English VP ellipsis in Unusual Subject configurations: Reviving the Spec–Head Agreement approach

James Griffiths
Universität Tübingen

Marcel den Dikken
SEAS/ELTE and RIL Budapest

ABSTRACT

We present new data in support of the proposal that, in order to formally license English VP ellipsis, a functional head T must receive a value for its inflection (INFL) specification and have a valued Tense (Tns) feature. Put in different terms, we argue that, to license VP ellipsis, T must enter into a Spec–Head agreement relationship with the phrase in its specifier and must be in a c-command relationship with a local *v* head that has a [tense] value. We therefore revive and extend the 'Spec–Head agreement' analyses first entertained by Saito and Murasugi (1990) and Lobeck (1995). Novel support for this analysis comes from the behaviour of VP ellipsis in copular clauses in which the occupant of Spec,TP is not a standard referential DP, but an expletive or predicate (proform). We demonstrate that, in these 'Unusual Subject' configurations, VP ellipsis is judged as acceptable only if T and the unusual subject engage in a Spec–Head agreement relationship. Because this correlation is also attested in Unusual Subject raising configurations and in Unusual Subject configurations in which British English *do* ellipsis occurs, we also provide new support for the proposal that matrix T licenses VP ellipsis in *to*-infinitive complement clauses (Zagona 1988, Lobeck 1995) and for the idea that British English *do* ellipsis is no different from standard VP ellipsis from a syntactic perspective (Thoms and Sailor 2018, *contra* Aelbrecht 2010, Baltin 2012). With respect to the timing of ellipsis, we provide decisive evidence against 'derivational-timing' approaches to VP/*do* ellipsis in English.

KEYWORDS: VP ellipsis, Spec–Head agreement, British English *do* ellipsis, predicate inversion, subject extraction, syntax–prosodic mapping

1.   Introduction

1.1.   *Aims of the paper*

This paper contributes to the debate about the formal syntactic licensing conditions on English VP ellipsis. In particular, we present new data in support of the idea that, to formally license English VP ellipsis, a functional head T must receive a value for its inflection (INFL) specification by having its Tense (Tns) feature valued in a c-command relation with a local *v* head and entering into a Spec–Head agreement relationship with the phrase in its specifier. The 'Spec–Head agreement' aspect of our analysis is not novel: it was first entertained in the early 1990s by Saito and Murasugi (1990) and Lobeck (1995). However, this analysis had competitors at the time (Zagona 1988) and has received little attention since. Indeed, none of the proposals for licensing English VP ellipsis advanced this century mention Spec–Head agreement: Richards (2003) argues that VP ellipsis is licensed simply when Spec,TP is filled, Thoms (2010) argues that VP ellipsis is licensed by any raising verb in the inflectional domain, Gallego (2009) and Rouveret (2012) propose that a verbal projection can undergo ellipsis if it is the complement to a phase head, and Aelbrecht (2010) suggests that VP ellipsis is licensed when the functional head Voice enters into an Agree relation (Chomsky 2000, 2001) with T. Having languished in relative obscurity, the Spec–Head agreement

approach is revitalized in this paper. The 'T–*v* link' aspect of our analysis also features to varying extents (and is formalized in radically divergent terms) in the analyses proposed by Zagona (1988), Lobeck (1995), and Aelbrecht (2010), but each analysis either relies on theoretical concepts that are difficult to translate into contemporary Minimalist parlance (Zagona, Lobeck) or develops a system of ellipsis licensing that fails to recognize the importance of Spec–Head agreement.

Empirical support for our analysis of VP ellipsis licensing comes from novel data. Because these data consist of syntactic configurations in which the occupant of Spec,TP is not the notional subject (i.e. not an argumental DP), we refer to them collectively as the 'Unusual Subject' (henceforth, US) data set. In Section 2, we demonstrate that VP ellipsis is licensed only when T enters into a Spec–Head agreement relationship with its unusual subject. In Section 3, we expand the basic US data set to phrase markers containing *to*-infinitive complement clauses and show that VP ellipsis in such clauses is contingent on Spec–Head agreement between finite T and its specifier in the superordinate clause, following insights from Zagona (1988) and Lobeck (1995). This observation also motivates the idea that T must engage in an Agree relationship with a *v* head whose Tns feature is valued. In Section 4, we investigate the question of whether the presence of an unusual subject affects the licensing of British English *do* ellipsis, a form of 'low' VP ellipsis which targets the VP phrase and in which *v* is realized as *do*. We show that the licensing of *do* ellipsis is also contingent on finite T being a suitable licensor, which calls into question Aelbrecht's (2010) and Baltin's (2012) use of *do* ellipsis as support for the existence of *derivationally timed* ellipsis in English. Finally, we discuss in Section 5 the question of whether or not the degradation of VP ellipsis in finite clauses with *wh*-subject traces is caused by the absence of Spec–Head agreement or not. We conclude that this degradation likely has a prosodic source and offer a tentative analysis that appeals to constraints on the prosodic grammar. We provide concluding remarks in Section 6, in which we highlight what the US data set tells us about the timing of ellipsis.

1.2. *Spec–Head agreement*

Before we present the basic US data set, some qualifying remarks are required. By 'English VP ellipsis', we refer to the standard post-auxiliary predicate ellipsis that has been the focus of many studies since the late 1960s onwards (see Johnson 2001, van Craenenbroeck 2017, and Aelbrecht and Harwood 2019 for overviews). By 'Spec–Head agreement' we refer to an Agree relationship between T and a phrase that it c-commands wherein the Agree relationship triggers overt A-movement of the c-commanded phrase to Spec,TP. The establishment of this Agree relationship must involve the valuation of T's INFL specification. Importantly, an Agree relation that triggers A-movement but does not value the inflectional specification on T (i.e. a relation that is established purely to satisfy the condition that the English structural subject be filled) does not count as a Spec–Head agreement relationship (see Section 2 for further discussion).

1.3. *Agree between T and* v

For the purposes of this paper, we adopt the feature-sharing Agree system outlined in Pesetsky and Torrego (2007). The core tenets of this system are:

(1) a. Regardless of whether it is interpretable or uninterpretable, any feature that is unvalued acts as a probe for downward-Agree.
   b. The establishment of an Agree relationship results in feature-sharing. This is notated using arbitrary numerical indices, e.g. uTns:_ [7] … iTns:_ [7].
   c. Once an Agree relationship is established, any valuation that can happen must happen.
   d. Valuation of one member in a linked Agree-chain (i.e. linked by numerical indices) causes valuation in every member of the chain, regardless of the structural distance between members.

To provide an example of how Spec–Head agreement works in this system, consider the basic finite clause in (2). For reasons motivated at length by Pesetsky and Torrego, T is posited to bear an interpretable but unvalued tense (*Tns*) feature, which is *strong* (*) in the sense of Chomsky (1995).[1] T also bears an unvalued inflection specification. T probes downwards in search of a value for iTns*, establishing an Agree relation with the DP *Veronica*, which bears an uninterpretable and unvalued Tns feature (this is the feature associated with structural Case; see Pesetsky and Torrego 2001, 2004, 2007 for discussion) and a valued φ-feature specification. Agreement between these two items results in (i) the DP undergoing A-movement to Spec,TP, (ii) an 'Agree-chain' being established for Tns, and (iii) the INFL specification for T receiving a value (3).

(2) Veronica will play football.

(3) *Step 1: Agree between T and DP, plus A-movement of DP*

(*u*F* = triggers movement of the goal)
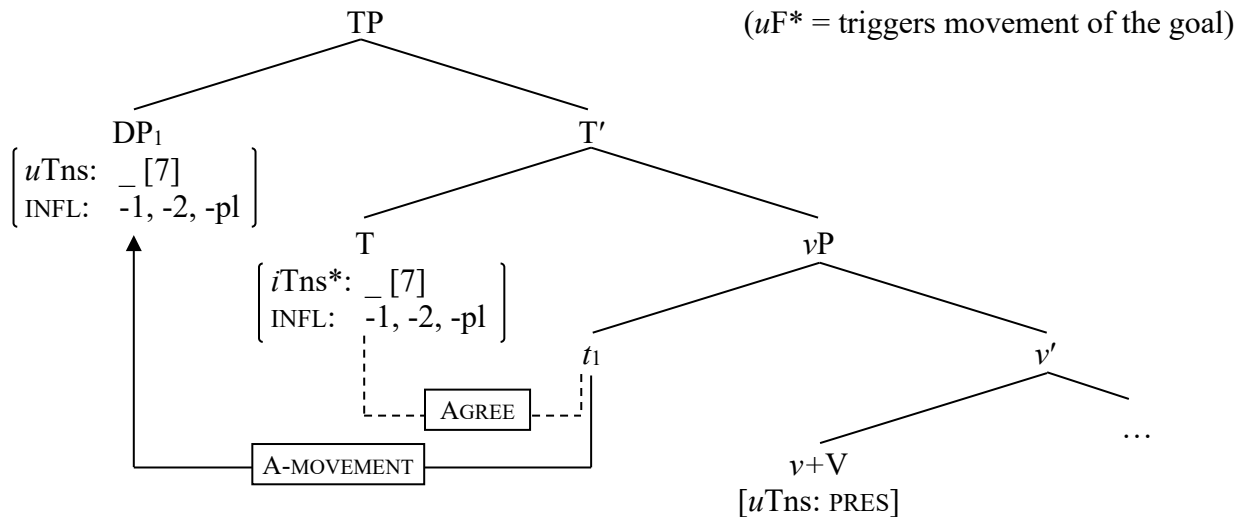
To receive a value for its uTns feature, T probes again, this time establishing an Agree relationship with *v*, which bears an uninterpretable but valued Tns feature (again, see Pesetsky and Torrego 2007 for justification of this claim). This Agree relation results in (i) *v* becoming a member of the 'Agree-chain' for Tns, (ii) the uTns feature on *v* being marked for removal at Spell-Out, (iii) T's

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[1] We give the functional head the label T and notate the tense feature as [Tns], in order to ensure continuity with the familiar labelling of the functional head of the clause. (Pesetsky and Torrego instead use 'Tns' for the head and 'T' for the feature.)

*u*Tns* feature being valued, (iv) the *u*Tns feature on DP being valued via the Agree-chain of which DP, T, and *v* are now members, and (v) *u*Tns feature on DP, having been checked against the *i*Tns feature on T and having received the value PRES, being marked for removal at Spell-Out (4).

(4)   *Step 2: Agree between T and v*
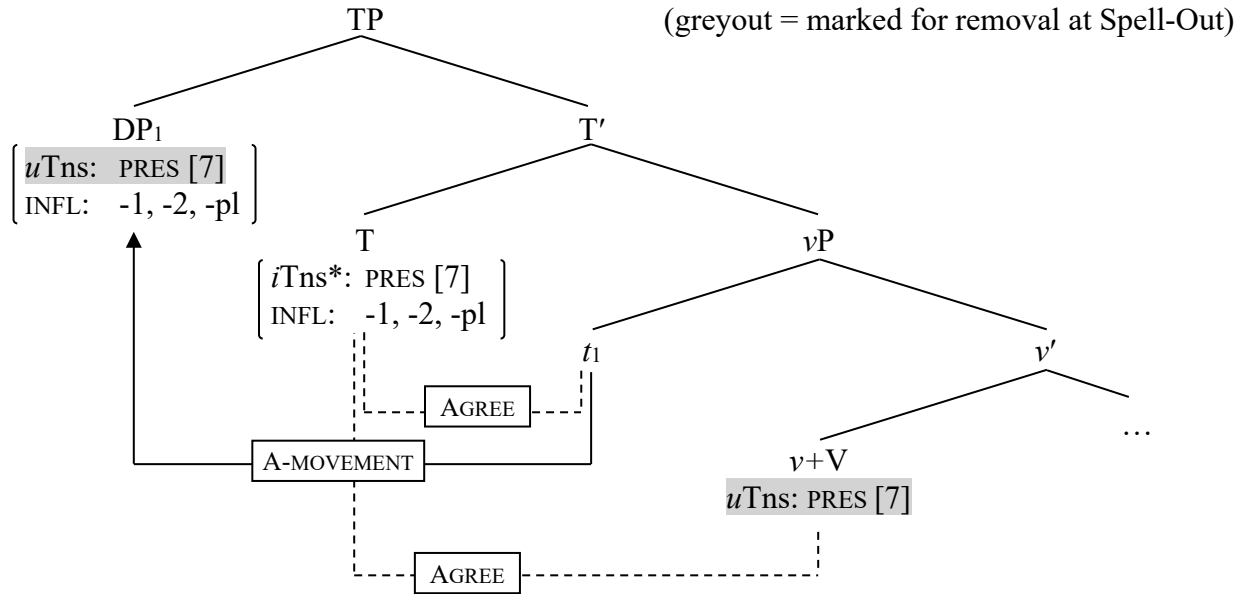
Because T in (4) has values for both *i*Tns* and INFL, it can license VP ellipsis. We return to the question of precisely which phrase or phrases undergo ellipsis in English VP ellipsis in Section 2.4.

Although the 'Spec–Head' Agree relationship in (3) and (4) is often reflected morphologically (e.g. *I **am** / you **are** / she **is**}*, we assume that it need not be. This is an uncontroversial assumption. In view of the fact that modal auxiliary verbs, which do not φ-inflect in English, can license VP ellipsis (5), this assumption is also inescapable for any analysis that aims to link the formal licensing of English VP ellipsis to syntactic feature-sharing and/or feature-valuation.

(5)   Louise should leave and {I/you/she/they} should <leave>, too.   (<> = the ellipsis site)

Having clarified the background details, we are now fully equipped to investigate how US configurations and VP ellipsis interact.

2.   Unusual subjects and VP ellipsis

The English structural subject position can be occupied by a variety of 'unusual subjects'. For each of these cases, the question arises of whether or not T is engaged in a Spec–Head relationship with them. Although this question has proved surprisingly difficult to answer, promising analyses have been advanced for each case. In this section, we demonstrate that there is a correspondence between the ability of a basic US clause to host VP ellipsis and whether or not a Spec–Head

agreement relationship obtains between T and the unusual subject in that clause, according to the most promising analysis of the US configuration in question.

2.1. *Copular inversion*

In specificational copular sentences with two nominal terms, we typically find that either noun phrase can occupy the structural subject position:

(6)   a.   The agreement facts are my biggest worry.
        b.   My biggest worry is the agreement facts.

A descriptive generalisation covering English double-NP specificational copular sentences is that the copula never agrees in [NUMBER] with the noun phrase to its *right*. But does this mean that the copula in (6b) engages in a Spec–Head agreement relation with the predicate nominal to its *left*, which (on what is today firmly in place as the consensus view) occupies the structural subject position, Spec,TP?
     Den Dikken (2006, 2014, 2019) argues for English (and, following this work, Béjar and Kahnemuyipour 2017 do so for Eastern Armenian and Persian) that in double-NP copular inversion constructions such as (6b), what is raised to the structural subject position is a complex constituent projected by a null predicate head, as shown in (7).

(7)   [TP [PRED Ø [my biggest worry]]$_1$ [T′ T+RELATOR=be [RP the agreement facts [R′ t_{REL} t_1]]]]]

The occupant of Spec,TP in (7) is a null-headed DP that is not equipped with the necessary featural wherewithal to make it a possible Agree-goal for T.[2] So on this approach to (6b), the singular form of the copula here is a default form, NOT the reflex of a Spec–Head agreement relation between T and the occupant of Spec,TP.
     VP ellipsis is unacceptable in this variety of double-NP specificational copular sentences.[3] To see this, first consider the non-elliptic examples in (8) and (9), each of which is judged as acceptable. In each case, the precopular constituent in the second coordinand bears contrastive focus, making the postcopular constituent in the second coordinand discourse-anaphoric, and therefore potentially elidable. VP ellipsis is indeed permitted in the a-examples (see (10a) and (11a)), yet is prohibited in the b-examples (see (10b) and (11b)).

(8)   a.   For this theory, the AGREEMENT facts have turned out to be my biggest worry; for that theory, the ELLIPSIS facts have turned out to be my biggest worry.
        b.   For this theory, MY biggest worry has turned out to be the agreement facts; for that theory, YOUR biggest worry has turned out to be the agreement facts.

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[2] 'Ø' in (7) is not *pro* (which is plainly in possession of φ-features) but some silent noun (PERSON or THING, *à la* Kayne 2005).

[3] Mikkelsen (2005: Section 6.3) is perhaps first to consider the degraded nature of VP ellipsis in specificational copular sentences. However, her examples are not unequivocal specimens of VP ellipsis because they preserve the finite form of *be*, as the examples below demonstrate.

(i)   * The fact that the tallest player is Harry doesn't mean that the best player is <him>.
(ii)   * I know that the lead actress in that movie is Ingrid Bergman, and I think the one in Double Indemnity is <her>, too.

(9) a. FOOD SHORTAGES frequently seem to be the trigger of political protest; CORRUPTION often seems to be the trigger of political protest, too.

b. The trigger of political protest frequently seems to be food shortages; ironically, the OUTCOME of such protest often seems to be food shortages, too.

(10) a. For this theory, the AGREEMENT facts have turned out to be my biggest worry; for that theory, the ELLIPSIS facts have <turned out to be my biggest worry>.

b. * For this theory, MY biggest worry has turned out to be the agreement facts; for that theory, YOUR biggest worry has <turned out to be the agreement facts>.

(11) a. FOOD SHORTAGES frequently seem to be the trigger of political protest; CORRUPTION often does <seem to be the trigger of political protest>, too.

b. * The TRIGGER of political protest frequently seems to be food shortages; ironically, the OUTCOME of such protest often does <seem to be food shortages>, too.

Why is VP ellipsis permitted in the predicative copular clauses but prohibited in the specificational ones? Assuming that Den Dikken (2006, 2014, 2019) is correct, the crucial difference between the predicative and specificational copular clauses in (8) to (11) is that T and the occupant of Spec,TP engage in a Spec–Head relationship in the predicative cases but not in the specificational ones. VP ellipsis is sensitive to this distinction, suggesting that Spec–Head agreement between the ellipsis licensor T and its specifier is required to formally license English VP ellipsis.

There are examples in the literature on copular inversion in English in which the finite verb is clearly inflected for [+PLURAL] number. One such case is (12) (from Heycock 2012).

(12) My favourite authors {are/*is} Austen and Heller.

For such examples, Heycock (2012) argues that the copula agrees in number with the precopular noun phrase. Den Dikken (2019) suggests that this is possible thanks to the fact that the Ø-head of the fronted constituent in (7) can obtain a [+PLURAL] specification in (12) under concord with *authors*. So, in (12), 'Ø' in the structure in (7) is endowed via concord with a specification for number, which makes it possible for the precopular constituent in (12) to engage in a Spec–Head agreement relation for number with T. This being the case, we expect ellipsis of the postcopular material in (12) to be acceptable. Let us check if this is indeed the case.

Once again, we need to set things up carefully by constructing examples in which contrastive focus falls on a subpart of the raised predicate nominal rather than on the postcopular subject. (13b) is our baseline sentence to verify that it is possible in a copular inversion construction with an agreeing precopular plural (just as in a canonical copular sentence of this sort; see (13a)) to make the postcopular material entirely discourse-anaphoric, and therefore potentially elidable.

(13) a. Twenty years ago, Austen and Heller were my favourite authors; nowadays, TOLSTOY AND CHEKHOV are my favourite authors.

b. Twenty years ago, MY favourite authors were Austen and Heller; nowadays, MY DAUGHTER'S favourite authors are Austen and Heller, too.

The sentences in (14) are the elliptical counterparts to those in (13). Importantly, (14b) is judged as acceptable.[4]

(14) a.   Twenty years ago, Austen and Heller were my favourite authors; nowadays, TOLSTOY AND CHEKHOV are <my favourite authors>.
      b.   Twenty years ago, MY favourite authors were Austen and Heller; nowadays, MY DAUGHTER'S favourite authors are <Austen and Heller>, too.

This is additional strong support of the idea that VP ellipsis is possible only if there is Spec–Head agreement between T and the occupant of SpecTP.

2.2. *There-existentials*

The element *there* can famously take the structural subject position in existential sentences seemingly without controlling φ-feature agreement with T:

(15) a.   There are many problems with this analysis.
      b.   There seem to be many problems with this analysis.

In (15), it is *many problems*, the notional subject which is clearly not in Spec,TP, which is in a φ-feature relationship with T for number. The 'expletive' *there*, by consensus the occupant of Spec,TP, seems not to engage in φ-agreement with T. But Chomsky (2000: 125) proposes that *there* does actually check φ-features against T: person features. Chomsky takes this to be responsible for the fact that the 'associate' of *there* must be third person.

As is well-documented (see, for instance, Johnson 2001), VP ellipsis is permitted in *there-*existentials. Assuming that Chomsky (2000: 125) is correct, this observation is expected according to our proposal. VP ellipsis is formally licensed in the comparative clause in (16) because T has its uninterpretable φ-features valued for person.

(16) Yesterday there seemed to be more problems than there do <seem to be> today.

One might suggest that T in (16) can license VP ellipsis not because it engages in a φ-agreement relationship with *there* (along the lines of (3)), but because it engages in a solely 'EPP-based' relationship with *there*. The copular inversion data from the previous subsection militate against this alternative. If T engaging in an EPP-based relationship were sufficient for transforming it into an ellipsis licensor, then VP ellipsis would be permitted in all specificational copular clause configurations, as the predicate's occupation of Spec,TP is the result of T and the fronted predicate engaging in an EPP-based relationship. The fact that VP ellipsis is only permitted in a proper subset of specificational copular clauses shows that satisfying the EPP condition by having a filled Spec,TP position does not endow T with ellipsis-licensing capabilities.

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[4] To keep them simple, the examples in (14) were given a finite form of *be*. This makes them not fully parallel to (11). Readers concerned that (14) is better than (11) merely because the copula is preserved by ellipsis are referred ahead to the examples in (25) and (31a), which involve non-finite *be* included in the VP ellipsis site.

2.3. *Locative inversion*

Locative inversion configurations such as (17b) present another case of an 'unusual' subject. From Bresnan's (1994) work, we know that locative inversion has A-properties. We see this in (17b), in which the locative PP appears to undergo raising out of the complement of *used to*. However, locative inversion is highly restricted in its distribution: in particular, unlike typical cases of raising, it cannot take place within the confines of an infinitival clause, as (18) shows.

(17) a. The Confederate flag used to fly on this building.
　　 b. On this building used to fly the Confederate flag.

(18) a. I believe [the Confederate flag to have flown on this building].
　　 b. * I believe [on this building to have flown the Confederate flag].

Many have taken this to indicate that the fronted PP in (17b) does not itself occupy the structural subject position, Spec,TP. Instead, the overt PP occupies an A′-position in the left periphery of the clause, with the structural subject position being occupied by a silent proform linked to the initial PP (see Den Dikken 2006 for a detailed proposal and references to the relevant literature):

(19) [$_{PP}$ on this building] [$_{TP}$ Ø$_1$ [$_{T'}$ T [... [$_{RP}$ the Confederate flag t_1]]]]

Again, the question that arises is whether the occupant of the structural subject position in (19) engages in a Spec–Head relation with T. The Bantu languages exhibit morphological agreement between T and the fronted locative (which, in Bantu, is nominal and in Spec,TP); but English does not, so for English we cannot settle the matter on morphological terms.
　　What has gone unreported until now is the observation that VP ellipsis is prohibited in locative inversion configurations. To see this, first consider the non-elliptic example in (20a), which is judged as acceptable. In this case, an item inside the fronted locative phrase in the second coordinand bears contrastive focus, making the material after finite T in the second coordinand discourse-anaphoric, and therefore potentially elidable. When VP ellipsis occurs, as in (20b), the sentence is judged as unacceptable.

(20) a. On THIS building used to fly the Confederate flag, and on THAT building used to fly the Confederate flag, too.
　　 b. * On THIS building used to fly the Confederate flag; on THAT building did <used to fly the Confederate flag>, too.

The unacceptability of (20b) can be further underscored by comparing the examples in (20) to their *there*-existential counterparts in (21). The fact that the only difference between (20b) and (21b) is the occupant in Spec,TP (i.e. Ø versus *there*), and the fact that *there* engages in a Spec–Head relationship with T, points directly to the conclusion that Ø and T do not engage in a Spec–Head relationship in (20b), and that this is what prevents VP ellipsis from being licensed.[5]

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[5] In capitalizing on the null occupant of Spec,TP in locative inversion constructions, Bruening's (2010) approach to facts of the type in (20) and (21) agrees with ours. Bruening does not, however, assimilate the locative inversion facts to the other cases discussed in our paper in which VP ellipsis fails as a consequence of the absence of a Spec–Head agreement relationship involving the ellipsis-licensing head: for him, it is the licensing of the null element in Spec,TP

(21) a. On THIS building there used to fly a Confederate flag, and on THAT building there used to fly a Confederate flag, too.

b. On THIS building there used to fly a Confederate flag, and on THAT building there did \<used to fly a Confederate flag\>, too.

2.4. *Multiple (auxiliary) verbs*

In this section, we presented three cases of 'unusual subjects', i.e. cases in which the occupant of Spec,TP is not the notional subject of the clause. We demonstrated that, in two of these cases (standard copular inversion and locative inversion), VP ellipsis is not licensed; in *there*-existentials, by contrast, VP ellipsis is permitted. This ellipsis pattern falls out from the central hypothesis on which this paper is based, that in order for T to be able to license VP ellipsis it must engage in a Spec–Head agreement relationship with the occupant of its specifier position. In *there*-existentials, there is a [PERSON] φ-agreement relation between T and *there*, in line with what Chomsky (2000) had hypothesized (but not confirmed). In standard copular inversion and locative inversion constructions, on the other hand, the constituent in Spec,TP has a silent, featureless head which cannot establish a Spec–Head agreement relationship with T. The fact that VP ellipsis is grammatical in copular inversion sentences in which the finite verb is inflected for [+PLURAL] number is the exception that proves the rule.

Before expanding the US data set to *to*-infinitives (Section 3) and British English *do* ellipsis (Section 4), we must spell out our position on an issue that we have avoided until now: namely, VP ellipsis with multiple (auxiliary) verbs.

It is standardly assumed that, in finite clauses, non-finite (auxiliary) verbs are not involved in the process of licensing VP ellipsis. One source of evidence for this assumption comes from contraction. As King (1970) first noted, VP ellipsis is unacceptable when the finite verb arises in a contracted form, as in (22), suggesting that contraction somehow robs an otherwise featurally complete T of its status as an ellipsis licensor.[6] Because non-finite verbs can undergo contraction without bleeding VP ellipsis, as in (23), one concludes that they are not ellipsis-licensors.

(22) * Paul'll arrive late and John'll \<arrive late\>, too.

(23)   Paul will've left early and John will've \<left early\>, too.

This idea receives novel support from US configurations, in which the presence of non-finite verbs between the finite verb in T and the ellipsis site does not change native-speaker judgements: VP ellipsis in 'bad' copular inversion configurations and locative inversion sentences is still

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that goes awry in locative inversion constructions with VP ellipsis (because locative inversion is a language-particular 'special purpose' construction in the sense of Baker (1991), and 'special purpose' contexts do not license the null element). This seems to us to approach the problem posed by (20) and (21) from the wrong angle: finite T is capable of licensing Ø in Spec,TP in (19); T is preserved when ellipsis of its complement is attempted, so the licensing of Ø should not be affected by ellipsis. The problem with (20b) is not the licensing of Ø in Spec,TP but rather the fact that Ø does not have the featural baggage to engage T in the Spec–Head agreement relationship needed to endow T with the ability to license VP ellipsis.

[6] We do not offer a novel explanation of King's (1970) observation here. See Thoms et al. (2019) for a recent analysis and relevant references.

unacceptable (24), and VP ellipsis in 'good' copular-inversion configurations and *there*-existentials is still acceptable (25).

(24) a. * For this theory, YOUR biggest worry should have been the agreement facts; for that theory, KATE'S biggest worry should (have (been)) <the agreement facts>.
      b. * The TRIGGER of the political protest might have been food shortages; ironically, the OUTCOME of the protest might (have (been)) <food shortages>, too.
      c. * On THIS building should have been flying the Confederate flag; on THAT building should (have (been)) <flying the Confederate flag>, too.

(25) a. At the time, MY favourite authors will have been Austen and Heller. And MY DAUGHTER'S favourite authors will have (been) <Austen and Heller, too>.
      b. Even though some people are saying that there SHOULD have been a Confederate flag on this building, plenty more people are saying that there SHOULDN'T have (been) <a Confederate flag on this building>.

Although the data in (22) to (25) strongly suggest that T licenses VP ellipsis in multiple verb configurations, comprehensive studies of VP ellipsis across and within English dialects have shown that VP ellipsis can target any predicate-denoting functional projection in the inflectional domain (Thoms 2010, 2019, Sailor 2014).[7] We therefore stipulate that:

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[7] *Being* cannot usually be the closest verb to the VP ellipsis site (Akmajian and Wasow 1975, Sag 1976):

(i)   * Karen is being groomed for success and Keisha is being <groomed for success>, too.

Many researchers have interpreted these data as revealing a lower bound on predicate ellipsis in the inflectional domain: the lowest phrase in this domain that ellipsis can target (call it ProgP) necessarily includes *being* (Harwood 2013, Bošković 2014, Sailor 2014, Aelbrecht and Harwood 2015).

    Additional data suggest that these analyses are incorrect, however. Firstly, the constraint on *being* observed in (i) applies to other *-ing* forms, such as gerundive *have* (ii) and British English *do* (iii) (see Section 4 for further discussion of *do* ellipsis). Secondly, an *-ing* form can appear outside of the ellipsis site if it is not the closest verb to the ellipsis site ((iv) and (v)) (Baker et al. 1989) or if the elided clause stands in a particular contrastive relation to its antecedent (at least in British English, see Aebrecht and Harwood 2015: 92 and Thoms 2019: 1029 for further discussion), as in (vi) to (x) show ((iv) to (ix) were procured from the Internet).

(ii)   * Karen having not passed the exam but Keisha having <passed it> is a surprising state of affairs.
(iii) * Matthew is sitting quietly, and Luke is doing <sit quietly>, too.
(iv)   With John having been sacked, and with Pete having been <sacked> too, the office felt rather empty.
(v)   With Pete having been sacked but John {having not been / not having been} <sacked>, the world seemed unfair.
(vi)   Remember, always be respectful and courteous, even if the officer ISN'T being <respectful and courteous>.
                                                                              (also reported in Aelbrecht and Harwood 2019)
(vii)   This is the relationship they choose to have, he was dishonest about it to start with, now he ISN'T being <dishonest about it>.
(viii)   Otherwise you may have some integrity problems because the key that apparently should be enforced actually ISN'T being <enforced>.   (also reported in Aelbrecht and Harwood 2019)
(ix)   Just because you couldn't see the house being watched doesn't mean it WASN'T being <watched>.
(x)   A: Why don't you sit quietly?   B: I am doing <sit quietly>!   (Quirk et al. 1985: 875)

Because *-ing* in gerund clauses does not express progressive aspect, it cannot be the case that (ii) is unacceptable for reasons related to ProgP's position in the functional sequence. Also, because it involves ellipsis of VP (see Section 4), ProgP will always be outside of the ellipsis site in British English *do* configurations. Thus, it cannot be the case that (iii) is unacceptable because ProgP is outside of the ellipsis site. Furthermore, the syntactic analyses offered in

(26) If the highest head H in an inflectional prolific domain (Grohmann 2000)/extended projection (Grimshaw 2000 [1991]) α is featurally complete, then any predicate-denoting functional projection comprising α can undergo ellipsis.[8]

Assuming that the inflectional domain in English consists of the functional projections PerfP, ProgP, and VoiceP (Bjorkman 2011), ellipsis of any of these projections is syntactically licensed when T is featurally complete.[9]

In addition to licensing ellipsis anywhere in its local domain, we will argue in the next two sections that T can also confer ellipsis-licensing capabilities on a functional head H *outside* of its local domain via engaging with H in an Agree relationship or by being in the same Agree-chain as H.

3. Unusual Subjects and VP ellipsis in *to*-infinitives

3.1. *Raising*

It is well-known that if VP ellipsis is permitted in the matrix clause of a raising construction, it is permitted in the *to*-infinitive clause:[10]

Harwood (2013), Bošković (2014), Sailor (2014), and Aelbrecht and Harwood (2015) make the strong prediction that *being* can never appear outside of the ellipsis site, which is falsified by the examples in (vi) to (ix).

Seeing as the '-*ing* constraint' clearly cannot be explained by appealing to a lower bound on predicate ellipsis in the inflectional domain, we refrain from positing a lower bound in this paper.

[8] Based on the fact that there is clear evidence each of the predicate-denoting functional projections inside DP can be targeted for ellipsis (Saab 2019), it seems feasible that (26) also correctly describes the behaviour of nominal ellipsis (for the licensing conditions on nominal ellipsis in English, see Lobeck 1995).

[9] Merchant (2008a, 2013) argues that VP ellipsis always targets *v*P, which is (as a reviewer points out) incompatible with (26). This claim is based on his syntactic analysis of voice mismatches under ellipsis. However, a pragmatic analysis of voice mismatches, which Merchant (2013) discusses but inadequately dispels, seems more promising, especially when one considers that (a) voice mismatches are tolerated under VP ellipsis only in certain discourse configurations (Kehler 2002), (b) voice mismatches are also tolerated under pseudogapping in many of the same discourse configurations that VP ellipsis voice mismatches are (i) (Tanaka 2011; see also Merchant 2008a: fn. 4), and (c) voice mismatches are not tolerated under VP ellipsis in those discourse configurations that ordinarily license clausal ellipsis ((ii) to (iv)) (thus undermining any appeal to a syntactic analysis of voice mismatches, as the possible import of discourse on licensing voice mismatches is an irremovable confound).

(i) The arms were hidden by the rebels as a woman would (do) her most precious jewels.

(Merchant 2008a: fn.4, originally from Miller 1991: 94)

(ii) * I just heard that someone murdered John, and we already know by whom Pete was <murdered>. Could Pete's murderer also be John's?

(ii) * John's been murdered by someone, but we don't know who has <murdered him>.

(iv) A: Pete's been murdered by someone.
      B: * Yeah, John has <murdered him>.

These facts cast doubts on Merchant's syntactic analysis, according to which voice mismatches should always be permitted in VP ellipsis and never permitted in pseudogapping. See Sailor (2014) for detailed discussion of voice mismatches under VP ellipsis and for a more sophisticated syntactic analysis.

[10] *Modulo* an extraneous constraint on copular clausal *to*-infinitives, which prohibits the functional projection headed by *be* from undergoing ellipsis (see (i)). The reason for this is clear: when *be* does not raise to T, it heads a predication

(27) Paula {will seem / is likely} to like cheese. And …
  a.   ALICE {will / is} <{seem / likely} to like cheese>, too.   [matrix VP ellipsis]
  b.   ALICE {will seem / is likely} to <like cheese>, too.   [embedded VP ellipsis]

By extending the basic US data set presented in the previous section to raising configurations, we can present novel evidence showing that the converse situation also obtains: if VP ellipsis is not permitted in the matrix clause of a raising construction, it is not permitted in the *to*-infinitive clause, either. For example, the 'bad' copular inversion and locative inversion configurations from Section 2 remain unacceptable regardless of whether VP ellipsis occurs in the matrix or embedded clause, as (28), (29), and (30) show. Similarly, the 'good' copular inversion configurations from Section 2 are acceptable regardless of whether VP ellipsis occurs in the matrix or embedded clause (31).

(28) For this theory, YOUR biggest worry {seems / is likely} to be the agreement facts; for that theory…
  a. * KATE'S biggest worry {does / is} <{seem / likely} to be the agreement facts>.
      [matrix VP ellipsis]
  b. * KATE'S biggest worry {seems / is likely} to be <the agreement facts>.
      [embedded VP ellipsis]

(29) The TRIGGER of the political protest {seems / is likely} to be food shortages; ironically…
  a. * the OUTCOME of the protest {does / is} <{seem / likely} to be food shortages>, too.
      [matrix VP ellipsis]
  b. * the OUTCOME of the protest {seems / is likely} to be <food shortages>, too.
      [embedded VP ellipsis]

(30) On THIS building used to fly the Confederate flag; …
  a. * on THAT building did <use to fly the Confederate flag>, too.   [matrix VP ellipsis]
  b. * on THAT building used to <fly the Confederate flag>, too.   [embedded VP ellipsis]

(31) Kevin's favourite authors {appear / are likely} to be Austin and Heller. And…
  a.   Kat's favourite authors {do / are} <{appear / likely} to be Austin and Heller>, too.
      [matrix VP ellipsis]
  b.   Kat's favourite authors {appear / are likely} to be <Austin and Heller>, too.
      [embedded VP ellipsis]

  In addition to permitting matrix VP ellipsis, *there*-existential raising constructions also permit VP ellipsis in the embedded clause. This is slightly harder to demonstrate, due to confounding factors. In particular, ellipsis is preferred for independent reasons when the presence of focus on the raising verb precludes VP ellipsis in the matrix clause (reminiscent of Merchant's 2008b *MaxElide* constraint) (compare the examples in (32)).

---

structure, rather than a predicate (in Den Dikken's 2006 terms, *be* heads the RELATOR phrase). Because VP ellipsis always targets a predicate, and since the complement of *to* in copular clausal *to*-infinitival clauses is not a predicate but a RELATOR phrase, the phrase headed by *be* cannot be elided.

(i) * John {seems/pretends} to be a genius. Pete {seems/pretends} to <be a genius>, too.

(32) a. A: Are there likely to be any philosophers at the party?
       B: No, there AREN'T \<likely to be any philosophers at the party\>.
       B′: ? No, there AREN'T likely to be \<any philosophers at the party\>.

   b. A: Will there be any philosophers at the party?
       B: There aren't LIKELY to be \<any philosophers at the party\>, no.

   c. A: Will there be a lot of awkward dancing at the after-conference party?
       B: Don't worry! After a few drinks, there won't SEEM to be \<any awkward dancing at the party\>.

The empirical generalisation obtained from the examples in (27) to (32) is clear: if a raising DP can engage in a Spec–Head agreement relationship with T in the embedded clause (hence making infinitival T a suitable ellipsis licensor), the same DP can engage in a Spec–Head agreement relationship with T in the matrix clause (hence making matrix T a suitable ellipsis licensor). This generalisation therefore enjoins us to adopt a system of feature-sharing in raising constructions in which the matrix T and the phrase in its specifier are in a feature-sharing relationship with the T-head of the infinitival clause. Pesetsky and Torrego's (2004, 2007) proposal does precisely this.

In their system, infinitival T receives a value for INFL in precisely the same way that matrix T does in (3): T probes for value for its iTns feature, Agrees with the DP in Spec,vP, and receives that DP's INFL specification (33).

(33) *Step 1: Agree between T and DP, plus A-movement of DP*
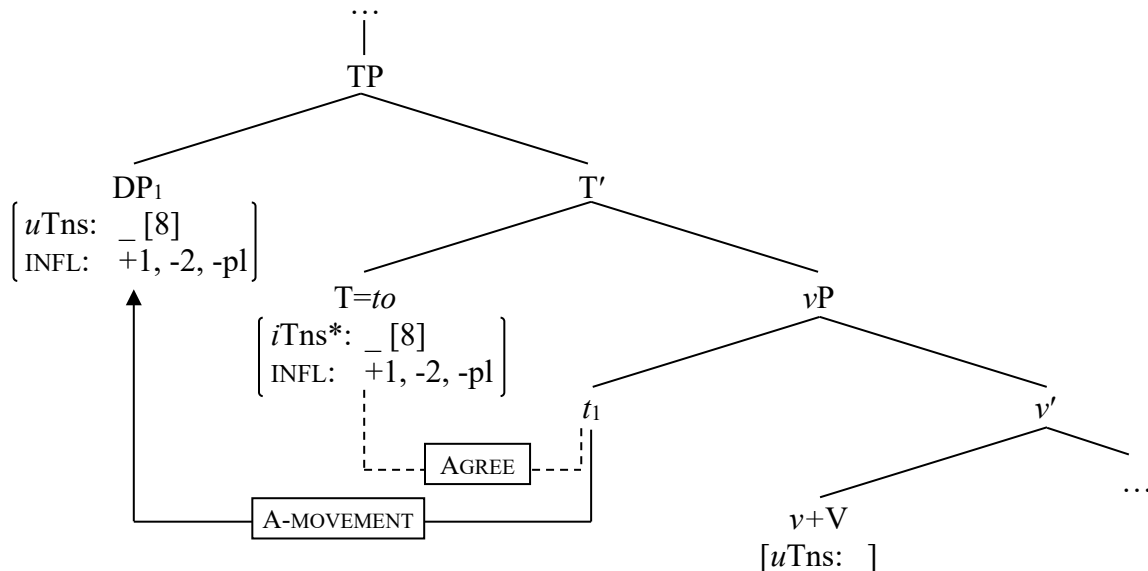
Recall that, in standard finite clauses, T values the uTns of the occupant of Spec,TP by first Agreeing with v. v values T's iTns feature, and then T passes this value onto the occupant of Spec,TP via the Agree-chain established between Spec,TP, T, and v (see (4)). This results in an

indirect but equitable exchange of features between T and the occupant of Spec,TP. The exchange of features between T and the occupant of Spec,TP in *to*-infinitive clauses is inequitable because Tns feature on *v* in *to*-infinitives is unvalued (Pesetsky and Torrego 2007). Therefore, infinitival T cannot receive a value for its *i*Tns feature in the same way that matrix T does, by Agreeing with *v* and then passing the value it receives on to the occupant of Spec,TP. Although T Agrees with *v*, this Agree relationship neither furnishes T with a value for its *i*Tns feature nor furnishes the *u*Tns feature on *v* with a value, as in (34). Therefore, at the point in the derivation before the matrix clause has been built, the DP in embedded Spec,TP still bears an unvalued *u*Tns feature, which will eventually trigger its A-movement to matrix Spec,*v*P. Also notice that, at this point in the derivation, infinitival T is not featurally complete despite the fact that it enters into a Spec–Head agreement relationship with the occupant of its specifier, and therefore it cannot license VP ellipsis.
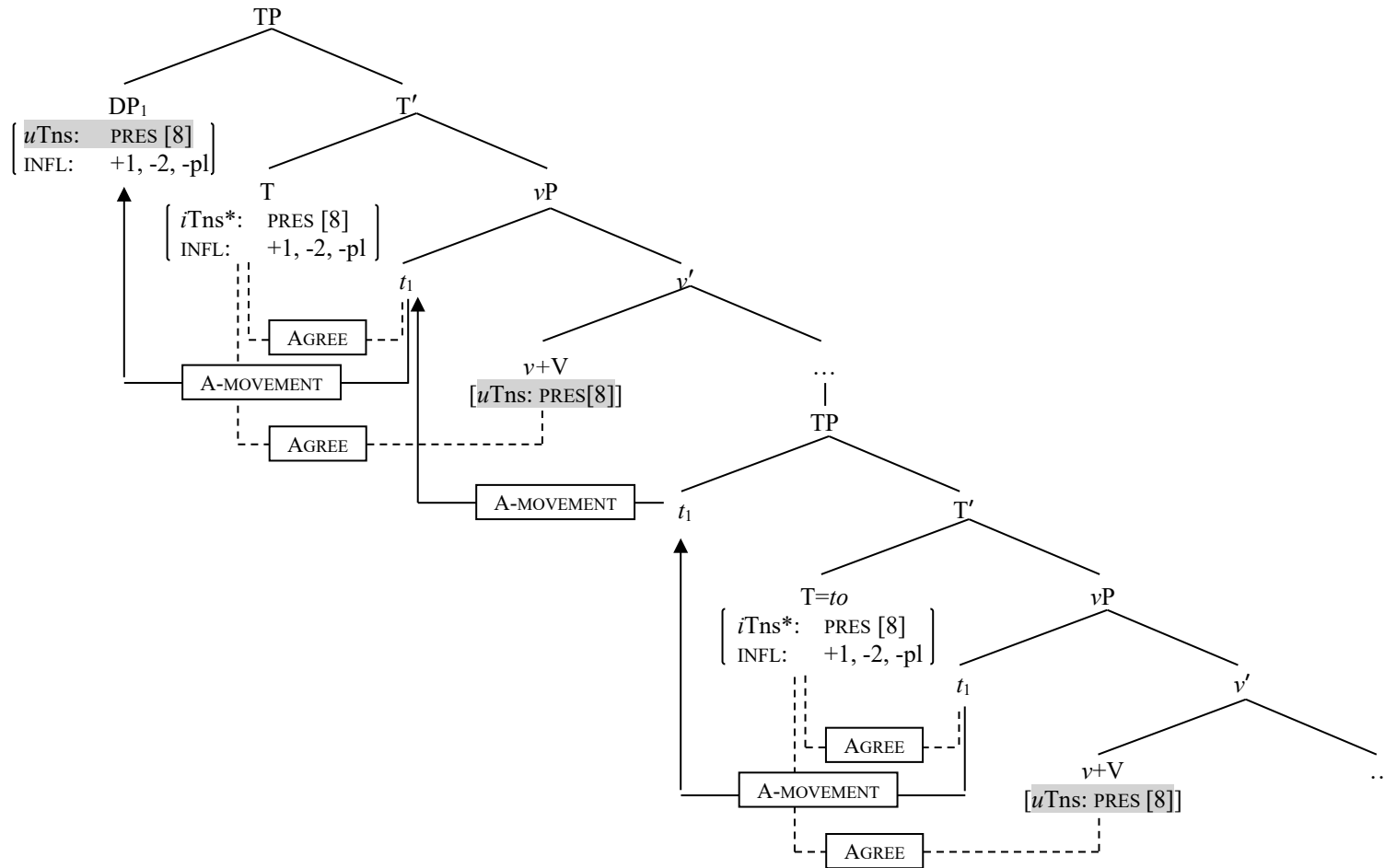
(34)   *Step 2: Agree between T and v*
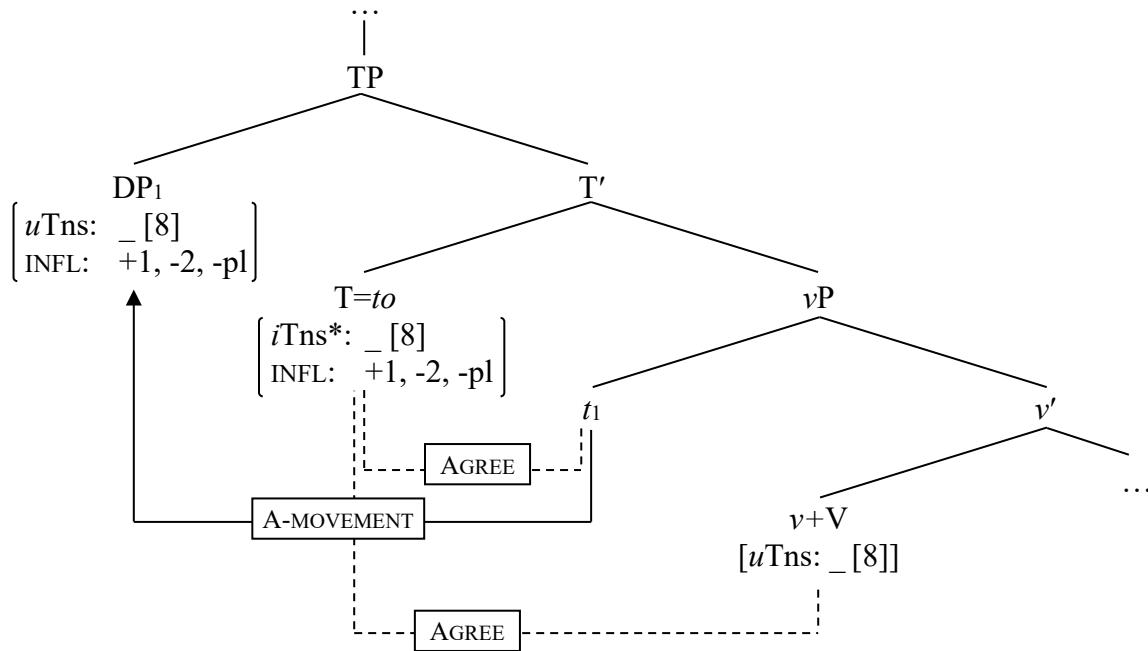
To become featurally complete, infinitival T must receive a value for its *i*Tns feature. In Pesetsky and Torrego's system, this occurs in an indirect fashion. After the DP in (34) A-moves to Spec,*v*P in the matrix clause, the 'double-probing' behaviour of T begins anew, this time with matrix T, and following the steps outlined already in (3) and (4). The important aspect of this process with regards to raising configurations is this: the raised DP in Spec,*v*P of the matrix clause is already a member of an Agree-chain (given the index [8] in (34)), namely with embedded T and embedded *v*. Therefore, when matrix T and the raised DP engage in an Agree relationship, matrix T becomes a member of the same Agree-chain. According to the core assumption of Pesetsky and Torrego's system that is listed in (1d), this entails that the value for Tns that matrix T receives when it Agrees with matrix *v* will be shared with every member of the Agree-chain, including the raising DP,

embedded *v*, and—crucially—infinitival T. With infinitival T finally receiving a value for its *i*Tns feature, it can now license VP ellipsis (35).[11]

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[11] It should be emphasized here that Tns is a semantic feature, whereas INFL pertains to morphology. Thus, an embedded verb can be specified as [Tns: PRES] yet still be realized in a non-finite form. See Pesetsky and Torrego (2007: 280) for discussion and justification of this idea.

(35) *Using raising to establish an Agree-chain for Tns across the matrix/embedded clause boundary*

$$
\begin{array}{l}
\text{TP} \\
\quad \text{DP}_1 \\
\quad \left[\begin{array}{ll} u\text{Tns:} & \text{PRES [8]} \\ \text{INFL:} & +1, -2, -pl \end{array}\right] \\
\quad \text{T'} \\
\qquad \text{T} \\
\qquad \left[\begin{array}{ll} i\text{Tns*:} & \text{PRES [8]} \\ \text{INFL:} & +1, -2, -pl \end{array}\right] \\
\qquad \text{AGREE} \\
\qquad \text{A-MOVEMENT} \\
\qquad \text{AGREE} \\
\qquad vP \\
\qquad\quad t_1 \\
\qquad\quad v' \\
\qquad\qquad v+V \\
\qquad\qquad [u\text{Tns: PRES[8]}] \\
\qquad\qquad \dots \\
\qquad\qquad \text{TP} \\
\qquad\qquad\quad \text{A-MOVEMENT} \quad t_1 \\
\qquad\qquad\quad \text{T'} \\
\qquad\qquad\qquad \text{T=}to \\
\qquad\qquad\qquad \left[\begin{array}{ll} i\text{Tns*:} & \text{PRES [8]} \\ \text{INFL:} & +1, -2, -pl \end{array}\right] \\
\qquad\qquad\qquad \text{AGREE} \\
\qquad\qquad\qquad \text{A-MOVEMENT} \\
\qquad\qquad\qquad \text{AGREE} \\
\qquad\qquad\qquad vP \\
\qquad\qquad\qquad\quad t_1 \\
\qquad\qquad\qquad\quad v' \\
\qquad\qquad\qquad\qquad v+V \\
\qquad\qquad\qquad\qquad [u\text{Tns: PRES [8]}] \quad \dots
\end{array}
$$

To summarize: to become featurally complete, embedded T receives a value for its *i*Tns feature through being a member of an Agree-chain that includes the matrix *v*. In essence, this means that embedded T's ellipsis-licensing capabilities in raising configurations are contingent on T being in a sufficiently local relation with matrix *v*. Readers familiar with Zagona's (1988) and Lobeck's (1995) analyses of VP ellipsis licensing will recognize the similarities between their approaches and our own. Although Zagona's and Lobeck's analyses differ in terms of the technical details, each approach postulates that infinitival T must be local enough to matrix V for V's head-governing status to be conferred on infinitival T. Our approach therefore revives aspects of this idea in current theoretical terms.

3.2. *Control*

Unfortunately, none of the US configurations introduced in Section 1 support control predicates, as only referential DPs can be controllers, and our unusual subjects are either expletives or raised predicates. Therefore, we cannot bring novel observations from the US data set to bear on the issue of how embedded VP ellipsis is formally licensed in control configurations. Instead, we use this subsection to support the particular 'featurally complete' analysis we are advocating by demonstrating how it provides a natural explanation for the known distribution of embedded VP ellipsis in control configurations.

For the sake of this discussion, we will adopt the Movement Theory of Control (MTC; see Boeckx et al. 2010). We do this solely for expositional purposes. Although we endorse the classic PRO theory of control more generally, for the reasons catalogued in Idan Landau's work (e.g. Landau 2003, 2007) and because the MTC must allow movement to target theta-positions and relies on the unconventional structure-building operation of Sideward Movement, a number of technical innovations are required to make the classic PRO theory compatible with Pesetsky and Torrego's (2007) feature-sharing system, and we wish to avoid the long and distracting digression required to introduce any new technical apparatus.

The MTC subsumes obligatory control into *to*-infinitive complement clauses under A-movement (the difference between traditional control and raising being whether the landing site of A-movement is a theta-position or not). This entails that the analysis advanced in the previous subsection extends to such control constructions without modification: embedded VP ellipsis is licensed whenever matrix VP ellipsis is, as illustrated in (36), as the raising DP will engage in a Spec–Head agreement relationship with both infinitival T and matrix T.

(36) Julia has promised her doctor to quit smoking, and …
    a.   PAULA has <promised her doctor to quit smoking>, too.   [matrix VP ellipsis]
    b.   PAULA has promised HER doctor to <quit smoking>, too.   [embedded VP ellipsis]

In configurations in which an A-movement analysis of control is infeasible due to locality constraints on A-movement, the MTC posits an instance of *pro*. According to the analysis of VP ellipsis licensing adopted in this paper, the observation that ellipsis is permitted in the absolute and subject gerund clauses in (37) to (39) demonstrates that (i) *pro* can engage in a Spec–Head relationship with gerundive T and (ii) *v* in the gerund clause has a valued *u*Tns feature. We stipulate here that, when *v* in a non-finite clause cannot obtain a Tns value from a finite superordinate clause (because the non-finite clause is not a complement to V), the Tns feature on *v* comes pre-valued (remaining somewhat ambivalent about the precise nature of this value, we call this value NONFIN,

for 'non-finite'). In these configurations, the sharing and checking of Tns features and INFL on each head/phrase occurs in exactly the same manner as in the 'good' raising constructions from the previous sections (to see this, compare (40) and (35)). Notice that a pronominal DP whose uTns feature receives the value NONFIN can actually be phonologically realized in two ways, either as silence (i.e. *pro*) or as an accusative pronoun: each of the *pro*s in (37) to (39) can be replaced by an appropriate accusative pronoun (as the reader can verify for herself).

(37) By *pro*$_{i/1}$ wanting t_1 to finish the game quickly, and sometimes by *pro*$_{i/2}$ NOT wanting t_2 to <finish the game quickly>, John always wins at chess.
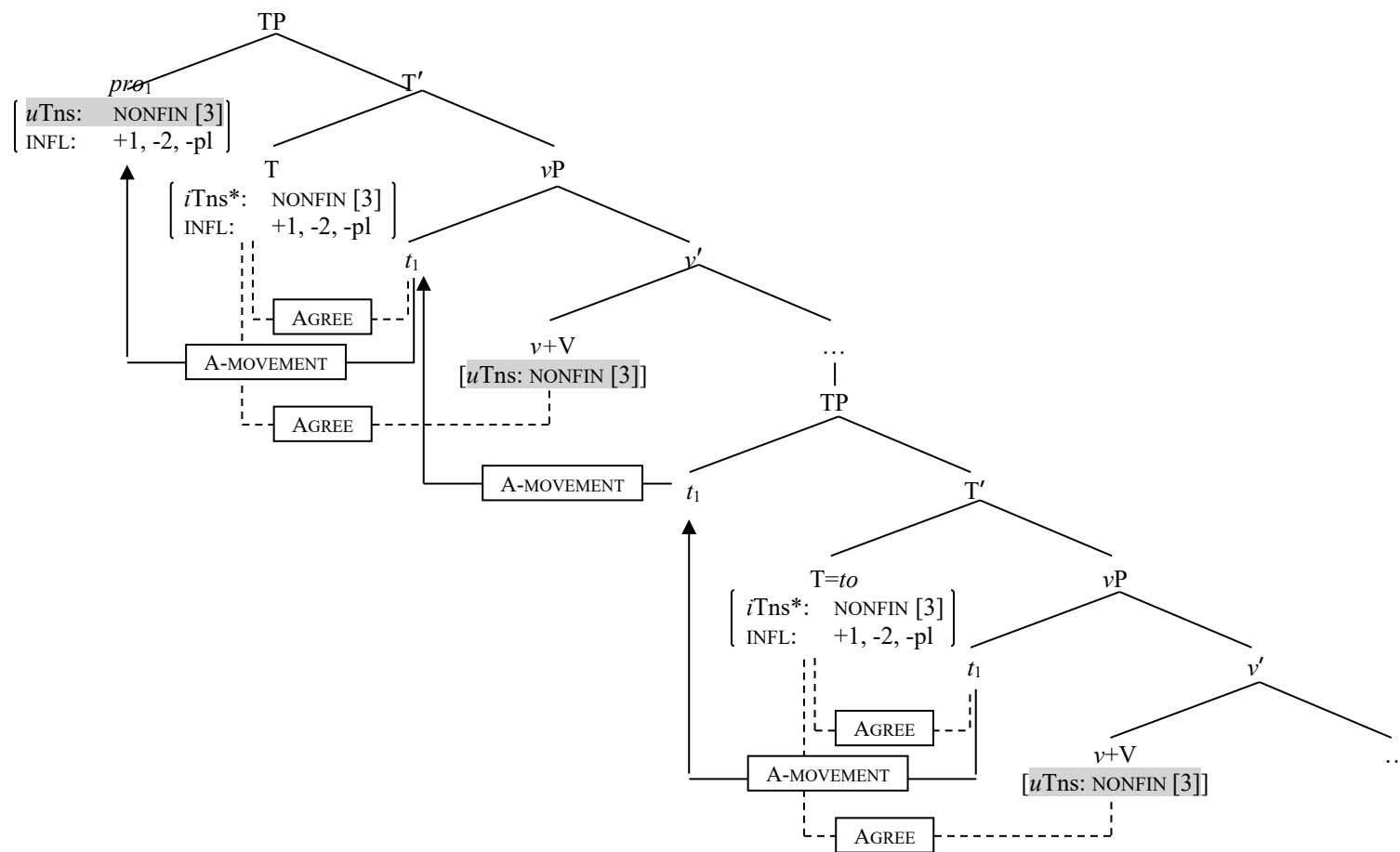
(38) A: I want to swim naked.
       B: You$_i$ should do it! *pro*$_{i/1}$ wanting t_1 to <swim naked> is all the justification you need.

(39) A: I$_i$ promised to wash dishes tonight.
       B: Well [*pro*$_{1/i}$ promising t_1 to <wash the dishes>] legally implores you to <wash them>. So get in the kitchen!

(40) *'Little' pro raising from a* to-*infinitive clause into a gerund clause*

Following the logic of the MTC, *to*-infinitive clauses that are not complements to V must also contain *pro*, as no A-movement is permitted from them. Do such clauses, which are exemplified by the subject clause in (41a), the infinitival relative in (41b), the rationale clause in (41c), and the purpose clause in (41d), contain a *pro* with a [*u*Tns: NONFIN] feature (as in the gerund cases in (37) to (39)), or a *pro* with different featural make-up?

(41) a.   You shouldn't play with rifles, because [*pro* to play with rifles] is dangerous.
      b.   For advice on this matter, Jimmy would be a good person to call. But Saul would be a BAD person [*pro* to call].
      c.   John runs to stay fit, whereas Pete SWIMS [*pro* to stay fit].
      d.   Mary bought a futon to sleep on, whereas Brian bought a WATERBED [*pro* to sleep on].
                                                                (examples adapted from Lobeck 1995: chapter 6)

The first indication that these *pro*s differ from those in the gerundive cases comes from the observation that, unlike the gerundive *pro*s, the *pro*s in (41) cannot be replaced with an overt accusative pronoun (for instance, **John runs him to stay fit* is unacceptable). We interpret this as showing that these *pro*s are similar to the traditional PRO insofar as they do not come pre-specified with inflectional features that serve as instructions for Vocabulary Insertion at PF, but instead gain the φ-feature values relevant to their semantic interpretation via a referential binding procedure that happens at LF. This entails that, when such a *pro* Agrees with infinitival T, it will not provide T with a value for INFL (42).

(42)   *Feature interactions in a* to-*infinitive that is not the complement of V*
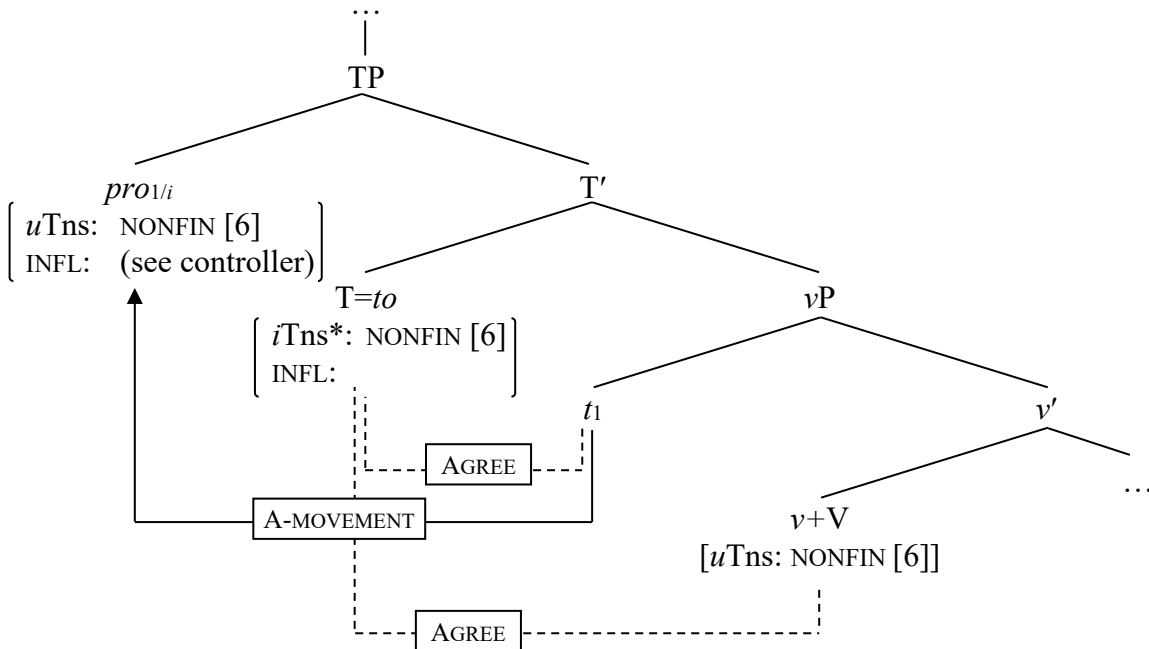
In non-elliptical contexts, the absence of a value for the INFL specification on T does not result in a derivation crashing at the interfaces (as the copular inversion sentences discussed in Section 2 have already shown). However, if our 'featurally complete' analysis is correct, having an unvalued

INFL specification should prevent infinitival T from licensing VP ellipsis. In other words, our analysis predicts that VP ellipsis is unacceptable in each of the bracketed clauses in (41). This prediction is correct, as Lobeck (1995) has already demonstrated (see Johnson 2001 for additional examples and discussion):

(43) a. * You shouldn't play with rifles because [*pro* to <play with rifles>] is dangerous.
      b. * For advice on this matter, Jimmy would be a good person to call. But Saul would be a BAD person [*pro* to <call>].
      c. * John runs to stay fit, whereas Pete SWIMS [*pro* to <stay fit>].
      d. * Mary bought a futon to sleep on, whereas Brian bought a WATERBED [*pro* to <sleep on>].   (examples adapted from Lobeck 1995: chapter 6)

In summary, we demonstrated in this subsection that our analysis of the formal licensing requirements on VP ellipsis can be easily extended to capture the distribution of VP ellipsis in

control configurations, once certain reasonably motivated stipulations are made about the featural composition of silent pronouns. [12,13]

[12] There are two other relevant claims that have been made about VP ellipsis in *to*-infinitives that we believe are incorrect. The first comes from Lobeck (1995), who states that VP ellipsis is bled in a *to*-infinitive clause that is the complement of V if the *to*-clause's COMP domain is occupied. The examples she provides to support this claim are presented in (i) to (iii) (from Lobeck 1995: 175).

(i)   * We wanted to invite someone, but we couldn't decide {who/which person} to <invite>.
(ii)   * We might go on vacation, if we can ever figure out {when/where} to <go on vacation>.
(iii)   * Ron wanted to wear a tuxedo to the party, but Casper couldn't decide whether to <wear a tuxedo to the party>.

Although VP ellipsis is undisputedly bled in (iii) (presumably for reasons unrelated to syntactic licensing), Lobeck is wrong to claim that VP ellipsis is bled in the *wh*-clauses in (i) and (ii). With respect to (ii), the acceptability of this judgement has always been contested: Zagona (1988: 101) cites (iv), which is very similar to (ii), as acceptable, as Johnson (2001) points out.

(iv)   John WANTS to go on vacation, he just doesn't know WHEN to <go on vacation>.   (stress added)

We submit that VP ellipsis is syntactically licensed in the *wh*-constructions in (i) and (ii), and that an independent semantic constraint on licensing VP ellipsis is responsible for the observed degradation in acceptability. In particular, the elliptical clauses and their antecedents in (i) and (ii) do not exhibit *scopal parallelism* (Griffiths and Lipták 2014, Messick and Thoms 2016). Once parallelism is obtained, the construction exemplified in (i) becomes fully acceptable:

(v)   I know which DOGSBODY to fire and also which MANAGER to <fire>.   (Griffiths 2019: 581)

        Another incorrect claim concerns VP ellipsis in *for–to* infinitives. Zagona (1988) and Lobeck (1995) both claim that VP ellipsis is impossible in adjunct *for–to* infinitives, respectively presenting the unacceptable examples in (vi) and (vii) as support.

(vi)   * Mary wants to get a raise, and her boss will have to evaluate her performance for her to <get a raise>.
                                                                                                                       (Lobeck 1995: 173)
(vii) * Mary hates to cook, so she buys groceries (in order) for Bill to <cook>.   (Zagona 1988: 100)

To be semantically licensed, VP ellipsis requires the elliptical clause and its antecedent to *Appropriately Contrast* (Rooth 1992, Stockwell 2018, Griffiths 2019). VP ellipsis fails in (vi) and (vii) because the adjunct *for–to* infinitive does not Appropriately Contrast with a suitable antecedent. When such a relation does obtain, ellipsis is fine:

(viii)   For MARY to get a raise, and also for SALLY to <get a raise>, their boss will have to evaluate their performance.
(ix)   (In order) for BILL to cook, and (in order) for SALLY to <cook>, we must buy some groceries from the supermarket.

[13] Aelbrecht and Harwood (2019: 508) claim that VP ellipsis is unacceptable in ECM configurations with stative predicates but is acceptable in ECM configurations with eventive predicates (compare (i) and (ii)).
(i)   * I consider Pam to like soccer, and I believe Rebecca to <like soccer>, as well.   (Martin 2001: 154)
(ii)   You have been corresponding with Robert. I could prove it, but I do not think you would wish me to.
                                                                                                                       (Aelbrecht and Harwood 2019: 508)
This claim is false: prototypical stative predicates can undergo VP ellipsis in ECM configurations, as (iii) demonstrates. The correct generalisation is more likely to revolve around tense (see Martins 2001 for remarks in this direction). For instance, (iii) is acceptable for this paper's first author on the reading where John/Bob will come to know the answer (i.e. *I expect John to know the answer by Tuesday*) but not on the epistemic reading (i.e. *I {expect/reckon/bet} that John knows the answer*). Because the empirical picture of VP ellipsis in ECM configurations is currently unclear, we refrain from extending our analysis to them in this paper.
(iii)   I expect John to know the answer. I expect Bob to <know the answer>, as well.

4. Unusual subjects and British English *do* ellipsis

British English *do* ellipsis is a form of predicate ellipsis that targets VP, the sister of *v* (Stroik 2001, Haddican 2007, Aelbrecht 2010, Baltin 2012). *Do* is the realisation of active *v* (44), and *v*'s realization as *do* is contingent on the presence of ellipsis (and vice versa).

(44) Thomas should get his eyes tested. And…
      Ellie₁ should [$_{vP}$ *t*₁ *v*=do <[$_{VP}$ get her eyes tested]>], too.

Recall from Section 2.4 that 'standard' VP ellipsis—i.e. ellipsis that targets a functional projection in the inflectional domain—is unacceptable when the finite verb arises in a contracted form, as shown in (45), suggesting that contraction somehow robs an otherwise featurally complete T of its status as an ellipsis licensor. What is relevant for the current discussion is the observation from Baltin (2012: 392) that *do* ellipsis is also unacceptable when the finite verb arises in a contracted form (and when no other licensor of predicate ellipsis is present) (46).[14] This strongly suggests that *do* ellipsis is either directly or indirectly licensed by T, even though the phrase targeted for ellipsis (i.e. VP) is in the thematic domain, not the inflectional domain.

(45) a. * Pete'll arrive late and John'll <arrive late>, too.
      b.   Pete'll have scored higher than 70 in the exam, I reckon. * John'll have <scored higher than 70 in the exam>, too.

(46) a.   I bet Pete'll arrive late. * I bet John'll do <arrive late>, too.
      b. * Pete'll have scored higher than 70 in the exam, I reckon. John'll have done <scored higher than 70 in the exam>, too.

Novel evidence from US configurations confirms this suggestion. To see this, consider the examples in (47) to (50).[15] As these examples show, *do* ellipsis patterns identically to 'standard' VP ellipsis in US configurations: like VP ellipsis, *do* ellipsis is unacceptable in copular inversion

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[14] Throughout this paper we have intentionally ignored the fact that sentential negation and certain instances of *never* are also licensors of English predicate ellipsis. These items can license ellipsis completely independently of T. For instance, if negation is present in a sentence, both standard VP ellipsis and *do* ellipsis can be licensed (*ceteris paribus*) regardless of whether or not the auxiliary verb in T is contracted (see (i) and (ii)). Sentential negation may also be responsible for circumventing the ban on VP ellipsis in copular inversion constructions: Mikkelsen (2005: Section 6.3) notes that while (iii) is ungrammatical, (iv) (her (55)) is relatively better (though she points out that the judgements here are unclear).

(i)   John'll arrive late, but Pete {will/'ll} not <arrive late>.
(ii)   John'll arrive late, but Pete {will/'ll} not do <arrive late>.
(iii) * Just because the tallest player on the team is Harry doesn't mean the best player is <him>, too
(iv)   Just because the best player on the team isn't Harry doesn't mean that the richest player isn't <him>.

[15] Because *do* realizes *v*, we must utilize US configurations that contain *v* to see how usual subjects interact with *do* ellipsis. Problematically, the basic configurations discussed in Section 2 do not contain *v*, as these are copular clauses. We circumvent this problem by using Usual Subject raising configurations, which do contain *v* and in which the raising predicate and its *to*-infinitive complement are targeted by *do* ellipsis. To provide a baseline showing that matrix *do* ellipsis is perfectly acceptable in standard raising constructions, see (i).

(i)   When you first meet him, John will seem to you to be a genius. PETE will (do) <seem to you to be a genius>, too.

constructions in which the matrix subject and T fail to engage in a Spec–Head agreement relationship (47), and, also like VP ellipsis, *do* ellipsis is acceptable in copular inversion constructions in which a Spec–Head agreement relationship is established (48). Similarly, *do* ellipsis is acceptable in *there*-existentials (49) and unacceptable in locative inversion configurations (50), just like VP ellipsis. Taken together, the interaction of unusual subjects and *do* ellipsis provides new evidence showing that *do* ellipsis is licensed by T.

(47) a. * For this theory, BOB'S biggest worry will {seem / be likely} to be the agreement facts; for that theory, KATE'S biggest worry will (do) <{seem / be likely} to be the agreement facts>.
    b. * The TRIGGER of the political protest might {seem / be likely} to be food shortages; ironically, the OUTCOME of the protest might (do) <{seem / be likely} to be food shortages>, too.

(48) KEVIN'S favourite authors might {appear / be likely} to be Austin and Heller. And KAT'S favourite authors might (do) <{appear / be likely} to be Austin and Heller>, too.

(49) Today there seem to be more problems than there will do <seem to be> tomorrow.

(50) * On THIS building would fly the Confederate flag; on THAT building would (do) <fly the Confederate flag>, too.

Adopting the 'featurally complete' analysis of VP ellipsis defended in Sections 1 to 3, we can formalize the idea that *do* ellipsis is indirectly licensed by T by stating that a featurally complete T confers ellipsis-licensing capabilities on *v*, the highest head in the thematic domain. This ability is conferred thanks to the fact that *v* and T independently form an Agree-chain for Tns features. Because T's reach is extended by exploiting an already-existing dependency, it is not required that *v* and T engage in an Agree relationship solely for the purposes of licensing ellipsis (unlike Aelbrecht's 2010 analysis of Dutch modal complement ellipsis and English VP ellipsis). [16]

Our exploration of the connection between unusual subjects and *do* ellipsis could feasibly end here, were it not for the fact that previous researchers have reached conclusions about licensing *do* ellipsis that are opposed to our own. In an effort to place our analysis of *do* ellipsis on as solid a foundation as possible, we will end this section by showing how these conflicting conclusions arise from misinterpretations of the *do* ellipsis data.

We begin with Aelbrecht's (2010) conclusion that *v* licenses *do* ellipsis completely independently of T. Her evidence for this comes from the observation that *do* ellipsis is licensed in a certain syntactic configuration in which VP ellipsis is purportedly not licensed, namely gerund clauses (compare (51) and (52)). [17]

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[16] Clearly, additional requirements must be satisfied for licensing VP ellipsis across inflectional domains via the T–*v* Agree relationship: (i) V cannot head-move into *v*, (ii) *v* must be specified as active, (iii) *v* must be overt. We leave the question of why these particular requirements obtain for future research.

[17] The judgements attributed to the sentences in (51) are taken from (Aelbrecht 2010). For this paper's first author, who is a native speaker of British English, each sentence is in (51) is completely acceptable.

(51) a. ? Max not having arrived yet and Morgan not having done <arrived yet> either, we decided to wait.
 b. ?? Max finally having arrived and Morgan also having done <arrived>, we could start ordering.
 c. ? Pat having shown up at the game and Pete not having done <shown up> was a surprise to everyone.
 d. ? Pat showing up at the game and Pete not doing <show up> was a surprise to everyone.
 e. ? Pat smoking again and Pete not doing <smoke> anymore was a surprise to everyone.
(Aelbrecht 2010: 197)

(52) a. * Max not having arrived yet and Morgan not having <arrived yet> either, we decided to wait.
 b. * Max finally having arrived and Morgan also having <arrived>, we could start ordering.
 c. * Pat having shown up at the game and Pete not having <shown up> was a surprise to everyone.
(Aelbrecht 2010: 197)

We contend that VP and *do* ellipsis are both licensed in gerund clauses (in accordance with the analysis presented in Section 3.2), but that an extraneous constraint is violated in (52) but not in (51). This constraint bans an auxiliary verb ending in *-ing* from being the closest auxiliary verb to the ellipsis site (Baker et al. 1989). As mentioned already in footnote 4, this constraint is not particular to gerund clauses: it also applies in standard finite clauses, as Akmajian and Wasow (1975) and Sag (1976) first observed:

(53) * Karen is being groomed for success, and Keisha is being <groomed for success>, too.

Evidence that this constraint is responsible for the unacceptability of the examples in (52) comes from the observation that VP ellipsis is permitted in gerund clauses in which the *-ing* form is not the closest auxiliary verb to the ellipsis site:

(54) a. With John having been sacked, and with Pete having been <sacked> too, the office felt rather empty.
 b. With Pete having been sacked but John {having not been / not having been} <sacked>, the world seemed unfair.

With an alternative and superior explanation available for the disparity between (51) and (52), these data can no longer be treated as evidence for the idea that *v* can license BrE *do* ellipsis without T's help.

 Aelbrecht (2010) and Baltin (2012) conclude that ellipsis of VP is licensed at the same moment in derivational time that *v* is externally merged. Because this conclusion implies that *v* can license *do* ellipsis without T's help, this conclusion again conflicts with our own. Their evidence for this comes from the observation that *wh*-movement from the elided VP in *do* ellipsis configurations is prohibited, as seen in (55), whereas A-movement of non-quantified phrases is permitted, as in (56).

(55) * I know who Cleo will nominate and also who$_1$ Theo will do <nominate t_1>.
(56) a. Fred might fall, and Ivana$_1$ might do <fall t_1>, too.
      b. Jack might seem to enjoy that, and Jill$_1$ might do <seem t_1 to enjoy that>.

Abstracting away from the technical details of each analysis, let us point out that both Aelbrecht and Baltin argue that *v* licenses ellipsis of its VP complement after an A-moving item extracts from VP to Spec,*v*P but before a *wh*-phrase extracts from VP to the clause-internal phase edge (which both researchers identify as Spec,VoiceP, which selects *v*P). This traps *wh*-phrases but not A-moving items inside the ellipsis site, under the crucial assumption that, once a phrase is licensed for ellipsis by its syntactic sister, neither it nor any of its constituent parts can participate in subsequent syntactic operations. Thus, the grammar cannot generate the configuration exemplified by (55), which explains (55)'s unacceptability.

   Notice that the assumption upheld in both of these analyses is that ellipsis sites become syntactically frozen at the instant that they are formally licensed. If these analyses withstood scrutiny, then they would represent a significant advancement in our understanding of the timing of ellipsis, as they would demonstrate that ellipsis sites in English are 'derivationally timed' in the same way that phasal spell-out domains are (Chomsky 2000, 2001).

   Unfortunately, these derivational-timing analyses do not withstand scrutiny. A closer examination of the movement dependencies that are permitted or prohibited in *do* ellipsis environments reveals an empirical landscape that cannot be explained by recourse to derivationally timed ellipsis. For instance, although *wh*-extraction from within the ellipsis site is not permitted in *do* ellipsis configurations (see (55)), most instances of topicalisation are (see (57)) (Abels 2012, Thoms and Sailor 2018). Because it is highly unlikely that these two A′-dependencies have very similar structural profiles but distinct derivational histories, this observation cannot be explained by appealing to the derivational timing of ellipsis.

(57) Hazelnuts I won't eat. But peanuts$_1$, I might do <eat t_1>.

Furthermore, *do* ellipsis is also incompatible with certain A- and A′-dependencies that do not begin inside the ellipsis site. For instance, Thoms and Sailor (2018) observe that *do* ellipsis is incompatible with A-movement that reconstructs under sentential negation to Spec,*v*P (58). We add to this the observation (novel, to our knowledge) that *do* ellipsis is also incompatible with *wh*-subject extraction from Spec,*v*P (59).

(58) Every boy won't finish the exam, and every girl won't do <finish the exam>, either.
$$??[\neg > \forall]$$

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

Once a broader range of data is considered, it becomes clear that a derivational-timing analysis of the extraction asymmetries associated with *do* ellipsis is entirely infeasible. This in turn removes any remaining reason to suppose that *v* licenses *do* ellipsis without T's help.

5.   *Wh*-subject copies and VP ellipsis

Messick and Thoms (2016) quote (60) as unacceptable. Though a full star perhaps overstates the degree of deviance, we concur with their judgement that (60) is degraded; we will henceforth use the asterisk to mark relative deviance.

(60) * John thinks that one of the teachers is leaving, but I don't know [which one]$_1$ he thinks t_1 is <leaving >.

The ill-formedness of (60) cannot be attributed to MaxElide, a constraint which only applies in configurations in which there is movement out of the ellipsis site (Merchant 2008b, Takahashi and Fox 2005, Hartman 2011, Griffiths 2019). Moreover, VP ellipsis remains degraded when sluicing is rendered unavailable:

(61) * JOHN thinks that someone is leaving, but I don't know who$_1$ MARY thinks t_1 is <leaving>.

Messick and Thoms blame the deviance of (60) on a lack of 'structural parallelism': there is a variable in the elliptical clause (derived from the intermediate copy of *wh*-movement) that is not present in the antecedent clause (where there is no *wh*-movement). But in (62) we find the same degradation that Messick and Thoms observe for (60), but without structural parallelism being violated this time.

(62) * I know who JOHN thinks is leaving, and also who$_1$ MARY thinks t_1 is <leaving>.

The problem with (60) to (62) is general: it does not emerge only with the auxiliary *be*. We see this in (63):

(63) a. * I know who John thinks left, and also who$_1$ Mary thinks t_1 did <leave>.
       b. * I know who John thinks has left, and also who$_1$ Mary thinks t_1 has <left>.
       c. * I know who John thinks will leave, and also who$_1$ Mary thinks t_1 will <leave>.

The question to address here is this: Is VP ellipsis unavailable in these configurations because subject *wh*-copies do not engage in a Spec–Head agreement relationship with finite T, or does the degradation observed in these examples have an extraneous source?
 We suggest that the observed degradation arises because an independent prosodic requirement is not satisfied. [18] This suggestion is motivated by two additional observations. Firstly, the degradation disappears when the finite verb is not the only item sandwiched between the *wh*-copy and the ellipsis site, but is accompanied by other pronounced material (64). This suggests

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[18] By offering a prosodic analyses for the degradation attributed to (62) to (65), we presuppose that, from a syntactic perspective, T licenses VP ellipsis and is therefore featurally complete. We wish to sidestep the question of precisely how all of T's featural requirements are satisfied, however. According to standard assumptions, the relevant *wh*-copies in (62) to (65) will each receive nominative Case from T (in our terms, each *wh*-copy will have its *u*Tns feature valued), which will establish the Spec–Head agreement relationship necessary to license VP ellipsis. However, these standard assumptions have been criticized, and alternative descriptions have been offered for the relationship between T and *wh*-subject copies. See in particular Rizzi (1982) and Den Dikken (2018).

that the prosodic weight of the material between the *wh*-copy and the ellipsis site plays a role in determining the example's (un)acceptability.

(64) a.   I know who JOE thinks might have left, and also who BO thinks t_1 might have <left>.

    b.   I know who JOE thinks often leaves too soon, and also who BO thinks t_1 often does <leave too soon>.

    c.   I know who JOE thinks can do this, and also who BO thinks t_1 is able to <do it>.

    d.   I know who JOE thinks may do this, and also who BO thinks t_1 is likely to <do it>.

Secondly, the degradation disappears when the finite auxiliary verb is prosodically promoted, due to bearing a pitch accent (e.g. when it bears contrastive focus):

(65) a.   Everyone's talking about something that may or may not have happened Op_1 that Charles says t_1 DIDN'T <happen>.

                    [Richard Quest, in CNN's *Paula Zahn Now*, 7 November 2003]

    b.   Everyone's talking about something that may or may not have happened Op_1 that Charles says t_1 DID <happen>.

    c.   I know who Pete thinks WILL turn up, and also who he thinks t_1 WON'T <turn up t_1>.

    We tentatively propose that (60) to (63) are judged as degraded because they involve a violation of the *Proper Headedness* condition on prosodic structure representations (66) (Itō and Mester 2003), which states that a prosodic structure representation must be strictly arranged according to the ordered set of categories in the prosodic hierarchy presented in (67).[19] To see how (60) to (63) violate the Proper Headedness condition, we must first specify our assumptions about the syntax–prosody interface. Firstly, we assume that unpronounced heads and phrases are invisible to the algorithm that maps syntactic structure to prosodic structure. To our knowledge, this is implicitly assumed in all contemporary mapping theories based on Selkirk's 2011 MATCH theory (and it is explicitly adopted in Güneş 2015 and Bennett and Elfner 2019). Secondly, we uphold Selkirk's (2004) claim that unstressed function words, including auxiliary verbs and the copula, are not targeted by any syntax–prosody mapping operations (such as Selkirk's [2011] *Match Word* or *Match Phase*). In other words, we maintain that unstressed function words are never mapped to ωs, φs, or ιs. To ensure exhaustive prosodic parsing (Selkirk 1986), function words are mapped into an adjacent φ.

(66) *Proper Headedness* (adapted from Itō and Mester 2003)

    Every nonterminal prosodic category of level *i* must immediately dominate a category of level *i*-1.

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[19] During the reviewing process for this paper, it was suggested to us that the prosodic constraint being violated in (60) to (63) can be roughly stated as 'the prosodic grammar of English does not permit fully deaccented CPs'. This cannot be true, as English prosodic grammar *does* permit fully deaccented CPs, as (i) shows (where italics represent deaccentuation). Nor does the observed degradation arise because the prosodic grammar of English bans deaccented CPs that are prosodically separated from another deaccented prosodic unit (due to an intervening copy of movement), as English prosodic grammar *does* permit isolated deaccented CPs, as (ii) shows.

(i)   MARY thinks that Pete should apologize, and SUE *thinks* [CP *that he should* (*apologize*)], too.

(ii)   I know who KEIRA thinks Bob suspects the dog bit and also who₁ KELLY *thinks* [CP t_1 *he suspects* [CP t_1 *it bit* t_1]], too.

(67) *Prosodic hierarchy* (Selkirk 1978)
Intonational Phrase (ι) > Phonological Phrase (φ) > Prosodic Word (ω) > Foot (Ft) > Syllable (σ)

When an unstressed, monosyllabic function word is mapped into an adjacent φ, it typically acts as *free prosodic clitic* (Selkirk 2004), which refers to any syllable immediately dominated by a φ-node (68). Although this prosodic configuration is not optimal (as it violates a prosodic domination rule called *Exhaustivity*; see Selkirk 2004), it does not violate the Proper Headedness condition in (66), as the φ-node dominates a node belonging to the next lowest prosodic category, namely a ω.

(68)

$$\varphi$$

$$\sigma \qquad\qquad \omega$$

function   lexical
  word   word
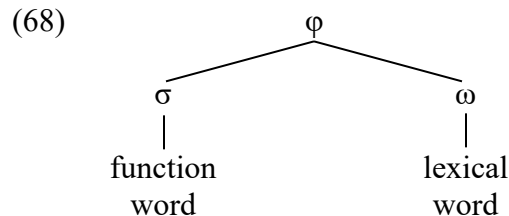
Let us now consider the prosodic profile of the elliptic embedded clause in the degraded example from (61) (repeated in (69a), where strikethrough marks the fact that the wh-subject and the elliptic VP are designated for non-pronunciation). Ignoring the import of recursive φs for simplicity's sake, faithful mapping from syntax to prosody will yield (69b), in which the auxiliary is stranded by itself in a φ. Because the φ-node containing *is* no longer immediately dominates any ω-node (as *is* is merely a syllable), the Proper Headedness constraint is violated, which results in a degraded acceptability judgement for this construction. Arguably this violation could be avoided by encliticizing *is* to the matrix verb (see (69c)), but this configuration represents a substantial deviation from faithful syntax–prosody mapping, as the embedded CP is not mapped to an ι and the embedded TP is not mapped to a φ. Consequently, this alternative parse is still suboptimal and therefore fails to improve the acceptability of the construction.

(69) a.   … thinks [$_{CP}$ ~~who~~$_1$ is [$_{vP}$ ~~who~~$_1$ ~~leaving~~]]
      b.   … thinks $((is_\sigma)_\varphi)_\iota$
      c.   … (… $(thinks)_\omega$ $is_\sigma)_\varphi$

Along with being simple, this analysis also explains why the examples in (64) and (65) are judged as fully acceptable, as each of these examples satisfies the Proper Headedness constraint. The examples in (64) satisfy this constraint either because the pronounced verbs are grouped together as a metric foot and therefore obtain ω-status (e.g. in the case of (64a), see (70a)), or because the finite verb maps into a φ that contains a pronounced lexical ω (e.g. in the case of (65b–d), see (70b)). Similarly, the acceptable examples in (65) satisfy the Proper Headedness constraint because *won't* is stressed and therefore automatically mapped as a ω (70c) (Selkirk 2004).[20]

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[20] Note that our tentative prosodic proposal does not distinguish between full and contracted auxiliaries, and therefore does not aim to provide a prosodic explanation for the long-standing question of why a featurally complete auxiliary in T cannot license VP ellipsis if it arises in its contracted form (see also footnote 6).

(70) a.   … [$_{CP}$ ~~who$_1$~~ might have [$_{vP}$ ~~who$_1$ left~~]] → … (((might have)$_ω$)$_φ$)$_ι$

      b.   … [$_{CP}$ ~~who$_1$~~ often does [$_{vP}$ ~~who$_1$ leave~~]] → … (((often)$_ω$ does)$_ω$)$_φ$)$_ι$

      c.   … [$_{CP}$ ~~who$_1$~~ WON'T [$_{vP}$ ~~who$_1$ turn up~~]] → … (((WON'T)$_ω$)$_φ$)$_ι$

With this tentative proposal we aim to emphasize the important role that prosody plays in determining acceptability judgements about ellipsis. This sentiment in echoed in much recent research on ellipsis, including Weir (2012), Bruening (2015), Sailor and Thoms (2018), and Weir (this volume).

6.   Concluding remarks

Using novel evidence from English Unusual Subject configurations, we demonstrated in this paper that, to license VP ellipsis, T must receive a value for both its *i*Tns feature and for INFL. Because T must engage in a Spec–Head agreement relationship with the phrase that occupies its specifier to receive a value for INFL, our analysis therefore revives the notion from Saito and Murasugi (1990) and Lobeck (1995) that T must engage in a Spec–Head agreement relationship to license ellipsis. Although T usually receives a value for its *i*Tns from the closest *v* that it c-commands, embedded T receives this value from matrix *v* in raising and obligatory control configurations. Recognizing this link between embedded T and matrix *v* thus also revives the idea from Zagona (1988), Lobeck (1995) that VP ellipsis in *to*-infinitival clauses is partly licensed by the matrix verb—an idea that was previously formalized in terms of syntactic government.

By using new evidence to revive and extend the traditional Spec–Head agreement analyses of VP ellipsis licensing, we support the consensus view that ellipsis is licensed in the narrow syntax. However, we also showed—by examining the behaviour of British English *do* ellipsis in Unusual Subject configurations—that there is no evidence for supposing that the licensing of ellipsis has any syntactic effects, such as 'freezing' the phrase marked for ellipsis (in English, at least).[21] Finally, we suggested that the degraded acceptability judgements attested for configurations in which the embedded clause contains both VP ellipsis and a *wh*-copy in Spec,TP arise because of prosodic—rather than syntactic—ill-formedness.

In short: with respect to the timing of ellipsis, we have shown that predicate ellipsis in English is syntactically licensed but does not trigger exceptional Spell-Out, and that ellipsis is highly sensitive to violations of the constraints on prosodic grammar.

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[21] See Aelbrecht (2010), van Craenenbroeck and Lipták (2008), Johnson (2015), and Sailor (2018) for arguments that ellipsis is derivationally timed in Dutch, Hungarian, Hocąk, and Scandinavian, respectively.

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