$ [$_{AspectPPERF}$ △]]]] too.

In (50d) AspectP$_{PROG}$ is the clause-internal phase. *-ing* in Aspect$_{PROG}$ PF merges with *be* in Voice. Ellipsis may target AspectP$_{PROG}$ or VoiceP. Crucially, whether the phase or the phase complement is

elided, *being* (in Voice) is inside the ellipsis site. Thus, Bošković captures the distribution of non-finite auxiliaries in elliptical constructions with the simple (and well-motivated) assumption that ellipsis only targets phases and phase complements. As it is, however, the analysis is incompatible with the analysis of *do*-ellipsis I have argued for. Bošković's analysis predicts that BE *do* cannot be inflected with perfective *-en*, since *do*-ellipsis requires both phasal ellipsis and a stranded non-finite affix to host. When $\text{AspectP}_{\text{PERF}}$ is the phase it must elide in *do*-ellipsis, taking *-en* with it. But *do* can host perfective *-en*.

(52) Tom has written a paper and Emma has **done** too. =Predicted *

I propose that the relevant claims—that $\text{AspectP}_{\text{PERF}}$ is the clause-internal phase and that *do*-ellipsis targets the full phase and hosts stranded non-finite affixes—can be reconciled. Following Harwood 2013, I take vP_{PROG}, not $\text{AspectP}_{\text{PROG}}$, to be the clause-internal phase in progressive clauses. Ellipsis may then target vP_{PROG} or $\text{AspectP}_{\text{PROG}}$. As before, *being* never survives ellipsis.

(53) Tom was being arrested and Emma was$_i$ [$_{\text{vPPROG}}$ t$_i$ [$_{\text{AspectPPROG}}$ [$_{\text{VoiceP}}$ **being** arrested]] too.

In perfective clauses, Harwood claims that $\text{VoiceP/vP}_{\text{PROG}}$ is still the clause-internal phase (depending on whether the progressive layer is present or not) while Bošković argues that $\text{AspectP}_{\text{PERF}}$ is. I propose $\text{AspectP}_{\text{PERF}}$ is the clause-internal phase, but *only when auxiliary* be *raises to it.* That is, $\text{AspectP}_{\text{PERF}}$ is the clause-internal phase through phase extension/sliding (Gallego & Uriagereka 2006; den Dikken 2007). As in Bošković 2014, when *been* survives ellipsis, the phase complement (vP_{PROG}) is elided and when *been* is deleted, the full phase ($\text{AspectP}_{\text{PERF}}$) undergoes ellipsis.

(54) Tom has been writing papers and Emma has [$_{\text{AspectPPERF=phase}}$ be$_j$ + -en [$_{\text{vPPROG}}$ t$_j$ [$_{\text{AspectPPROG}}$]]]] too.

phase extension

Crucially, when perfective *have* is followed by a lexical verb, which does not raise to $\text{Aspect}_{\text{PERF}}$, VoiceP remains the clause-internal phase. The full phase is elided and *do* is inserted to host *-en*.[8]

(55) Tom has written papers and Emma has [$_{\text{AspectPPERF}}$ **do + -en** [$_{\text{VoiceP=phase}}$ △]]]] too.

Thus, it is possible to maintain the intuition in Bošković (2014) that $\text{AspectP}_{\text{PERF}}$ is the clause-internal phase with *been;* when *be* raises to $\text{Aspect}_{\text{PERF}}$ from v_{PROG} or Voice, the clause-internal phase is extended to the perfective aspectual layer. However, this projection is not inherently part of the verbal phasal domain. Consequently, $\text{AspectP}_{\text{PERF}}$ is not the target of *do*-ellipsis in (52) since it is neither the phase nor the phase complement. *-en* is stranded and *do* is inserted to host it.

6. Conclusions

I have argued that BE *do*-ellipsis involves full phase ellipsis and *do* hosting a stranded non-finite affix. In addition to providing evidence for Bošković's (2014) proposal that phases as well as phasal complements can be elided these two features account for all of the properties of *do*-ellipsis in Table 1. I also showed that *do*-ellipsis provides a diagnostic for the locus of the clause-internal phase: with lexical verbs the clause-internal phase is vP_{PROG}/VoiceP and BE *do* hosts a stranded perfective *-en* in $\text{Aspect}_{\text{PERF}}$. However, Bošković provides evidence that $\text{AspectP}_{\text{PERF}}$ is the clause-internal phase with auxiliary *be*. I proposed that $\text{AspectP}_{\text{PERF}}$ is the clause-internal phase only when auxiliary *be* raises to it (i.e. by phase extension), retaining Bošković's insights while also accounting for the *do*-ellipsis facts.

[8]Above, examples like (ia-b) were ruled out since passive *-en* and progressive *-ing* obligatorily stay in the ellipsis site. Under the approach to phases argued for in this section, (ia-b) are also ungrammatical because *been* cannot survive *do*-ellipsis.

(i) a. *The pie has been eaten and the cake has been done too.
b. *The linguistics student has been writing a paper and the philosophy student has been doing too.

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