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*v*P-fronting with and without remnant movement[1]

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In this paper, we consider two kinds of *v*P-fronting constructions in English and argue that they receive quite different analyses. First, we show that English *v*P-preposing does not have the properties that would be expected of a movement-derived dependency. Evidence for this conclusion is adduced from the licensing conditions on its occurrence, from the availability of morphological mismatches, and from reconstruction facts. By contrast, we show that English participle preposing is a well-behaved case of *v*P-movement, contrasting with *v*P-preposing with respect to reconstruction properties in particular. We propose that the differences between the two constructions follow from the interaction of two constraints: the excluded middle constraint (EMC), which rules out derivations involving spellout of linearly intermediate copies only, and the N-only constraint, which restricts movement to occurring where the trace position would license a nominal. The EMC rules out deriving *v*P-fronting by true movement and instead necessitates a base-generation analysis, while the N-only constraint ensures that participle preposing is only possible in limited circumstances.

KEYWORDS: *v*P-fronting, remnant movement, linearization, ellipsis, reconstruction

1. INTRODUCTION

This paper investigates the structure of two English constructions in which a verbal constituent appears in clause-initial position. These constructions are *v*P-preposing, as in (1), and participle preposing, as in (2).

(1) (a) We wanted John to eat the pies, and [$_{vP}$ eat the pies] he did.
(b) John said he would be arrested, and [$_{vP}$ arrested] he certainly was.
(c) [$_{vP}$ Rack his brains] though he might, he couldn't remember.

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(2) [$_{vP}$ Sitting at the table] should be a bottle of wine chosen especially for you by the sommelier.

We use the term *v*P-preposing to describe the construction in (1) specifically rather than all cases where a *v*P shows up in an initial position; for the general case, including (2), we reserve the term *v*P-fronting.

Both constructions have been analysed in the literature as involving *v*P-movement. Even if movement as an operation comes for free in the sense that it is simply a reflex of Merge (internal rather than external; see Chomsky 2001), however, it does not necessarily follow that a given phenomenon must be characterised as involving movement. The nature of internal Merge as the copying/Remerge of an element first Merged lower in the structure makes clear predictions with regard to locality, identity, and semantic interpretation. The status of a given construction as movement-derived, then, is an empirical question.

In Section 2, we outline these predictions, and argue that they are not met in the case of English *v*P-preposing: the preposed *v*P does not behave like a moved element. Participle preposing, on the other hand, is a *bona fide* case of movement, as we show in Section 3, although we also see that it is not possible with all verb forms. The question then is why these two constructions should behave differently. We propose that these differences are explained by the interaction of two constraints which we introduce in more detail below. The paper is thus part of a programme to develop a restrictive theory of movement in the vein of Saito (1985), Müller (1998), Abels (2003, 2008, 2012), and work on locality since Ross (1967) – though the constraints we propose are novel ones.

2. *v*P-PREPOSING IN ENGLISH: A MATCHING ANALYSIS

Pre-GB transformational analyses (e.g. Reinhart 1978) treated *v*P preposing as simple permutation of the *v*P to a clause-initial position, and in subsequent GB and Minimalist analyses (e.g. Zagona 1988a, Zagona 1988b, Baltin 2012) the essence of this analysis has been maintained, implemented as movement; in fact, *v*P-preposing is often taken as a textbook case of movement (see, for instance, Radford 2009: 169–170; Koopman, Sportiche & Stabler 2013). What we take to be the standard analysis is given in (3).

(3) [$_{CP}$ [$_{vP}$ ~~he~~$_j$ eat the pies]$_i$ he$_j$ did [~~$_{vP}$ he$_j$ eat the pies~~]$_i$]

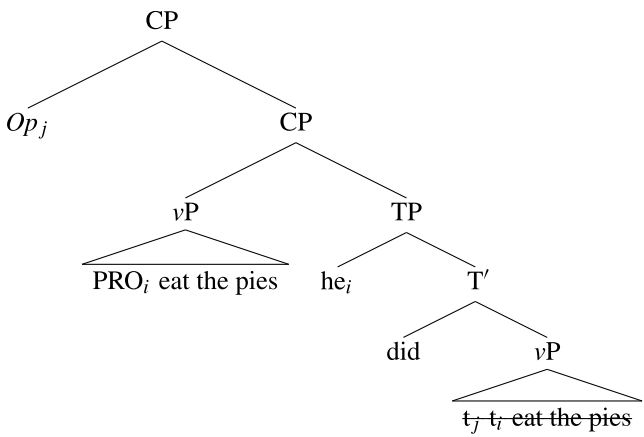
In any approach that assumes that the subject is first Merged within the *v*P-domain, as in Kuroda (1988) and subsequent work, examples such as those in (1) have to be analysed as involving remnant movement: the subject first A-moves from its first Merged position to Spec,TP, and then the *v*P is A′-moved to Spec,CP.[2]

[2] We assume, as is standard, that English has V-to-*v* movement, and hence that it is movement of *v*P and not VP that would be required to derive examples like those in (1): the verb must be spelled out in the fronted copy, and objects in the fronted phrase must have their accusative case licensed by *v*. See further Section 4.2.4.

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In this section, we argue that (3) is not the right analysis of English *v*P-preposing: a number of independent facts, many already noted in the literature but unexplained, serve to demonstrate that *v*P-preposing should not be analysed as involving movement of *v*P to Spec,CP. Rather, these facts converge to motivate an analysis where the 'trace' position of the *v*P is removed by ellipsis and the lower, elided *v*P is connected to the higher one by operator movement; we call this a 'matching' analysis for English *v*P-preposing. The matching analysis of English *v*P-preposing is an alternative strategy for making verbal projections prominent in the left periphery for information-structural purposes, one that combines independently available properties of the grammar to derive the structural and linear effect of movement without actually moving the *v*P. This strategy is forced because *v*P-movement of the kind required is ruled out by the grammar of English, for reasons that we elaborate on in Section 4. We take our analysis to be applicable to both *v*P-preposing and *though*-raising of *v*Ps, though we concentrate on the former for the most part in what follows. It is demonstrated in the tree below.

(4)



As in the standard account, the subject is first Merged in Spec,*v*P and moves to Spec,TP. A separate *v*P, containing a PRO subject, is then Merged in Spec,CP. A null operator, which is base-generated with the subject of the lower *v*P, moves to a position above the initial *v*P and links the two *v*Ps. The lower *v*P is deleted by *v*P-ellipsis under identity with the higher *v*P.

This analysis bears many similarities to the matching analysis of relative clauses (Carlson 1977, Sauerland 2003, and others). In both analyses, two identical XPs are base-generated, linked by A′-movement of an operator, with the lower XP obligatorily deleted under strict identity. This is illustrated for relative clauses in (5), where the lower NP is deleted; in our analysis of *v*P-preposing, it is the lower *v*P that is deleted.

(5) $[_{DP}$ the $[_{NP}$ dog$]$ $[_{CP}$ Op_i that $[_{TP}$ I saw $[_{DP}$ t_i ~~dog~~$]]]]$

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The matching analysis for *v*P-preposing is more elaborate than the standard *v*P-movement analysis, and hence is not intuitively preferable to it; however, as we show in this section, there are numerous reasons to prefer the matching analysis over the true *v*P-movement analysis on empirical grounds. First of all, we would expect that the movement dependency involved would be subject to much the same restrictions that we observe with other kinds of movement. Furthermore, as Adger & Ramchand (2005: 162) observe, the basic copy-theoretic assumption that traces are no more than copies would lead us to expect IDENTITY EFFECTS between copies in any movement derivation. Finally, we would expect *v*P-preposing to show the same reconstruction behaviour as other instances of predicate movement. As we will see, these expectations are not met. Instead, we find that *v*P-preposing (i) exhibits restrictions on its occurrence not shared by other instances of A′-movement, (ii) displays anti-identity effects (morphological mismatches) between the two 'copies', and (iii) displays reconstruction and locality properties that are distinct from those that hold of other predicate movement rules (or that do not support a movement analysis). In what follows, we discuss these three points in detail and show how they follow from the analysis in (4).

Before we move on to the empirical motivation, let us briefly elaborate on one of the technical details of the analysis in (4). We call our analysis a matching analysis under analogy with the matching analysis of relative clauses, since they both involve ellipsis plus operator movement, but the operators in these different constructions seem to be quite different: whereas the operator in a relative clause is semantically motivated (it saturates the predicate formed by the relative clause), it is not obvious that the operator in (4) has a similar function. Why, then, is the operator required at all? We suggest that the operator moves to a position above the *v*P to provide an A-binder for its PRO subject. Since the operator moves by A′-movement, this involves allowing A′-movement of an operator to feed A-binding; while this is sometimes viewed as unconventional, such a derivation is required for the analysis of *tough*-constructions, and so we propose that the same syntactic technology is involved with the operator movement component of *v*P-preposing. More specifically, we adopt a version of the 'smuggling' approach in Hicks (2009), where an operator and a full DP start out in construction as part of one large complex DP, and A′-movement of the operator creates an A-binder with the same index in a higher position. In the case of *tough*-movement, this involves A-movement of the overt DP out of the operator into the higher A-position, whereas with *v*P-preposing it is the operator that moves into a higher position, from which it provides an A-binder.[3]

[3] We adapt Hicks' analysis here by allowing the operator to move out of the complex DP into a higher position without dragging along the full DP. Hicks' derivations actually involve remnant movement, with the full complex DP moving to the higher position with a trace of the overt DP in it, but we argue that such remnant movement is impossible in Section 4. We can see no clear reasons to prefer one analysis over another.

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(6) He is easy to please.
[$_{TP}$ He is [$_{AP}$ easy [$_{CP}$ [$_{DP}$ *op* ~~he~~] [$_{TP}$ to [$_{vP}$ ~~DP~~ [$_{VP}$ please ~~DP~~]]]]]]

(7) Eat the pies he did.
[$_{CP}$ op$_i$ [$_{CP}$ [$_{vP}$ PRO$_i$ eat the pies] [$_{TP}$ [$_{DP}$ ~~op~~ he] did ~~[$_{vP}$ eat the pies]]]~~

This ensures that PRO is bound and covaries with the subject of the *v*P which it is deleted under identity with.[4] We will not provide telling evidence for the specifics of this component of the analysis in what follows, but in Section 2.4 we do show that there is reason to believe that the movement in *v*P-preposing is operator movement and not predicate movement. First, though, we establish the necessity of the ellipsis component of the analysis.

2.1 *Licensing conditions*

In an influential paper, Johnson (2001) observes that *v*P-preposing is subject to a number of very specific licensing conditions that are not familiar from A′-movement of other elements, and that these conditions are the same as those found for *v*P-ellipsis.[5] Most strikingly, the 'trace' must be governed by an auxiliary; lexical verbs alone license neither *v*P-preposing nor *v*P-ellipsis, and *do*-support is always triggered when no other auxiliary is present.[6] The examples in (8) are thus well-formed:

(8) (a) John said he would win the race, and [$_{vP}$ win the race] he **did**.
(b) John said he would win the race, and [$_{vP}$ win the race] he **will**.
(c) We hoped Wiggins had won a gold medal, and [$_{vP}$ won a gold medal] he **had**.
(d) John said he would be running for office this year. And [$_{vP}$ running for office] he **should be**.

All of the auxiliary elements that are in bold in (8) license *v*P-ellipsis in the same configurations:

(9) (a) John said he would win the race, and he **did**.
(b) John said he would win the race, and he **will**.
(c) We hoped Wiggins had won a gold medal, and he **had**.
(d) John said he would be running for office this year. And he **should be**.

[4] A reviewer observes that the configuration in (7) should induce a crossover effect. As observed by Lasnik & Stowell (1991), however, null operators generally fail to induce crossover effects, whatever the precise reason for this may be.

[5] Authier (2011) argues that this carries over to French as well.

[6] Johnson's core data involve embedded *v*P-preposing without an antecedent clause; we have found such data to be highly marked and difficult to replicate with speakers. The data in (8)–(9) and (10a) replicate what Johnson attested in more neutral contexts; the data from *go get* constructions, *feels like* constructions, and non-standard passives are new. In cases of doubt, the relevant examples have been tested against a small group of 12 native-speaker linguists.

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When there is no auxiliary element to act as a licensor, however, both *v*P-ellipsis and *v*P-preposing fail.

The (a) examples show this for auxiliary-less cases, and the (b)–(d) examples show that both *v*P-ellipsis and *v*P-preposing fail when the target *v*Ps occur in a number of other auxiliary-less non-finite embedding contexts, such as *go*+*v*P constructions, *feel like* complements and perception verb complements.

(10) (a) *John said he would win the race, and [$_{vP}$ win the race] he.
(b) *John said you should go get coffee, and [$_{vP}$ get coffee] you should go.
(c) *They thought I'd feel like eating ice cream, and [$_{vP}$ eating ice cream] I really did feel like.
(d) *You thought they would leave early, and [$_{vP}$ leave early] I saw them.

(11) (a) *John said he would win the race, and he.
(b) *John should go get a cup of coffee, and you should go too.
(on *go get...* reading)
(c) *They thought I'd be eating ice cream, and I certainly feel like.
(d) *You saw them leave early, and I saw them too.
(on *saw them leave...* reading)

The correlation between failure to license *v*P-ellipsis and *v*P-preposing also holds when we look at other kinds of passive embedding contexts, such as *get*-passives and the more dialectally restricted *need*-passives (see Edelstein 2014), as illustrated by (12) and (13). Although *get* and *need* are auxiliary-like, they license neither *v*P-ellipsis nor *v*P-preposing.

(12) (a) John got fired for negligence.
(b) *We thought John was going to get fired for negligence and [$_{vP}$ fired for negligence] he got.
(c) *John got fired for negligence, and Bill got ~~fired for negligence~~, too.

(13) (a) %My car needs washed now.
(b) *I thought my car would need washed now and [$_{vP}$ washed now] it really needs.
(c) *My car needs washed now, and yours needs ~~washed now~~ too.

Under the hypothesis that *v*P-preposing is simply A′-movement, these restrictions on *v*P-preposing are mysterious: no such conditions exist for topicalisation of arguments or *wh*-movement, for instance.[7] This mystery is further compounded

[7] As Johnson (2001) notes, the *v*P-preposing data seem to invite an analysis in terms of some version of the ECP (i.e. Lobeck 1995), but such an account faces the challenge of explaining why the conditions that apply to *v*P-traces do not apply to DP-, CP- or PP-traces (which may obviously occur in a position dominated by a lexical verb); moreover, given that the ECP has been more or less abandoned with the move to Minimalism, it is not clear what the status of such an explanation would be in the modern framework in any case. The data from adverbs presented in this section also militate against an ECP analysis.

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by the fact that these restrictions are not shared by processes of *v*P-movement in all languages. To see this, consider *v*P-fronting in German. In this language, there is no requirement for an auxiliary to license the gap position created by fronting of the *v*P, as shown by the examples in (14).

(14) (a) [$_{vP}$ Peter geküsst] hat sie nicht.
Peter kissed has she not
'She has not kissed Peter.'
(b) [$_{vP}$ Zu küssen] wagte er sie nicht.
to kiss dared he her not
'He did not dare to kiss her.'
(c) [$_{vP}$ Peter küssen] sah sie Fritz nicht.
Peter kiss saw she Fritz not
'She did not see Fritz kiss Peter.'

Note furthermore that it is not the case that it is a requirement of predicate movement for the trace to be licensed. This can be demonstrated for English for *wh*-movement of non-verbal predicates, as in the examples in (15).

(15) (a) How likely to win do you consider John?
(b) How happy did the results make Molly?
(c) ?Her own worst enemy, I would never consider Molly.

What this tells us is that there is no general requirement that *v*P-gaps or predicate gaps need to be licensed by an auxiliary. Rather, it indicates that the conditions observed with English *v*P-preposing might be of a different nature.

Another restriction shared by *v*P-preposing and *v*P-ellipsis, but unfamiliar from other movement processes, is that they both resist 'stranding' of adverbs left-adjacent to the empty position (Sag 1978, Abels 2003), as illustrated in (16). One possible analysis of these facts is to postulate that both *v*P-ellipsis and *v*P-preposing obligatorily target a constituent that contains these adverbs, and that as a result they may not be stranded. The problem with this analysis is that high adverbs like *probably* resist both being stranded at the left edge of the empty position and being part of a fronted constituent, (17); these facts indicate that the ban on stranding has nothing to do with the size of the constituent targeted.

(16) (a) *He said he has studied karate, and [$_{vP}$ studied karate] he has surely.
(b) *Fred has never studied karate but John has surely ~~studied karate~~.

(17) (a) *You said John would vote Green, and vote Green he will probably.
(b) *You said John would probably vote Green, and [$_{vP}$ probably vote Green] he will.
(c) *Fred has not voted Green, but Bill has probably.

Once again, no such restriction is found with German *v*P-fronting, as shown by (18).

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(18) (a) [$_{vP}$ Peter geküsst] hat sie bestimmt.
Peter kissed has she surely
'She has surely kissed Peter.'
(b) [$_{vP}$ Peter geküsst] hat sie wahrscheinlich schon.
Peter kissed has she probably already
'She has probably already kissed Peter.'

How, then, should these similarities between *v*P-ellipsis and *v*P-preposing be accounted for? According to Johnson (2001), the similarities fall out naturally if we assume that ellipsis is licensed by preposing, with an unpronounced *v*P constituent moved to the clausal left periphery. However, Aelbrecht & Haegeman (2012) demonstrate that such an account runs into various problems. Most significantly, *v*P-ellipsis is licensed in a number of configurations in which *v*P-preposing is not licensed: for instance, *v*P-preposing is generally a root phenomenon, only occurring in embedded positions that generally allow for embedded root phenomena, whereas there is no such restriction on *v*P-ellipsis. This is demonstrated in (19) for factive environments, which resist embedded root phenomena (from Aelbrecht & Haegeman 2012); the same is true of relative clauses.

(19) (a) *John intends to make a table, and we're afraid that [$_{vP}$ make one] he will.
(b) John intends to make a table, and we're afraid that he will ~~make one~~.

It seems that the environments that allow *v*P-preposing are a subset of those that allow *v*P-ellipsis. *v*P-preposing is thus not capable of accounting for *v*P-ellipsis in any general way.[8] Even if these problems are put to one side, however, the restrictions on *v*P-preposing (and consequently *v*P-ellipsis) identified above remain wholly mysterious; that is, no such restrictions on stranding of adjacent material that does not form a constituent with the moved element, or licensing of traces/copies by dominating non-lexical heads, are seen with other kinds of movement. On the other hand, many of these restrictions can in fact be understood as restrictions on *v*P-ellipsis in the context of an explicit theory of ellipsis licensing, such as Merchant's (2001) E-feature-based approach to licensing (which would derive the auxiliary licensing condition from subcategorisation restrictions on the distribution of E) or Thoms' (2010) movement-based account (which would derive the role of auxiliaries straightforwardly from the fact that it is only

[8] Authier (2011) and Authier & Haegeman (2012) propose that these problems may in fact only be apparent if we assume that the problem with *v*P-preposing cases like (19a) is one of intervention, with these intervention effects being ameliorated by deletion in the elliptical counterpart (19b). Authier and Haegeman's account is crucially dependent upon the representationalist theory of intervention and repair proposed by Bošković (2011), a theory motivated in principle by the existence of apparent island repair in sluicing (Ross 1969). See Abels (2011) and Barros, Elliott & Thoms (2014) for critical discussion of the empirical foundation of 'island repair'.

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auxiliaries that move into the IP-domain, and the adverb restriction from the fact that adverbs do not move to their surface position in English). This suggests that it is more sensible to reverse the picture: instead of *v*P-ellipsis being licensed by *v*P-preposing, we claim that *v*P-preposing is licensed by *v*P-ellipsis.

2.2 *A detour on types of predicate ellipsis*

We should be more specific about the ellipsis process that we take to be involved here, as stating that *v*P-preposing involves *v*P-ellipsis overlooks the fact that '*v*P-ellipsis', or predicate ellipsis to use a more general term, is not a unitary phenomenon; rather, it turns out that there are at least two different subtypes of predicate ellipsis in English, and one in particular is relevant to our analysis of *v*P-preposing.

The background to this is the claim in Merchant (2013) that we can explain the different properties of ellipsis constructions in terms of the size of the antecedent for ellipsis. Empirically, Merchant is concerned with the fact that ellipsis processes seem to differ in the extent to which they allow for mismatches in form between the antecedent clause and the ellipsis clause, in particular with respect to grammatical voice: while predicate ellipsis allows for a mismatch with respect to voice (Kehler 2002), the same seems not to be possible with clausal ellipsis constructions like sluicing.

(20) (a) This problem was to have been looked into, but obviously nobody did ~~look into them~~.
(b) Actually I have implemented it with a manager, but it doesn't have to be ~~implemented with a manager~~.

(21) (a) *Joe was murdered, but we don't know who ~~murdered him~~.
(b) *Someone murdered Joe, but we don't know who by ~~he was murdered~~.

This presents a problem for stating the ellipsis identity relation solely in terms of semantic representations, since passive–active pairs have the same meaning. However, Merchant argues that it can be explained if the ellipsis identity relation is a syntactic condition which imposes identity of (at least) the featural content of syntactic heads in the ellipsis site. With such a condition in hand, Merchant claims that the difference between predicate ellipsis and clausal ellipsis is that grammatical voice is encoded by a verbal head, Voice, above *v*P in the thematic domain: this head will always be included in the TP antecedent to clausal ellipsis, enforcing identity of the content of Voice, whereas with predicate ellipsis the antecedent may be the *v*P layer below, thereby allowing for mismatches.

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(22) (a) Predicate ellipsis:
A: [CP [TP … [VoiceP … [*v*P [VP …]]]]]
E: [CP [TP … [VoiceP … ~~[*v*P [VP …]]~~]]]

(b) Clausal ellipsis:
A: [CP [TP … [VoiceP … [*v*P [VP …]]]]]
E: [CP ~~[TP … [VoiceP … [*v*P [VP …]]]]~~]

Thus, interaction of the identity condition and the size of the antecedent for ellipsis determines grammatical properties of the ellipsis processes in question.

This becomes relevant to our account of *v*P-preposing when we take into account the fact that not all instances of predicate ellipsis are the same. In an in-depth study of predicate ellipsis in English, Sailor (2014) argues that we can distinguish at least two kinds of predicate ellipsis on the basis of the syntactic size of the antecedent: low predicate ellipsis, which targets just the lowest *v*P layer containing the lexical verb and the verbalising head *v*, and high predicate ellipsis, which targets higher functional structure including Voice.

(23) (a) Low predicate ellipsis:
A: [TP … [VoiceP … [*v*P [VP …]]]]
E: [TP … [VoiceP … ~~[*v*P [VP …]]~~]]

(b) High predicate ellipsis:
A: [TP … [VoiceP … [*v*P [VP …]]]]
E: [TP … ~~[VoiceP … [*v*P [VP …]]]~~]

In line with Merchant's findings, low predicate ellipsis is characterised by the possibility of mismatches, and largely by the extent to which parallelism holds between the elliptical clause and the antecedent. Low predicate ellipsis seems to largely be reserved for configurations where the ellipsis clause is embedded in a subordinate clause, or it stands in some kind of subordinating discourse configuration with respect to the antecedent (Kehler 2002). This is the case with all of the voice mismatch cases from Kehler and Merchant. Importantly, they stand in quite striking contrast to examples where the antecedent clause and ellipsis clause are simply coordinated with *and* and linked together by an additive focus particle like *too* or *also*; in such configurations, voice mismatches are completely impossible.

(24) (a) *This problem was looked into by John, and Bob also did ~~look into it~~. (Sailor 2014: 18)

(b) *I have implemented this program with a manager, and that one also was ~~implemented with a manager~~.

Sailor suggests that this effect is due to the size of the ellipsis site, and so he characterises plain coordination of antecedent and ellipsis clause (with neither clause embedded) as prototypical cases of high predicate ellipsis. Sailor does not speculate as to why this configuration would force high predicate ellipsis, but we

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would like to suggest that it may be down to the use of the additive particles *too/also*. The semantic contribution of these particles is to mark the subject as the focus of the clause and the rest of the constituent that they dominate as the background; given that these particles are adjoined above the ellipsis site, they therefore extend the backgrounded domain beyond the ellipsis site, right up to their adjunction position. Since backgrounded constituents require an identical antecedent (Tancredi 1992), the effect is to extend the identity-dependent domain of the elliptical clause, hence the higher antecedent.

Sailor shows that a number of other grammatical properties that can be understood in terms of the height of ellipsis show asymmetries between these two kinds of antecedent–ellipsis configuration. One that is of relevance in what follows is the availability of strict readings with reflexive antecedents, where the ellipsis site and antecedent seem to mismatch with respect to the form of the pronoun (reflexive in antecedent and regular pronoun in ellipsis site). Sailor observes that such strict readings are available with low predicate ellipsis configurations but not with high predicate ellipsis ones, these only getting the sloppy reading. This contrast can be explained, Sailor argues, if we adopt Ahn's (2015) proposal that reflexives move to Spec,VoiceP in English: with low predicate ellipsis, the antecedent will exclude the reflexive, meaning that there is no need to have a reflexive in the ellipsis site and so a strict reading may be derived by using a simple pronoun in the ellipsis site, whereas this option is not possible with high predicate ellipsis.

(25) John slapped himself because Bill did.
  (a) Strict: John$_i$ slapped himself because Bill$_j$ did ~~slap him$_i$~~.
  (b) Sloppy: John$_i$ slapped himself because Bill$_j$ did ~~slap himself$_i$~~.

(26) John slapped himself, and Bill also did.
  (a) *Strict: John$_i$ slapped himself and Bill$_j$ also did ~~slap him$_i$~~.
  (b) Sloppy: John$_i$ slapped himself and Bill$_j$ also did ~~slap himself$_i$~~.

The high predicate ellipsis option seems to be a strong preference for symmetric coordinations with additive focus particles, although it is not clear whether it can be ruled out entirely in such cases; that is, it might be possible to access a low predicate ellipsis analysis with cases like (26) in the right circumstances, with the apparent absence of the strict reading following from cumulative markedness effects (strict readings are marked even in cases like (25)). However, Sailor argues that the high predicate ellipsis option is forced with a number of polarity-reversing elliptical constructions, such as tag questions and emphatic retorts.

(27) John won the race, didn't he?

(28) A: John said he would win the race.
  B: NO he didn't!

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(29) A: John didn't say he would win the race.
B: YES he did!

(30) A: John didn't say he would win the race.
B: He did TOO/SO!

(31) A: John said he would win the race.
B: He did NOT!

Significantly, these constructions share at least three properties in common with *v*P-preposing. First, these constructions feature some kind of operator that encodes an anaphoric dependency between the elliptical constituent and the antecedent. In the case of the retorts, it is the polarity particle that does this, and with tags this work is arguably done by whatever head or operator it is that encodes the paratactic relation between the two clauses; in the case of *v*P-preposing, on our analysis this is done by the operator that links the subjects of the two constituents. Second, the ellipsis process involved is obligatory, unlike with most other instances of predicate ellipsis.[9] This might be understood in terms of the fact that the operators involved directly encode some degree of dependency between antecedent and ellipsis clause in the syntax, making reduction a matter of syntactic economy, whereas with other kinds of predicate ellipsis these relations are mediated by discourse and so are not subject to such hard conditions.

(32) John won the race, didn't he (*win the race)?

(33) A: John won a race.
B: No he didn't (*win a race)!

(34) John said he would win the race, and win the race he will (*win the race).

Finally, all of these constructions require that the subject of the elided clause covaries with the subject of the antecedent clause, a requirement that can be understood if the ellipsis site for high predicate ellipsis must contain a variable bound by the subject (in Spec,VoiceP or lower). The same requirement is enforced with *v*P-preposing, in that the initial clause subject cannot covary with some other nominal; thus, the preposed *v*P in (37) cannot be interpreted as first person plural, even though it would be compatible in principle with binding of PRO by the higher subject *we*.

(35) John bought wine, didn't {he/*you/*they}?

(36) A: John bought wine.
B: No {he/*you/*they} didn't!

(37) We said we would win the race, and win it I did.

[9] It is crucial when assessing the retorts in this regard to control for the relevant intonation contour, where there is pitch accent on the polarity particle and no pitch resets. See Sailor (2014: 92–97) for details.

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This is part of a broader tendency with high predicate ellipsis which Sailor calls 'neophobia', where the elliptical clause shows resistance to introducing additional information not contributed by the antecedent clause. This means that there is a high degree of matching of the set of auxiliaries present, with the introduction of additional modals or progressive morphology being impossible, although it does seem to be marginally possible to have the perfect in the elliptical clause with the simple past in the antecedent. We can see that strict morphological identity is not enforced, as different forms in (40) show (for British English).

(38) A: John buys wine.
B: No he {doesn't / *won't / *can't}!

(39) A: John bought wine.
B: No he {didn't / hasn't!}

(40) A: The team is waiting outside.
B: No they aren't!

We return to this issue in more detail below with respect to *v*P-preposing. For now, we take these commonalities between Sailor's high predicate ellipsis constructions and *v*P-preposing to motivate treating *v*P-preposing as another high predicate ellipsis construction, and so we do so in what follows. This will be significant as at a number of points we will show that while the relation between the initial verbal constituent and the gap position in *v*P-fronting constructions is looser than what we would expect with movement, it is not quite so loose as predicate ellipsis, at least when this is understood as a unified phenomenon. However, the right looseness is captured if we treat *v*P-preposing as involving high predicate ellipsis.

A note on terminology: for convenience we resume talking in terms of *v*P-preposing and *v*P-ellipsis, even though on this analysis high predicate ellipsis actually involves a larger constituent than just the *v*P.

2.3 *Morphological mismatches*

If the lower and higher *v*P are two copies in a chain, as in the standard analysis, then they are expected to show identity effects: no *v*P should be able to appear in Spec,CP that is not able to appear in the position taken by the lower copy. Yet, as observed by many authors (e.g. Emonds 1976: 115; Andrews 1994: 218; Oku 1996, 1998; Urushibara 1997; Bresnan 2001: 18; Dorfman, Leu & Levon 2002: 5; Kayne 2005: 99; Breul 2014), the preposed *v*P need not be able to appear in this lower position, as shown by (41)–(42). See in particular Breul (2014) for dozens of naturally-occurring examples of this type.[10]

[10] Breul in fact shows that such 'paradoxical' examples outnumber the 'regular' cases of fronting with identity in the corpora he investigates. Breul (2014: 456) rejects a base-generation analysis

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(41) (a) We thought she would lose her temper, and [$_{vP}$ **lose** her temper] she has.
(b) She has {*lose / lost} her temper. (Emonds 1976)

(42) (a) Everyone said that Susan lost her temper, and [$_{vP}$ **lost** her temper] she did.
(b) She did {*lost / lose} her temper.

(41) shows that the preposed *v*P can be a bare infinitive when the base form would normally bear participial morphology; in other words, *v*P-preposing seems to BLEED affixation here. Conversely, (42) shows that the verb in the preposed *v*P can be in an inflected form where it would normally be in an uninflected form in the base position (since tense morphology is absorbed by *do*-support), yielding an apparent TENSE-DOUBLING effect. Kayne (2005) suggests that (41) may be related to the INFINITIVUS PRO PARTICIPIO (IPP) effect found in other Germanic languages, where the participle surfaces in the less specified form as an infinitive. However, this does not generalise to (42), where the verb is MORE specified than the expected form.

*v*P-preposing is also compatible with British *do* for the relevant speakers, as shown by (43).

(43) (a) John said he would win the race, and [$_{vP}$ win the race] he will **do**.
(b) John said he would win the race, and [$_{vP}$ won the race] he has **done**.
(c) He will (***do**) win the race.
(d) He has (***done**) won the race.

Even more strikingly, whole auxiliaries can be doubled with little or no degradation, as in (44). In (44c)–(44d), one of the two non-finite auxiliaries must be present, but not both.[11]

of the fronted constituent, but on the grounds of specific weaknesses of the account in Oku (1998), which employs a powerful mechanism of LF-lowering. Our account is based on independently motivated mechanisms of ellipsis and hence is not susceptible to this criticism.

[11] Note that the related examples in (i) show that it is possible to front a *v*P containing non-finite *be* and *been* without doubling as well, contrary to what is claimed in the literature on the basis of examples like (ii) (Akmajian, Steele & Wasow 1979, Aelbrecht & Harwood 2015).

(i) (a) [$_{vP}$ Willingly been examined by the committee] he certainly has.
(b) ?[$_{vP}$ Stupidly be punished for someone else's mistakes] he probably will.

(ii) (a) *If he says he will be working all night, then [$_{vP}$ be working all night] he will.
(b) *If he says he has been working all night, then [$_{vP}$ been working all night] he has.

We believe that the relevant difference here is the presence of the initial adverb in the fronted *v*Ps in our examples, as this prevents the pitch accent associated with fronting of the *v*P from falling on the non-finite auxiliaries, which typically are not accented in this manner.

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(44) (a) [$_{vP}$ Willingly been examined by the committee] he certainly has **been**.
(b) ?[$_{vP}$ Stupidly be punished for someone else's mistakes] he probably will **be**.
(c) He certainly has (*__been__) willingly been examined by the committee.
(d) He probably will (*__be__) stupidly be punished for someone else's mistakes.

The examples in (43) and (44) show that the mismatches between the preposed *v*P and what is possible in its supposed base position can in some cases be very great indeed. This is not at all expected on a *v*P-movement account.

On the basis of these data, one might propose that there are no restrictions on the morphological form of the *v*P when it is moved to the initial position, with all morphological affixation processes being suspended when the *v*P is moved. However, it is not the case that the mismatches are completely unrestricted, as (45)–(46) show that it is not possible for there to be a mismatch between the fronted verb and the verb that would normally occur in the base position with respect to progressive and passive morphology.

(45) (a) *I thought I was losing my temper, and [$_{vP}$ lose my temper] I was indeed.
(b) *I was lose my temper.

(46) (a) *Eric said they'd penalise him unfairly, and [$_{vP}$ penalise unfairly] he was indeed.
(b) *He was penalise unfairly.

Similarly, not all doubling options are possible either. (47) shows that progressive *being* cannot be doubled in the same way that the passive auxiliary *been* can, even though it can be fronted productively (Harwood 2015: 550).

(47) If Darth Vader says that Han Solo was being frozen in carbonite, then [$_{vP}$ being frozen in carbonite] he was (*being).

Moreover, as pointed out to us by an anonymous reviewer, doubling is not possible with *be* when its form in the initial *v*P is different from what it would be in the base position.

(48) *Willingly been examined by the committee, Mary certainly will be.

Thus, the challenge to the *v*P-movement approach in accounting for bleeding and doubling is to restrict them so that it does not overgenerate these bad cases. It is far from clear how one would formulate the *v*P-movement rule to obtain this result.

By contrast, the distribution of doubling and bleeding effects in *v*P-preposing is expected on our ellipsis approach. On this account, mismatches arise when the *v*P that is base-generated in the initial position is different in morphological form from the one in the 'base position', and the limitations on what kinds

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of mismatches we can get are the limitations on what kinds of morphological mismatches are allowed between elided *v*Ps and their antecedents, in particular in cases of high *v*P-ellipsis. We recall from Section 2.2 that this is allowed in limited circumstances with high *v*P-ellipsis; in fact, it turns out that the possible mismatches line up quite closely with those that are allowed with what we get with *v*P-preposing.

First, let us consider bleeding, where the initial *v*P shows up in a less specified form than the one in the base position, and so there is ellipsis of a *v*P which carries verbal morphology that is not present in the antecedent. This was demonstrated by (41) above, and the schematic for what would be found underlying is given in (49). As (50) shows, high *v*P-ellipsis is possible in the same kind of configuration, where the verb in the antecedent clause is bare but the one in the putative ellipsis site ought to bear past participle morphology (see also (39) above for a similar mismatch). The mismatch here is slightly marginal for some speakers, and a comparable effect is found with *v*P-preposing cases like (41).

(49) ... [$_{vP}$ **lose** her temper] she has **~~lost~~** ~~her temper~~.

(50) A: Sue didn't lose her temper.
B: She has TOO ~~lost her temper~~.

As for the failure of examples (45)–(46), these are expected to be ungrammatical on the ellipsis analysis because the underlying structures would be as in (51)–(52), where the ellipsis site hosts progressive and passive morphology respectively. Mismatches with respect to progressive morphology are impossible with high *v*P-ellipsis, as shown by (53), and we have already seen in Section 2.2 that mismatches with respect to voice are not possible with this kind of ellipsis either.

(51) *... [$_{vP}$ lose my temper] I was indeed **~~losing~~** ~~my temper~~

(52) *... [$_{vP}$ penalise unfairly] he was indeed **~~penalised~~** ~~unfairly~~.

(53) A: John won't lose his temper.
B: *He is TOO ~~losing his temper~~.

(54) A: John won't penalise Molly unfairly.
B: *She will TOO be ~~penalised unfairly~~.

The ungrammaticality of the bleeding configurations in (45)–(46) thus follows from the fact that the initial *v*P is not able to provide a suitable antecedent for ellipsis of the *v*P in the 'base position'.

Now consider doubling, where the initial *v*P shows up in a more specified form than expected. For the simplest case in (42), this is expected since it involves ellipsis of a bare verb form under identity with a finite antecedent, as shown by (55). It is shown in (56) that this is possible with high *v*P-ellipsis.

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(55) ... [$_{vP}$ **lost** her temper] she did ~~**lose** her temper~~.

(56) A: Susan lost her temper.
B: She did NOT ~~lose her temper~~!

Doubling of the passive auxiliary as in (44), meanwhile, follows from the fact that it can optionally be included in the ellipsis site in cases of high *v*P-ellipsis, as (57) illustrates; for us, there is a strong preference for the (a) option, but (b) is also possible. With *v*P-preposing, then, doubling then arises when the smaller ellipsis site is chosen, with a *v*P containing the relevant auxiliary base-generated in the initial position, as shown by (58).

(57) A: John has been examined by the committee.
(a) He has NOT ~~been examined by the committee~~!
(b) ?He has NOT been ~~examined by the committee~~!

(58) Willingly been examined by the committee, he certainly has been ~~willingly examined by the committee~~.

The ellipsis account also predicts that doubling is ungrammatical with *being* because it is generally the case that *v*P-ellipsis is degraded with *being* adjacent to the ellipsis site (at least for many speakers), (59). Thus, (47) has the analysis in (60), which is ungrammatical for the same reason that (59) is (see Thoms 2010, Rouveret 2012, Sailor 2014 for suggestions regarding how to derive this restriction).

(59) A: Han Solo was being frozen in carbonite.
B: *He was NOT being ~~frozen in carbonite~~!

(60) ... [$_{vP}$ being frozen in carbonite] he was being ~~frozen in carbonite~~.

Finally, the proposal also allows us to account for the degradation of doubling where the non-finite forms of *be* do not match, whether or not the lower form is elided, since mismatches of this kind seem to be degraded with high predicate ellipsis.

(48) *Willingly been examined by the committee, Mary certainly will be.

(61) A: Mary hasn't been examined by the committee.
B: *Yes she will be ~~examined by the committee~~!

(62) A: Mary hasn't been examined by the committee.
B: *Yes she will ~~be examined by the committee~~!

It seems that the introduction of some additional semantic information with the modal *will* leads to too much of a mismatch between the antecedent clause and the ellipsis clause. Whatever causes this 'neophobia' with high *v*P-ellipsis can therefore be blamed for the degradation of similar mismatches with *v*P-preposing on our analysis.

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In sum, the evidence from morphological mismatches casts serious doubt on the standard analysis of *v*P-preposing, while at the same time supporting the claim that there is a parallelism between preposing and ellipsis. Importantly, these morphological mismatches between the initial *v*P and the form found in the base position are not seen in German *v*P-preposing: participles do not surface as infinitives under fronting in cases such as (63), even though participles sometimes show up as infinitives under adjacency with other participles (the IPP effect).

(63) *[$_{vP}$ Peter küssen] hat sie nicht.
Peter kiss-INF has she not
'She has not kissed Peter.'

In effect, German *v*P-movement shows the expected identity effects between the higher and lower positions in the proposed movement chain. Given that the preceding discussion has given us good reason to believe that German *v*P-fronting is indeed a movement rule, this should be unsurprising, and it only serves to underline the fact that the English facts are uncharacteristic of movement and so demand a non-movement analysis.

2.4 *Evidence against predicate movement*

If *v*P-preposing involved no movement, we would expect it to be immune to locality constraints, as shown by (64) for classical resumption (McCloskey 2006). As (65)–(66) illustrate, however, this is not the case.

(64) (a) (As for) Chomsky$_i$, I wasn't sure whether to believe the claim that my riddle reached him$_i$.
(b) They$_i$'re the kind of people that you can never be sure whether or not they$_i$'ll be on time.

(65) (a) *Hercules boasted that he had cleared the stables, but [$_{vP}$ cleared the stables] we didn't believe the claim that he had.
(b) *[$_{vP}$ Criticise everyone], John spread a rumour that you did.

(66) *John said he would win the race, and [$_{vP}$ win the race] he will do so.

Both Complex NP islands (65) and *do so* (66), which blocks A′-extraction, disallow extraction here. These examples suggest that movement is involved in the derivation of *v*P-preposing.[12] The question then is: movement of what? On the standard analysis, it is predicate movement, whereas on our analysis, it is movement of an operator. There are a number of properties that ought to distinguish operator movement and predicate movement, chief among these being

[12] This conclusion is not inescapable, as it is in principle possible for non-movement dependencies to be subject to locality constraints, as noted by Adger & Ramchand (2005: 167), who derive base-generated A′-dependencies via island-bound Agree relations between component parts of the dependency.

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reconstruction, since null operators should not show reconstruction effects at all, and locality, since null operators are known to show different boundedness properties from some other kinds of movement. We address each of these in turn and show that once we control for the role of ellipsis in *v*P-preposing, both of these diagnostics indicate that the movement involved is operator movement rather than predicate movement.

First, we consider reconstruction, and to do this we need to describe the reconstruction profile of predicate movement, taking *wh*-movement of predicates in English (discussed in Section 2.1) as a standard. It is well known that *wh*-moved predicates reconstruct obligatorily with respect to binding Conditions A and C, as shown by (67) and (68); note that in this respect they differ from *wh*-movement of arguments, which can create new Condition A binding configurations, (69), and sometimes bleed Condition C, (70).

(67) (a) How proud of herself$_{i/*j}$ did Alice$_j$ think Barbara$_i$ should be?
(Heycock 1995: 548)
(b) *How proud of herself$_i$ did Alice$_i$ think Bill should be?

(68) (a) How proud of John$_j$ does he$_{i/*j}$ think I should be?
(Huang 1993: 110)
(b) How proud of John$_j$ do you think he$_{i/*j}$ should be?
(Huang 1993: 110)

(69) Which picture of himself$_i$ did John$_i$ think Molly saw?

(70) (a) Which of John's$_j$ friends do you think he$_j$ will invite?
(b) Which of John's$_j$ friends did you introduce him$_j$ to?

Huang (1993) argued that the obligatory reconstruction effect is due to the fact that the predicates contain traces of the subject they apply to, and so the presence of this trace in the fronted constituent ensures that the binding conditions apply as if the argument were inside the predicate, with no need for reconstruction of the predicate to its base position. However, Heycock (1995) points out that the reconstruction effect in (68b) remains unaccounted for on this analysis, and she also points out that predicates seem to show Condition C reconstruction effects even when a predicate-internal trace is not wholly plausible, as in (71a).

(71) (a) *Sally$_i$'s own worst enemy, I would never consider her$_i$.
(b) ?Her$_i$ own worst enemy, I would never consider Sally$_i$.

Heycock proposes that the asymmetry between *wh*-moved arguments and predicates may be due to semantic factors like referentiality, such that non-referential phrases like predicates obligatorily reconstruct for semantic reasons.[13]

[13] Note, however, that this is not semantic reconstruction in the sense of Cresti (1995), since reconstruction of the predicate feeds Condition C, which seems to be a syntactic condition.

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A final property of *wh*-moved predicates which will be important here is that they do share some reconstruction properties with *wh*-moved referential arguments: they show ANTIRECONSTRUCTION EFFECTS. In particular, they show the effect whereby adjuncts seem not to reconstruct with the phrases they attach to, also known as the FREIDIN-LEBEAUX EFFECT (Freidin 1986, Lebeaux 1988). This is demonstrated for arguments in (72) and predicates in (73), where the adjunct is a relative clause. Note that in (73) the relative clause adjuncts are added onto arguments that are deeply embedded in the AP, indicating that late adjunction can target an embedded constituent (contra Sauerland 1998: ch.2).

(72) Which friends [that Baird$_i$ confided in] did she$_i$ subsequently avoid?
(Heycock 1995: 561)

(73) (a) How pleased with the pictures [Pollock$_i$ painted in his youth] do you think he$_i$ really was?
(b) How afraid of the people [Gore$_i$ insulted years ago] do you think he$_i$ is now? (Heycock 1995: 554)

The classic analysis of this phenomenon in Lebeaux (1988) is that adjuncts can be inserted countercyclically, with the antireconstruction effect being derived by adding the adjunct to the *wh*-phrase in Spec,CP; the lack of a copy of the adjunct in the lower position thus means that it cannot trigger Condition C effects even if the lower copy of the host *wh*P is interpreted. We adopt Lebeaux's analysis here, assuming that it can also account for examples like (70), although the exact details of how late adjunction is derived are not important. What is important, however, is that the late adjunction effect is fundamentally about the timing of adjunction, with adjunction to a higher copy in the chain resulting in the antireconstruction effect.

With this as background, we can now consider the case of reconstruction effects in *v*P-preposing. Huang (1993) provides the following examples to demonstrate that *v*P-preposing seems to show the same obligatory reconstruction profile as *wh*-fronting of predicates, in that it shows obligatory reconstruction for Conditions A and C.

(74) (a) Criticise himself$_{*j/k}$, John$_j$ thought Bill$_k$ would not.
(b) *Criticise himself, John thought Molly would not.

(75) (a) ?*Criticise John$_j$, he$_j$ said I will not.
(b) *Criticise John$_j$, I said he$_j$ will not.

Although this represents a serious problem for an analysis where there is only movement of an operator and no further structure in the 'base position', it can be handled by the matching analysis that we have proposed here, since the base position is occupied by another *v*P that is elided under identity with the initial *v*P. First, consider the Condition A data in (74). In Section 2.2, we argued that *v*P-preposing involves high *v*P-ellipsis, and we saw there with example (76), repeated

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here, that this kind of ellipsis does not allow for mismatches between ellipsis site and antecedent with respect to reflexives; that is, if there is a reflexive in the antecedent, one must also be interpreted in the same position in the antecedent. If this is implemented with *v*P-preposing, then (74) follows straightforwardly, since the reflexive in the ellipsis site will always need a local binder.

(76) John slapped himself, and Bill also did.
  (a) *Strict: John$_i$ slapped himself and Bill$_j$ also did ~~slap him$_i$~~.
  (b) Sloppy: John$_i$ slapped himself and Bill$_j$ also did ~~slap himself$_i$~~.

(77) Criticise himself$_{*j/k}$, John$_j$ thought Bill$_k$ would not ~~criticise himself$_{*j/k}$~~

A similar explanation would carry over for the Condition C data in (75) if we assume that the strictness of the ellipsis identity condition ensures that the ellipsis site contains the same r-expression that is contained in the antecedent.

(78) ?*Criticise John$_j$, he$_j$ said I will not ~~criticise John$_j$~~.

One potential problem here is that it ought to be possible to avoid a Condition C violation in (78) if the r-expression were changed to a pronoun by VEHICLE CHANGE (Fiengo & May 1994). Vehicle change is what is said to be involved in ensuring that the underlying structure for (79) is (a), where the ellipsis contains a pronoun, rather than (b), where the r-expression is copied in and a Condition C violation ought to be present. This poses no problem for an approach to ellipsis where the ellipsis identity relation is purely a semantic one (e.g. Merchant 2001), but it poses a non-trivial problem for theories that hold that the identity relation holds over syntactic structures (e.g. Chung, Ladusaw & McCloskey 1995, Merchant 2013).

(79) Mary loves John$_i$, and he$_i$ thinks Susan does too.
  (a) ... he$_i$ thinks Susan does ~~love him$_i$~~ too.
  (b) ... he$_i$ thinks Susan does ~~love John$_i$~~ too.

If vehicle change were possible with *v*P-fronting, with the lower *v*P containing only pronouns, then we might expect Condition C obviation in examples like (75). This would get the wrong result, and so we must address this possibility; otherwise, the Condition C data in (78) would present a problem for our analysis.

The question that we need to ask is whether vehicle change is always possible in unambiguous cases of high *v*P-ellipsis. Unfortunately, this is quite difficult to test, since there is no possibility of creating the correct test configurations with retorts or tag questions due to the fixity of the subject and the unembeddability of these constructions. Cases of symmetric coordination seem to allow for vehicle change, in that examples like (80) allow the subject to corefer with an r-expression in the ellipsis site. This is problematic if examples like (80) must have a high *v*P-ellipsis analysis and symmetric coordinations like (81) do not allow the indicated reading.

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(80) Mary loves John$_i$'s mother, and he$_i$ also does.

(81) Mary loves John$_i$'s mother, and he$_i$ also loves John$_i$'s mother.

However, both of these premises are somewhat hazy. Grodzinsky & Reinhart (1993) provide examples that are quite similar to (81), where there is strong parallelism, repetition of the r-expressions involved, and stress on the pronominal subject, and they note that many speakers allow for the coindexation indicated; they characterise these as instances of accidental coreference, and they submit that they are not regulated by binding theory proper. It is also not clear that a low *v*P-ellipsis analysis can be ruled out with examples like (80) entirely. This is particularly important because Drummond & Shimoyama (2014) have shown that vehicle change is not equally possible in all ellipsis configurations, and in fact it seems to be ruled out in configurations that are quite similar to high *v*P-ellipsis. Their crucial examples involve comparative stripping where the ellipsis remnant is the pronominal subject of the standard as in (82): in such configurations, this pronoun cannot corefer to expressions in the antecedent that would potentially occur in the ellipsis site. The contrast to (83) indicates that it is the size of the ellipsis site that is crucial.

(82) *John greeted Mary$_i$'s friends as often as her$_i$.

(83) John greeted Mary$_i$'s friends as often as she$_i$ did.

If comparative stripping involves ellipsis of the whole clause except the subject, then it is very similar to high *v*P-ellipsis, where a large chunk of the clause is taken as the antecedent for ellipsis, and so this might be taken as an indication that there is some problem with vehicle change with big ellipsis of this kind more generally. At the very least, this suggests that it is wrong to assume that vehicle change is always available with ellipsis.[14] We take this as grounds to dismiss the challenge from vehicle change to our ellipsis analysis, although we admit that this is a frailty of our account which requires further attention.

Now, let us consider the antireconstruction effects associated with late merger of adjuncts, as it is with these that the predictions of the different accounts of *v*P-preposing differ. The standard predicate movement account predicts that it should be possible to late-adjoin a relative clause to an argument inside the preposed predicate, as (73) showed that this is possible with *wh*-moved predicates. However, this prediction is not borne out, as (84), from Landau (2007: 156), indicates that antireconstruction does not seem to be available with *v*P-preposing. In (85), further examples are provided that demonstrate the same point: the

[14] As Bhatt (2002) notes, data from relative clauses in Safir (1999) indicate that vehicle change is not possible in matching relatives, contrary to what is argued by Sauerland (1998). If matching in relatives is sufficiently similar to matching in *v*P-preposing, then this is another source of evidence for our assertion that Condition C does not threaten our analysis.

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pronoun needs to be interpreted as disjoint from the r-expression contained in the relative clause that modifies the argument.

(84) *Deny the accusations Harry$_i$ made, no doubt he$_i$ expected that Jane would.

(85) (a) *Criticise the students that John$_j$ taught, he$_j$ said Mary did.
(b) *Criticise the students that John$_j$ taught, Mary said he$_j$ did.

Although the lack of antireconstruction is unexpected on the predicate movement account, it is precisely what is predicted by the matching analysis we are proposing here. To see this, consider the schematic in (86), which represents (84) on a matching analysis.

(86) Deny the accusations Harry$_i$ made, no doubt he$_i$ expected that Jane would ~~deny the accusations Harry$_i$ made~~

Here, the 'trace' position contains a complete *v*P which is elided under identity with the initial *v*P, and since the initial *v*P contains the relative clause, the ellipsis identity condition dictates that the lower one must too.[15] The *v*P in the initial position is not moved to its surface position, so there is no question of adjoining the relative late to ensure that it is not part of the antecedent, and thus late adjunction is unable to evade the Condition C violation that obtains by putting the r-expression in the relative in the c-command domain of the matrix subject. Thus, the matching analysis correctly predicts there to be no effect of late adjunction, because there is no movement of a *v*P that can be adjoined to late.

Now, we consider evidence from locality, which is in fact intrinsically connected to the argument from reconstruction just stated. The empirical observation that we begin with (from Chomsky 1986: 20) is that *v*P-preposing does not seem to be sensitive to *wh*-islands, as in (87), which shows only the mild degradation associated with extraction of DPs.

(87) ?[$_{vP}$ Fix the car], I wonder whether he will.

This is unexpected on the predicate movement account, since it is known that predicates and other non-referential expressions are sensitive to weak islands (Cinque 1990b), a fact that Cresti (1995) attributes to weak islands being

[15] As Landau (2007: 156) notes, when an adjunct modifies the initial *v*P rather than a contained argument, there seems to be no reconstruction of that adjunct for Condition C.

(i) Eat food at Mary$_i$'s party – she$_i$ knows I wouldn't.

Landau points out that the contrast between (i) and (84)–(85) is predicted if this is predicate movement, and late adjunction can only target the highest projection of a moved constituent. Since we know that this is not what is responsible for the ungrammaticality of (84)–(85) (cf. (73)), we must look elsewhere for an explanation. As it happens, (i) follows straightforwardly from the ellipsis account if it is possible for the antecedent for ellipsis to be a segment of the initial *v*P that excludes the adjunct, an option that is argued to be possible by Sag (1976) and Merchant (2000) on independent grounds.

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impervious to reconstruction. This is demonstrated in (88) for non-referential arguments and AP predicates (from Heycock 1995: 562–563), and (89) demonstrates that the same holds for DP predicates.

(88) (a) *?How many books did she wonder whether to publish?
(Heycock 1995: 563)
(b) *How intelligent did she wonder whether he was?
(Heycock 1995: 562)

(89) (a) *England's greatest striker, we all wonder whether he will become one day.
(b) England's greatest striker, we all think he will become one day.

By contrast, it has been independently observed that many constructions analysed as operator movement can escape weak islands (Lasnik & Stowell 1991), so these data cause no problems for the matching analysis.

An additional, similar argument in favour of the operator-movement analysis comes from British *do*, which *v*P-preposing can escape, as seen above in (43), (43a) repeated here. Building on Haddican (2007) and Baltin (2012), Thoms (to appear) notes that British *do* can be characterised as a selective island, disallowing *wh*-extraction but allowing comparative extraction and QR over negation.[16]

(90) John said he would win the race, and [$_{vP}$ win the race] he will **do**.

(91) *Although I don't know which book Fred will read, I do know which book Tom will do.

(92) The government are acting much more carelessly than they would do if there was an election on the horizon.

(93) (a) Some man will read every book, and some woman will do, too. *$\forall > \exists$
(b) Rab won't finish two thirds of the exam. Morag won't do, either. ?$2/3 > \neg$

Thoms (to appear) argues that the relevant generalisation regarding extraction from British *do* is that, like (other) weak islands, it bans reconstruction of extracted material. This accounts for the difference between (93a) and (93b), where the problem with (93a) is not the inability of QR to escape British *do* (as proposed by Haddican 2007), but rather the inability to reconstruct the subject, since subject reconstruction is a prerequisite for inverse scope (Hornstein 1995); moreover, it also accords with the restrictions on *wh*-movement, since

[16] By contrast, *do so* disallows all of these extractions. As a reviewer notes, the ungrammaticality of *v*P-preposing with *do so*, as shown by (66), suggests that operator movement originates within *v*′, and not simply from the subject as suggested by the analysis in (7). We remain agnostic on this issue, as the precise base position of the operator is not crucial to the core of the analysis.

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wh-movement seems to reconstruct obligatorily (Chomsky 1995). The matching analysis then predicts that *v*P-preposing should be able to escape British *do*, since the operator does not need to reconstruct; this prediction is borne out, as we have already seen. Under the standard analysis, on the other hand, *v*P-preposing would also be the only form of overt movement to escape British *do*, and hence paradigmatically highly anomalous.

2.5 *Reconstruction into vPs*

One final empirical issue that we should address is reconstruction of the subject into a preposed *v*P. This is one empirical domain in which *v*P-preposing and *wh*-movement of predicates pattern together entirely, so it does not tease apart the matching and movement analyses, but nevertheless it is important for us to show that the facts follow from the matching analysis.

The received wisdom on reconstruction into moved predicates is that it is impossible: see Barss (1986), Sauerland & Elbourne (2002), van de Koot (2004) and much subsequent literature. Sauerland & Elbourne (2002) dub this *Barss' generalisation*, and their example (94) demonstrates this for scope reconstruction with *wh*-moved predicates; (95) (from Lasnik & Saito 1992) does so for reconstruction for idiom interpretation.

(94) How likely to address every rally is some politician? **every/likely>some*

(95) *How likely to be taken of John is advantage?

Now consider *v*P-preposing. The examples in (96) (adapted from Bobaljik & Wurmbrand 2012) and (97) show that the subject fails to reconstruct with this construction as well.[17]

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[17] Dorfman et al. (2002) and Rimell & Leu (2004) argue that the reconstructed reading is in fact available for *v*P-preposing, based on examples like (i). They use this fact to argue that *v*P-preposing involves not one movement to the left periphery, but two – a conclusion reached independently by Baltin (2006), based on examples like (ii).

(i) Stationed in front of every tent a soldier is. (Rimell & Leu 2004: 3)

(ii) Visit them$_i$ he did on each other$_i$'s birthdays. (Pesetsky 1995)

(iii) Congratulate every boy$_i$ she did at his$_i$ graduation. (Pesetsky 1995)

In our view, the multiple-movements analysis cannot be sustained, for four reasons. First, Rimell and Leu's generalisation is disputed in many places, with Bobaljik & Wurmbrand (2012) reporting that examples like (i) are ungrammatical on the inverse scope reading when modified by a temporal adverbial like *that day* or *this year*, as in (96b); Rimell and Leu note such an effect when the modifier occurs in the preposed array, and they suggest that this follows from their analysis, but this does not cover Bobaljik and Wurmbrand's (96b), where the adjunct occurs adjacent to the lower 'gap' position. As Sauerland & Elbourne (2002: 305, fn.24) note, the effect of the temporal is to block a generic interpretation that gives rise to the scope illusions discussed by Fox & Sauerland (1996), so this effect indicates that this is what we are dealing with in Rimell and Leu's key data. Second, the example (ii) that is crucial for Baltin was accepted by only two of the 12 native-speaker linguists we tested it on; even Baltin (2006: 736, fn. 3) notes that there is disagreement. Janke & Neeleman (2012) observe that the supposed

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(96) (a) A policeman was standing in front of every bank that day. ∀ > ∃, ∃ > ∀
(b) Standing in front of every bank a policeman was that day. *∀ > ∃, ∃ > ∀
(c) Standing in front of every bank though a policeman was that day... *∀ > ∃, ∃ > ∀

(97) (a) *They said that advantage would be taken of John, and taken of John advantage certainly was.
(b) *Taken of John though advantage was, no one seemed to care.

The same pattern of judgments holds irrespective of which kind of *v*P is fronted (demonstrated above for progressive and passive *v*Ps), so aspectual and categorial factors are not to blame here. These facts indicate that *wh*-movement of predicates and *v*P-preposing both fall under Barss' generalisation: reconstruction into the moved predicate is in both cases impossible.

However, in Thoms & Walkden (2015) and in Section 4.1 below, we demonstrate that reconstruction into a moved constituent is NOT impossible, since it is possible to reconstruct into extraposed relatives (Heycock 2012, contra Hulsey & Sauerland 2006), so Barss' generalisation (or whatever is supposed to derive it; see, e.g., Sauerland & Elbourne 2002) cannot be relied upon to account for the lack of reconstruction into moved predicates and *v*Ps alike. Thoms & Walkden (2015) defend an approach to the lack of reconstruction into *wh*-moved predicates (from Lasnik & Saito 1992) according to which there was no A-chain connecting the surface subject in Spec,TP and the subject position within the predicate, but rather the surface subject was base-generated in Spec,TP and the predicate contained a PRO subject; the lack of reconstruction thus followed from the fact that there is no reconstruction in control dependencies.

The same analysis extends to *v*P-preposing, although it requires some elaboration. Recall that, on the matching analysis, the internal subject position in the preposed *v*P is also occupied by PRO, as schematised for (96b) in (98).[18]

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reciprocal *each other's* (specifically the possessor use) can be interpreted logophorically when unbound, and this is likely to be driving the acceptability of (ii) for those few speakers who accept it. As for (iii), this kind of example only motivates the multiple-movements approach insofar as c-command is taken to be the crucial notion involved in variable binding; however, as Bruening (2014) convincingly shows, precedence rather than c-command determines variable binding possibilities, and so the argument from (iii) dissolves. Third, fronting of more than one constituent to the left periphery in English is normally extremely marginal (Fukui 1993: 406), and to the extent that it is acceptable, it is accompanied by an extremely distinctive intonation pattern containing a prosodic break; these are not characteristics of *v*P-preposing (Vicente 2007: 112). Fourth, this type of analysis would leave the Potential Complete *v*P Constraint (Phillips 2003, Landau 2007), according to which any preposed *v*P must have the potential to occur as a complete *v*P in its own right, totally unexplained: why are the two movements tied together, and why can they not be reordered?

[18] As with *wh*-moved predicates, the PRO in the initial predicate is motivated by the incompatibility of *v*P-preposing with expletive subjects.

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(98) Op_k [$_{vP}$ PRO_i stand in front of every bank] [$_{TP}$ [$_{TP}$ [$_{DP}$ a policeman]$_j$ did ~~[$_{vP}$ t$_j$ t$_k$ stand in front of every bank]~~ that day]]

Regarding (98), the lack of inverse scope in the initial *v*P follows again from the fact that the subject is PRO. With the *v*P in the 'base position', one might expect that the subject could reconstruct into the elided *v*P to derive an inverse scope interpretation there. However this option would be blocked by SCOPE PARALLELISM, the condition that ensures that an ellipsis site and its antecedent are identical with respect to scope relations of quantificational elements (Fiengo & May 1994, Fox 2000). Reconstructing the subject into the *v*P to scope below the object in the elided would result in a violation of Scope Parallelism since there is no corresponding quantificational subject that would reconstruct in the antecedent *v*P in the initial position (it is PRO).[19]

We can see, then, that the lack of reconstruction into *v*Ps is compatible with the matching analysis, while the movement account needs to say something extra to account for this; this something extra could be some stipulation that rules out reconstruction into moved *v*Ps specifically. However, we will see in the next section that such a stipulation will not work.

2.6 *Summary*

To summarise, we have seen that the matching analysis we proposed for English *v*P-preposing accounts for a large number of curious properties of the construction: the ellipsis licensing condition on the gap position, the distribution of morphological mismatches between the expected and possible forms of the initial *v*P, the (apparent) reconstruction properties of the dependency between the initial *v*P and the gap, and the impossibility of reconstruction into the fronted *v*Ps. All of these properties are problematic for the standard movement account, so much so that they ought to lead us to the conclusion that it must be rejected in favour of an alternative, either the matching analysis or something like it. However the details work out, what is important is that this seems to show us that true *v*P-movement is not possible in English, at least as an analysis of *v*P-preposing.

The crucial question at this point is why *v*P-movement should be ruled out in this instance. This question becomes especially pressing in light of our argument that German *v*P-preposing DOES involve movement (since it contrasts with English *v*P-preposing in not displaying idiosyncratic licensing restrictions or morphological mismatches). We will return to this question in Section 4, once

(i) (a) It was believed that rioting would take place.
(b) *Believed that rioting would take place though it was, the police were not deployed.

[19] Recall that we do not analyse all instances of predicate fronting as being derived by matching, and so we should state clearly what kind of analysis we provide for the antireconstruction patterns exhibited by examples like (94). We assume with Lasnik & Saito (1992) that such examples are derived by movement of the predicate but with a PRO in the predicate-internal position rather than a copy of A-movement. See Thoms & Walkden (2015) for more discussion.

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we have examined the other major *v*P-fronting construction in English: participle preposing.

3. True *v*P-movement in English: participle preposing

Participle preposing is exemplified by (2), repeated here as (99), where we see a participial *v*P-projection occurring in the initial position, and the subject of that predicate occurring to the right of the auxiliaries.

(99) Sitting at the table should be a bottle of wine chosen especially for you by the sommelier.

We propose that (99) should be analysed as involving rightward extraposition of the subject and leftward movement of the remnant *v*P. Since this is TRUE *v*P-movement, rather than a matching analysis, we therefore predict that it should differ from *v*P-preposing with respect to crucial diagnostics of movement dependencies. As we will see in Section 3.2, this prediction is borne out. We begin by motivating the subject extraposition analysis before then turning to the evidence for true *v*P-movement.

3.1 *A subject extraposition analysis*

The two key word order properties of participle preposing that any analysis of the construction needs to capture are the non-canonical initial position of the *v*P and the non-canonical rightward position (to the right of the auxiliaries) of the subject. These two issues are also at the heart of all analyses of locative inversion (LI), another inversion construction which has been examined in much more detail in the literature.

(100) Into the room walked John.

Locative inversion and participle preposing have a number of properties in common (Haegeman 2008), including the distinctive information structural properties identified for LI by Birner (1992) and Levin & Rappaport Hovav (1995),[20] so it is useful to consider the arguments brought to bear on the former to arrive at an analysis of the latter.

First, let us consider the position of the fronted XP. With LI, the initial PP is located in the subject position by Levin & Rappaport Hovav (1995), Culicover & Levine (2001), and Doggett (2004); Bresnan (1994) adopts a similar stance in an LFG framework, according to which the PP is the subject but it occupies a topic position in c-structure, roughly equivalent to a transformational analysis

[20] These discourse properties restrict us from testing a variety of predictions regarding properties that may distinguish it from *v*P-preposing, such as participle preposing in environments that do not license *v*P-ellipsis. Unfortunately, we cannot go into detail on this matter here.

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where the subject undergoes topicalisation at S-structure. Two relevant sources of evidence are provided for the PP being in a subject position: (i) further extraction of the PP is subject to the *that*-trace effect, (101) (Bresnan 1994: 97), and (ii) the PP can be raised to a higher subject position like regular DP-subjects, (102) (data from Postal 2004: 18).

(101) It's in these villages that we all believe (*that) can be found the best examples of this cuisine.

(102) On the wall seemed to be standing two large blackbirds.

Examples (103) and (104) show that the same properties hold of the fronted verbal projection in participle preposing: it can be topicalised into a higher clause but is subject to the *that*-trace effect, and it can undergo raising when embedded under *seem*.

(103) Sitting next to John, I insist (*that) should be the new mayor of the city.

(104) Undermining Abbey's confidence seems to be the decline in value of Lloyd's shares. (Samko 2014: 4)

This indicates that the preposed participle occupies Spec,TP or some such neighbouring position at at least one point in the derivation. Now, consider the position of the subject of the *v*P. With LI, it was previously proposed by Coopmans (1989), Hoekstra & Mulder (1990), and Levin (1986) that the postverbal subject is an in-situ subject; this was motivated by the fact that LI is most productive with unaccusative and passive verbs, with which an in-situ analysis for the subject would correctly locate it in a postverbal position (assuming the *v*P-internal subject hypothesis). However, Levin and Rappaport Hovav (1995: Chapter 6) argue convincingly against this proposal, showing that LI occurs productively with a number of unergative verbs, such as *walk* (as in (100)) or *stand* (as in (102)). Building on Birner (1992), Levin and Rappaport Hovav show that the tendency for the use of unaccusative and passive verbs in LI, as well as the apparent exceptions with unergatives, follows from the discourse properties of the construction.[21] Importantly, since unergative subjects would not be base-generated postverbally on any account, it follows that the postverbal subject in LI sentences like (100) and (102) must be in some rightward-branching position. One argument for the rightward position of the subject DP that is put forth in the literature (Bresnan 1994, Doggett 2004) is that extraction of or subextraction from the postverbal

[21] Levin & Rappaport Hovav (1995: 230) show that LI requires that the postverbal DP be less familiar than the preverbal PP (though not necessarily discourse-new), and that the verb and any other material that intervenes between the initial PP and final DP be 'informationally light'. The latter requirement has the effect of restricting LI to certain predicates that contribute information that can be inferred from the context, such as verbs of appearance. Importantly, though, these conditions also make the construction incompatible with a variety of other modifications, such as the addition of manner adverbs, negation, or certain additional layers of embedding.

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subject is impossible, (105a), a fact that would follow from the extraposition analysis given that extraposed XPs are generally islands to extraction, (105b).[22]

(105) (a) *?What kind of mushroom do you think can be found (specimens of)?
(b) *What did you find in your attic a picture of?

Another, perhaps stronger, argument comes from the relative position of the subject and other elements that are normally *v*P-internal or higher. For instance, Doggett (2004: 39) shows that the subject always occurs to the right of the *v*P-internal particle in LI, as shown by (106), indicating that it is at least as high as *v*P-adjoined; if the subject were in-situ inside the *v*P, this would be unexpected. Similarly, Levin & Rappaport Hovav (1995: 266) show that the subject may also follow IP-level modifier PPs, as in the attested example in (107). Intervening material is generally quite restricted due to the discourse conditions on LI, which dictate that the pre-subject material introduces a minimal amount of information in addition to what is presented by the locative in the initial position.

(106) (a) In the notepad were written down the numbers.
(b) *In the notepad were written the numbers down.

(107) Out of the mud-brick ruins of temples and ziggurats have emerged [over the last century] the traces of cities whose names evoke the rise of human civilisation.

We conclude that subject extraposition is possible in at least some cases of LI, although the launching and landing sites of this extraposition are not easily determined.

Now, let us consider participle preposing. Like LI, this might be analysed either as involving rightward extraposition of the subject or as involving leftward movement to some specifier position outside the *v*P-shell followed by remnant movement of the *v*P-shell. An implementation of the latter analysis is proposed by Samko (2014), who argues that the subject moves from *v*P to the specifier of a PredP projection, which is projected above *v*P. Note that this position must also be above the progressive layer of the IP-domain, since progressive auxiliaries can be fronted in participle preposing as well.

(108) Being tried separately from Koike are Nomura and three former executives.

(Samko 2014: 372)

[22] One might object that extraction from the postverbal subject is degraded because of some interaction between *wh*-movement and the presentational focus on the subject. However, it seems unlikely that this is the source of the problem, since Culicover & Levine (2001: 306) note that the postverbal subject can host *wh* in-situ.

(i) (?) Out of which room came who?

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It is not clear to us whether there is any evidence for locating such a PredP projection so high in the IP-domain, or indeed for the existence of such a projection in addition to *v*P at all, so this analysis has a somewhat stipulative character, and leaves the commonalities of LI and participle preposing somewhat mysterious. By contrast, the extraposition analysis is lent great plausibility by the preceding analysis of LI, and providing a unified analysis captures the fact that the discourse properties of the two constructions seem to be identical.[23] We can also replicate the two arguments for subject extraposition for participle preposing. First, extraction of or subextraction from the subject is impossible, even though further extraction of the *v*P itself is possible ((103) above).

(109) *What kind of mushroom do you think growing in these fields will be (specimens of)?

Second, the subject appears to the right of right-adjoined IP-level adjuncts, (110); as before, though, this is restricted by the discourse conditions of the construction, and in general the preference is for the adjuncts to be fronted along with the participle.[24]

(110) (a) Sitting at the table should be [for all to see] a bottle of wine chosen especially for the table.
(b) Waiting in the foyer is [just now] the greatest footballer of our generation.
(c) bubbling beneath the surface is [still] a lot of rage (COCA; Davies 2008-)

Thus, the subject extraposition analysis of participle preposing seems to be well motivated.[25]

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[23] A reviewer asks whether our analysis predicts that it should be possible to pied-pipe low subjects in the fronted *v*P (e.g. **Several men in the garden were there*). We take the discourse properties of the construction, as discussed above, to be responsible for the ungrammaticality of such examples: the postverbal material must be less familiar than the preverbal material, and expletive *there* never expresses new information.

[24] A reviewer suggests that the examples in (110) involve parentheticals. These examples are fully acceptable without an intonational break or any other prosodic signs of parentheticality, however.

[25] An issue that needs to be addressed is why subject extraposition is possible with participle preposing and LI when it is normally not possible when the *v*P is in situ.

(i) *Are being tried separately from Koike Nomura and three former executives.

However, subject extraposition is not restricted to these inversion contexts, but rather it is also possible with *so*-inversion, (ii) (Toda 2007), and in elliptical comparatives, (iii) (Merchant 2003, Culicover & Winkler 2008).

(ii) But the main elements have been retained and so, more importantly, has been the standard.
(iii) Today's air travel is unquestionably a much worse experience than might be the proverbial root canal. (Culicover & Winkler 2008: 630)

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We assume this subject extraposition analysis in what follows, although we will not get into the details of determining the precise timing of subject extraposition in the derivation; all that matters is that the subject is extraposed to a position to the right of the base position of the *v*P.

(111) $[_{vP}$ ~~DP$_{subj}$~~ ...] ... ~~DP$_{subj}$~~ ... ~~$[_{vP}$ DP$_{subj}$ ...]~~ ... **DP**$_{subj}$

In the following subsections, we discuss key properties of participle preposing that are relevant for the comparison with *v*P-preposing. The discourse restrictions on participle preposing prevent us from testing some of the properties that we tested with *v*P-preposing, but nevertheless we argue that some of participle preposing's distinctive properties indicate that it must be treated as a true *v*P-movement operation, rather than as involving a matching analysis.

3.2 *Reconstruction in participle preposing*

Perhaps the most important distinctive property of participle preposing (hitherto unnoticed as far as we can tell) is that the subject may reconstruct into the initial *v*P. This is demonstrated by (112), where the subject *a different bottle of wine* can scope below the universal quantifier *every table*, receiving a distributive interpretation. (The subject may take widest scope if *different* is omitted.)

(112) Sitting at every table should be a different bottle of wine chosen especially by the sommelier. $\forall > \exists$

Further examples demonstrating the possibility of subject reconstruction into the fronted predicate are given below. In (113), a further example is provided of subject reconstruction (this time interacting scopally with a direct object) on the assumption that inverse scope requires subject reconstruction (see references in Section 2.5). In (114), we see that bare plural subjects of fronted verbal and adjectival predicates may receive existential interpretations, an interpretation that is argued by Diesing (1992) and Fox (1995) to require reconstruction of the subject back into the predicate. This last example is important since it allows us to dismiss an analysis of the effect in the other cases where the wide-scoping universal quantifiers scope over the subjects by QRing out of the initial *v*P into a

All of these contexts share in common the property that the left periphery is occupied by some other operator-like element that is not prosodically separated from the vacant subject position, and, as noted extensively in the literature on LI, in most though not all cases this vacated position can be filled by an overt expletive *there*. Since *there*-insertion is typically taken as a sign of an 'EPP effect', we propose that subject extraposition is bad in cases like (i) because of a violation of the EPP requirement on T, which can be satisfied either by Spec,TP being filled by a nominal or by some other category like a PP, *v*P or indeed a CP immediately adjacent to this position. This seems to require a phonological theory of EPP like that in Richards (2010, 2014); working out the precise details would take us too far afield here, so we must leave this topic with these suggestive remarks.

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position c-commanding the subject: no such trick could be performed to get the existential reading of the subject in (114), since it is derived by reconstruction.

(113) Guarding every station is at least one policeman with the requisite training. $\forall >$ *at least 1*

(114) Waiting/available at stations around the country are policemen with the requisite training.

These contrast strikingly to their regular *v*P-preposing counterparts. Recall from Section 2.5 that *v*P-preposing always disallows reconstruction of the subject back into the fronted constituent. This is shown by (115)–(117), which differ minimally from (112)–(114) and which all disallow the reconstructed readings.[26]

(115) Sitting at every table, a (#different) bottle of wine should be. $*\forall > \exists$

(116) Guarding every station, at least one policeman is. $*\forall >$ *at least 1*

(117) *Waiting/available at stations around the country, policemen are.

This difference is predicted on the present account. We recall from Section 2.5 that the lack of reconstruction with *v*P-preposing is predicted on the matching analysis, since there is no trace of the overt scope-taking subject in the initial *v*P. By contrast, we argue that participle preposing may be derived by true *v*P-movement, with a trace of the subject in the moved verbal constituent, so reconstruction into that constituent ought to be possible unless some other factors interfere.

The fact that reconstruction into the fronted *v*P is possible with participle preposing also has implications for the analysis we provided for *v*P-preposing above. We recall that *v*P-preposing generally disallows reconstruction of the subject back into the moved predicate, a generalisation established by Barss (1986) and called 'Barss' generalisation' by Sauerland & Elbourne (2002). As we noted above, movement-based analyses of *v*P-preposing can appeal to this generalisation and whatever derives it in accounting for the lack of reconstruction back into the initial *v*P in *v*P-preposing, and so they may usefully counter that our alternative account in terms of ellipsis parallelism would fare no better. However, Barss' generalisation is clearly falsified by the data in this section, and so the movement analyses of *v*P-preposing are left without an account of the reconstruction facts. The availability of reconstruction is arguably the most reliable source of evidence for the presence of a movement dependency that we can draw upon in studies of this kind, so the contrast between *v*P-preposing and participle preposing presents a very strong argument for our proposal that the two constructions have very different derivations.

[26] The examples have been changed slightly to make the subjects shorter to give them as good a chance of being well-formed as possible. This change is required since *v*P-preposing also differs from participle preposing with respect to the heaviness condition on the subject. The scope judgments do not change if the subjects are longer.

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3.3 *Restrictions on participle preposing*

Another property that distinguishes the two constructions is that *v*P-preposing is possible in a number of *v*P-ellipsis-licensing configurations that disallow participle preposing. Thus, in Section 2.1, we saw that *v*P-preposing is compatible with bare infinitives as well as perfect, simple past, passive, and progressive participles. By contrast, only passive and progressive participles participate in participle preposing.

(118) (a) *Meet him next week will Wiggins' new teammate.
(b) *Met him twice this week has Wiggins' new teammate.
(c) *Meet him last week did Wiggins' new teammate.
(d) Meeting him today is Wiggins' new teammate.
(e) Met by his team on the road was Bradley Wiggins.

This tells us that the matching analysis is unavailable for participle preposing, since if it were available, all of these would be grammatical: the initial *v*Ps are all *v*P types that can normally be elided. There are two reasons why matching might not be available for participle preposing, both relating to the rightward position of the subject. One possibility is that the rightward subject is adjoined quite low, within the *v*P that would be targeted by *v*P-ellipsis in a matching analysis, and so a matching analysis would derive subjectless clauses rather than the structure that we see with the subject finally. Alternatively, it could be that subject extraposition causes problems for the operator movement step; for instance, if it is the case that the operator is adjoined to the subject of the lower *v*P, extraction of that operator would be rendered impossible by subject extraposition, given that extraposed constituents in English are typically islands for subextraction. We will not settle on a specific analysis here, since it is not clear how one would decide upon one analysis or another, but it seems sufficient to us that there are a few reasons why matching would not work for participle preposing.

Of course, the data in (118) are not straightforwardly predicted by a movement account of participle preposing, since it is not clear why only progressive and passive participles may front. We return to this question in Section 4.2, where we argue that it is a reflex of a very general (possibly universal) condition on movement, one that only reveals itself once we reanalyse *v*P-preposing in terms of base-generation.

3.4 *Summary*

In this section, we have shown not only that evidence for the matching analysis is lacking for participle preposing, but also that the matching analysis is unavailable for participle preposing. We have proposed an analysis in which the subject is extraposed rightward from its *v*P-internal position, followed by leftward remnant movement of the *v*P. The restricted nature of participle preposing has prevented us from testing a number of properties that might distinguish it from true

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*v*P-preposing, such as island effects and morphological mismatches, but nevertheless we have seen that reconstruction effects, arguably the most reliable diagnostic for movement dependencies that we have, force us to draw a distinction between the two constructions. Why these two different types of *v*P-fronting turn out to require such different derivations, when they are examined in detail, will be the subject of the next section.

4. *v*P-PREPOSING VERSUS PARTICIPLE PREPOSING: TOWARDS AN ACCOUNT

The key facts that this section aims to account for are (i) why remnant *v*P-movement is available in participle preposing but not in *v*P-preposing and (ii) why the true *v*P-movement of participle preposing is restricted to *v*Ps headed by passive and progressive participles. We account for these using two constraints that, we argue, are derived from independent conditions on the realisation of movement chains at the interfaces. The first, a constraint that linearises either the leftmost or the rightmost occurrence of a moved element, receives independent motivation from a range of cross-linguistic facts (see Thoms & Walkden 2015) and is dealt with in Section 4.1. The second, the *N-only constraint*, captures what is to the best of our knowledge a novel generalisation about movement processes in English; this is discussed in more detail in Section 4.2, where we sketch an account in terms of Fox's (2002) trace conversion rule.

4.1 *The Excluded Middle Constraint*

The standard analysis of *v*P-preposing is reproduced in (119a), together with our analysis of participle preposing in (119b). Here we adopt the copy theory of movement (Chomsky 1995) and use struckthrough copies to represent traces of movement.

(119) (a) $[_{CP}\ [_{vP}$ ~~he~~$_j$ eat the pies$]_i$ he$_j$ did ~~$[_{vP}$ he$_j$ eat the pies$]_i$~~$]$

(b) $[_{CP}\ [_{vP}$ ~~[a bottle ...]~~$_j$ sitting at the table$]_i$ should be ~~$[_{vP}$ [a bottle ...]$_j$ sitting at the table$]_i$~~ [a bottle ...]$_j$ $]$

Both (119a) and (119b) involve extraction of the subject from the *v*P followed by leftward remnant movement of the *v*P, and so both involve REMNANT MOVEMENT, that is, movement of a constituent containing a trace. Numerous authors have argued for imposing restrictions on remnant movement, with some banning it in certain movement rule combinations (Müller 1998, Abels 2008) and others ruling it out entirely (Saito 1985, 2002; Lasnik & Saito 1992), so it is possible that the restriction in (119a) is attributable to some such constraint. However, if remnant movement is the problem, why does it not also rule out (119b)?

We propose that the crucial difference between (119a) and (119b) is where the subject chain is linearised. Looking again at the flat representations in (119), we can see that the copy of the subject that is linearised in *v*P-preposing is an intermediate one in the linear sequence, since there are unpronounced copies in

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the initial *v*P, which is to the left, and the base copy of that *v*P, which is to the right. In Thoms & Walkden (2015), we propose the constraint in (120).

(120) In a chain, either the leftmost or the rightmost copy must be pronounced.

We call (120) the EXCLUDED MIDDLE CONSTRAINT (EMC), and our proposal is that it is a general constraint on the linearisation of all dependencies formed by Remerge, rather than a remnant movement-specific constraint. The EMC clearly gets the right result with standard spec-to-spec cyclic movement chains, as these typically involve spelling out the highest and leftmost copy of the moved element, and in those cases where some PF-constraint rules out the pronunciation of the highest occurrence, the result is that we spell out the lowest and rightmost copy of the moved element, rather than some intermediate copy (Bošković 2002, Bošković & Nunes 2007).[27] The EMC also accounts for the fact that in right node raising (RNR) constructions, where a given XP seems to be shared by a number of selecting heads at once, it is the rightmost occurrence of the shared XP that is linearised and never an intermediate one.[28] In Thoms & Walkden (2015), we show that the effects of (120) follow from a simple linearisation algorithm for multidominance trees modelled on the proposal in de Vries (2009), and we argue that it requires no more stipulation than alternative accounts that derive copy pronunciation in terms of feature strength and copy deletion.

Returning to the case of remnant movement, (120) has the effect of ruling out all instances of remnant movement where both the container XP and the containee YP move leftwards, as in (121), since all such derivations will require the linearisation of the containee in an intermediate position like in (119a) (assuming that cyclicity is respected). On the other hand, remnant movement derivations like (122) and (123), where the container and containee move in different directions, can be linearised by (120), and so if this constraint is what is responsible for remnant movement restrictions, in general, we should expect that these should be possible.

(121) * [$_{YP}$ ... ~~XP~~ ...] ... **XP** ... ~~[$_{YP}$ ... XP ...]~~ ...

(122) ✓[$_{YP}$ ... ~~XP~~ ...] ... ~~[$_{YP}$ ... XP ...]~~ ... **XP** ...

(123) ✓**XP** ... ~~[$_{YP}$ ... XP ...]~~ ... [$_{YP}$ ... ~~XP~~ ...] ...

[27] Bošković & Nunes (2007) also discuss instances in which more than one copy is spelled out. They argue that this is available only in highly exceptional circumstances, namely when morphological fusion interferes with the visibility of one of the links in the chain. For reasons of space, we cannot do justice to these facts here, but note simply that (i) the EMC as stated in (120) does not rule out multiple spellout per se, only cases in which neither the leftmost nor the rightmost copy is pronounced, and (ii) none of the instances discussed by Bošković & Nunes (2007) are problems for the EMC except *v*P-preposing itself, which they treat as remnant movement in line with the traditional view.

[28] For arguments that RNR dependencies are created by Remerge, see McCawley (1982) for the original proposal and Wilder (1999, 2008) for a modern perspective.

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In Thoms & Walkden (2015), we provide ample evidence to demonstrate that this correctly describes the availability of true remnant movement derivations. In many cases, the key evidence comes from reconstruction: no construction that seems to instantiate a well-formed instance of (121) allows reconstruction of the XP back into moved YP, as seen above with *v*P-preposing. By contrast, cases of remnant movement corresponding to the configurations in (122)–(123) fare differently, as we saw earlier that (122), which corresponds to our analysis for participle preposing in (119b), does allow reconstruction of the containee into the container. However, in Thoms & Walkden (2015), we show that there are also cases of (123) that also allow reconstruction of the containee XP into the container YP, such as with extraposed relative clauses which require reconstruction of the head NP. Example (124), from Heycock (2012), demonstrates that such relative clause extrapositions are grammatical (contra Hulsey & Sauerland 2006), with reconstruction for anaphor binding and idiom interpretation being possible.

(124) (a) I love Tracey's work! I was so pleased when I got to see [the [sketch of herself$_i$]$_j$] at last [that she$_i$ had once painted t$_j$ on the wall of her house].
(b) Describe [all the [habits$_i$]] to me [that you want to kick t$_i$].

These show that independent conditions restricting reconstruction into moved constituents cannot be maintained, thereby strengthening the case for the non-movement analysis of apparent cases of (121). We discuss various other sources of evidence for using (120) to restrict remnant movement and show that it is superior to some alternative accounts and compatible with others that impose distinct but complementary restrictions.

Let us talk through *v*P-movement in more detail to clarify how the EMC accounts for the facts. The EMC rules out a movement analysis for *v*P-preposing as in (119a) because there is a copy of the subject in the base position of the initial *v*P, and in the base copy of that *v*P, and so linearising the subject in Spec,TP requires spelling out an intermediate copy of the subject. Since this is ruled out, the matching analysis is required to generate an initial *v*P. With participle preposing, there is no such problem in spelling out the subject chain, since the subject is in an extraposed position, so it is rightward of both the initial copy of the *v*P and the base copy; this means that it is the rightmost copy of the subject that is to be spelled out, with no violation of the EMC.

On this analysis, there is no specific restriction on fronting verbal constituents per se, nor is there a specific condition against remnant movement; rather, *v*P-movement restrictions are a product of the EMC and the base positions of subjects. This means that a *v*P may also be moved leftward if there has been no subject extraction at all. We hypothesise that German *v*P-fronting is such a case. We recall from Sections 2.1 and 2.3 that German *v*P-fronting does not display the licensing restrictions characteristic of English *v*P-preposing, nor does it permit

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morphological mismatches; thus, it seems to display the properties of true A′-movement. Following Fanselow (2002), we propose to derive this difference between English and German from an independent property of German syntax. A-scrambling is possible in German, and since A-scrambling involves base-generation of an argument in a higher position (see Neeleman 1994 for a powerful defence of this view), this makes it possible to derive TRUE *v*P-fronting in German without remnant movement: we simply base-generate the subject outside the *v*P and move that *v*P to the initial position. Such a derivation does not involve remnant movement, so this is regular A′-movement of the *v*P and thus it is not necessary for *v*P-ellipsis to be licensed in the trace position.[29] This analysis of German *v*P-fronting is defended in more detail in Thoms & Walkden (2015).

4.2 *The N-only constraint*

Having accounted for the fact that only participle preposing can be derived by true *v*P-movement and provided an ellipsis-based analysis of the restrictions observed with *v*P-preposing, what remains to be addressed is the fact that participle preposing is still itself quite restricted, applying only to passive and progressive *v*Ps. Here, we propose an account of this restriction in terms of a quite general constraint on which categories can be targeted for movement, one that only reveals itself now that we have reanalysed *v*P-preposing as not involving true movement: only constituents that occur in nominal-licensing positions may be moved.

4.2.1 *Participle preposing and nominalness*

To take us towards an analysis, we first consider the observation that the two participles that work in participle preposing are also the only *v*P types that are possible in so-called reduced relatives in English, as shown in (125). In reduced relatives, a DP is followed by a participial *v*P; it is described as a 'reduced relative' because of its similarity to a subject relativisation with deletion of the relative pronoun and the IP ('whiz deletion').

(125) (a) The man *(who will) meet me later on is Bradley Wiggins.
(b) The man *(who has) met me twice this week was Bradley Wiggins.
(c) The man *(who did) meet me last week was Bradley Wiggins.
(d) The man (who is) meeting me today is Bradley Wiggins.
(e) The man (who was) met by his team on the road was Bradley Wiggins.

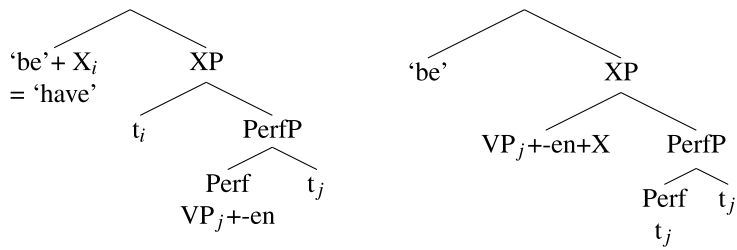
Thus, it may be helpful to consider what explains the restriction on reduced relatives in order to arrive at an analysis of the restrictions on participle preposing.

[29] The fronting of partial or incomplete *v*Ps, possible in German but not in English, is also due to the availability of base-generated A-scrambling in German but not in English. See Thoms & Walkden (2015) for discussion of this possibility.

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In an analysis of the cross-linguistic properties of reduced relatives, Iatridou, Anagnostopoulou & Izvorski (2001) show that it is generally the case that reduced relatives are only possible with participles that are selected by forms of *be*; for instance, reduced relatives based on the perfect (i.e. (125b)) are only possible in languages like Bulgarian, which uses *be* with the perfect, and of course in English, where passive and progressive participles are selected by forms of *be*. Iatridou et al. (2001: 185–188) outline an account of this restriction, attributing it to Peter Svenonius, in terms of an implementation of the *have/be* alternation of Kayne (1993), where *have* is a spellout of *be* after having incorporated into some other syntactic head in the inflectional layer. Whereas Kayne proposes that *have* is derived by incorporation of an abstract preposition into *be*, Svenonius suggests that it is a nominal head X that incorporates into *be*, specifically a head that dominates the PerfP projection, which itself hosts the *-en* morphology associated with the perfect.[30] Such an analysis is motivated by the fact that the participles in *be*-perfects but not *have*-perfects agree with the subject in Romance varieties; this can be explained if X hosts the relevant agreement morphology and the participle raises to X through Perf when X does not incorporate (whereas in *have*-perfects, it only raises to Perf).

(126)



The key property of Svenonius' analysis is that the factor that unites the participles that can function as reduced relatives is that they are in some way nominal. Iatridou et al. provide further evidence for the generalisation that reduced relatives must be nominal, and they propose that reduced relatives are required to be nominal because there is some condition that requires that categories that intersectively modify a head must be of the same category; in the case of relative clauses, this means that they must be nominal, hence the restriction on reduced relative clauses. Finally, they speculate that this may be why there is movement in relative clauses at all: the head of the relative moves and projects to make the modifying clause nominal (cf. Bhatt 1999).

What is important for our analysis is that it divides the different participle forms in terms of NOMINALNESS: the ones that can be reduced relatives and can be targeted by participle preposing are the ones that bear nominal features, while the ones that

[30] These two proposals become more or less identical if we adopt the assumption that prepositions are effectively case markers on constituents that are ultimately nominal in nature; see Section 4.2.2 for more on this suggestion.

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cannot form reduced relatives or move are purely verbal. Our suggestion, then, is that what conditions whether a verbal category, or indeed any category, is able to move is whether it bears nominal features. More specifically, we claim that movement can only target [+N] categories; that is, noun phrases, categories like DPs that are in the extended projection (in the sense of Grimshaw 1991, 2000) of a noun, or indeed verbal participles headed by the nominal X head, as just described. We call this restriction the *N-only constraint*, and it can be understood as a constraint that states that all traces must be nominal. In what follows, we show that, although it may seen overly restrictive at first, with certain refinements, this constraint matches neatly with the range of possible movement targets in English.

4.2.2 *APs and PPs*

An issue that we must address immediately is the fact that PPs and APs can be moved in English and many other languages.

(127) (a) To whom were you talking?
(b) How happy do you feel now?

How is the N-only constraint obeyed in these cases?

Starting with PP-fronting, many authors have proposed that adpositions are not separate lexical categories but rather functional elements that occur within the extended projection of the noun (Baker 2003; see also Emonds 1985; Grimshaw 1991, 2000; Botwinik-Rotem 2004, 2008; Asbury 2008; Terzi 2010). Under this type of analysis, P is essentially no different from a case affix, and the PP in an example like (127a) is able to front by virtue of the nominal nature of P's complement. Evidence for such an approach comes from the curious fact (hitherto unexplained as far as we can tell) that prepositional particles, which lack a nominal complement, cannot be fronted.

(128) (a) *[$_{PP}$ (right) up]$_i$ he blew t$_i$ the inflatable chair.
(b) It was *[$_{PP}$ (right) up]$_i$ that he blew t$_i$ the inflatable chair.

The analysis as a semantically vacuous Case element is clearly along the right lines for dative *to* in English, as shown by the fact that (129) is necessarily a contradiction (Marelj 2004).[31] Moreover, in no language that we are aware of is P a fully open class on a par with English nouns and verbs.

(129) *He gave a book to Mary but he didn't give Mary a book.

The question is whether a functional category analysis can be extended to ALL PPs, either in English or cross-linguistically. The functional status of P has by no means gone unchallenged in the literature: in contrast to the authors mentioned above, van Riemsdijk (1990), Zwarts (1997), and den Dikken (2010) all argue that at least

[31] We thank an anonymous reviewer for this observation.

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some prepositions are lexical. For Zwarts (1997), the key properties that challenge a functional status for P are (i) that P can be used without a complement, (ii) that P can be stranded, and (iii) that P can feed compounding (as in *back door* and *outbuilding*). With regard to (i) and (ii), however, some functional heads pattern like P in allowing an unexpressed surface complement; in particular, the English modals and *to*, for which there is a strong consensus that they are T elements, license ellipsis.[32] These same elements also feed compounding, as in *to-do list* and *must-see*.[33]

Arguably the strongest point in favour of a lexical status of P is its ability to assign Case, which puts it on a par with (some) verbs, as noted by a reviewer. In this connection, we note, however, that the evidence that case assignment is a lexical property has been challenged in theories building on Larson (1988), in which the verb's argument structure is decomposed into a series of functional projections. We conclude, therefore, that there is suggestive evidence for P as a functional category high in the nominal extended projection, although the literature is not unanimous on this issue.

APs pose a more robust challenge, which forces us to refine our proposed constraint slightly. One way to account for their mobility is if we adopt the assumption that categorial features may be to some extent composite, specifically, if we assume (following Chomsky 1970) that nouns and verbs are 'supercategories' and that adjectives may be decomposed to a [+N, +V] specification. Adverbs, as a subcategory of adjectives, would thus be [+N] and hence capable of moving as well. However, Baker (2003) argues forcefully against this decomposition approach, noting that Chomsky's grouping of nouns and adjectives looks rather arbitrary once we consider various other options for grouping categories; if Baker is right, then we need another explanation for why APs would satisfy the N-only constraint. An alternative way to account for AP-movement is to say that the constraint does not demand that the moved category be nominal, but rather that the relevant trace position should be one that is compatible with a nominal trace in terms of selection and licensing. This would work for AP-movement in English, since all predicates that select APs that can be moved also select nominals: the copula and predicates like *seem*, *consider*, and *feel* all take both nominal and adjectival predicates as their complements in at least some varieties of English.[34]

[32] Importantly, both T and P allow their complements to be absent on the surface only under highly restricted conditions: it is not the case that they may freely lack complements, like most nouns and some verbs.

[33] The treatment of both locative and directional P as universally lexical in den Dikken (2010) is motivated primarily by conceptual considerations: den Dikken argues extensively for a parallel between functional structure in the extended projections of V, P, and N. It is beyond the scope of this paper to do justice to this account here, but it is worth observing that even if it were necessary to assume that some prepositions are lexical, that would not by itself entail that they are not also nominal.

[34] Many North American English speakers reject nominal predication under *feel* and *seem*, but predications like *I feel a fool* and *John seems a bit of a fool* are perfectly natural in our own varieties.

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Prenominal adjectives cannot be moved in English, but this restriction can be attributed to the independently supported left branch condition (Ross 1967), so we put that to one side here.

4.2.3 *CPs and TPs*

The next challenge that we must address comes from apparent evidence for the movement of clauses. In (130), we see that finite and non-finite clauses seem to be fronted, and in (131) we see that both clausal complements and relative clauses seem to be extraposed from nominals.

(130) (a) [That anyone would leave]$_i$, nobody believed t$_i$.
(b) It's [to come back home]$_i$ that she really wants t$_i$.

(131) (a) [A rumour t$_i$] has been going around [that you're leaving]$_i$.
(b) John recommended [a book t$_i$] last week [that he had read on holiday]$_i$.

First, let us consider fronting of finite clauses. Recently, Moulton (2013) has argued, very much in the spirit of our discussion of *v*P-preposing, that cases like (130a) do not in fact involve leftward movement of a CP, but rather movement of a nominal null operator from the gap position to the finite clause, which is base-generated in Spec,CP. Moulton's primary argument comes from reconstruction effects, which he shows to indicate that there is no trace of the CP in the apparent base position, but he also draws upon a long line of research (Williams 1981, Grimshaw 1991, Webelhuth 1992, Postal 1986, Alrenga 2005) that shows that in general CPs can only be fronted when the trace position is a DP-licensing position, what Moulton calls the *DP-Requirement*. This is shown by the fact that predicates that license a CP but not DP-complement are incompatible with CP-fronting.[35]

[35] Moulton (2015) points out that CPs can be the remnants in pseudogapping for some speakers (Baltin 2003), and he argues that this gives us reason to believe that CPs always undergo the same kind of extraposition operation as heavy noun phrase shift, which he analyses in an antisymmetric-style leftward remnant movement style.

(i) Though John wouldn't complain that he's angry, he would that he's tired.

However, this still leaves mysterious the ungrammaticality of plain fronting cases like (133b). We suggest that (i) is grammatical because the ellipsis process that removes the *v*P in the pseudogapping clause is not entirely identical to its antecedent, being derived from a fronting structure akin to (ii) where a preposition is inserted to rescue the extraction.

(ii) That he's tired, John wouldn't complain about.

See Merchant (2001), Barros et al. (2014), and references cited therein for ample evidence that the ellipsis-identity relation tolerates mismatches between the antecedent and ellipsis site with respect to functional material.

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(132) (a) I am happy {that it will finally rain/*that}.
(b) *That it will finally rain, I am happy.

(133) (a) John wouldn't complain {that he's tired/*that}.
(b) *That he is tired, John wouldn't complain.

The DP-requirement identified by Williams, Webelhuth, Moulton, and others for CP-fronting is clearly of a kind with the effects just seen with APs, and they follow from the revised N-only constraint in the same way with little fuss.[36]

The same account can be extended to infinitivals like (130b), as these can be shown to be subject to the DP-requirement as well, and they have often been analysed as CPs rather than IPs (e.g. Pesetsky 1991 and more recently Reeve 2014). Examples (134)–(136) show that raising infinitives, ECM infinitives, and transitive object control infinitives cannot be fronted or be replaced by nominals,[37] and (137)–(138) show that regular control infinitives and transitive subject control infinitives can be fronted and do originate in nominal-licensing positions. (We use clefting here since the topicalisations seem to be a bit more marked with infinitives, but the same pattern of judgments obtains with both constructions.)

(134) (a) *It was to become a genius that John was likely.
(b) *John is likely that.

(135) (a) *It was to be a genius that they believed John.
(b) *It was to be a genius that he was believed.
(c) *They believed John that.

(136) (a) *It was to leave early that John forced me.
(b) *John forced me that.

(137) (a) It was to leave early that John wanted.
(b) John wanted that.

(138) (a) It was to leave early that John promised me.
(b) John promised me that.

[36] An alternative view that is equally compatible with our analysis is that some CPs are actually DPs, occurring in English under a covert determiner (Lees 1960, Rosenbaum 1967, Davies & Dubinsky 1998, Han 2005, Takahashi 2010, Hartman 2012), and that it is only those DP-like CPs that front, as we would expect given the N-only constraint. Hartman (2012) presents an impressive array of facts that support the DP-layer analysis of fronted CPs, such as the fact that languages like Persian, Russian, and Greek introduce clausal subjects with overt determiners, and one should recall also that Iatridou et al. (2001) proposed that the facts from reduced relative clauses point to an analysis of relative clause CPs as [+N] categories as well. Such an explanation would probably simplify the semantics required for our trace conversion-based explanation of the N-only constraint below, but the details are not so important for our present purposes.

[37] The passive ECM example (135b) shows that the problem in (135a) is not the stranding of the ECM subject. Note that the EMC would also rule out the raising and ECM-fronting cases, at least if no base-generation strategy were available for deriving the relevant A-dependency.

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Thus, infinitives fit with the same picture sketched above for finite CPs. Finally, the reconfigured picture may also allow us to account for other restrictions on the fronting of sentential constituents that have been observed in the literature. One such restriction is the ban on fronting finite TPs to the exclusion of their complementisers (Abels 2003, Wurmbrand 2004).

(139) *[$_{TP}$ He likes cheese]$_i$, I know that t$_i$.

Abels (2003) provides an account of this restriction in terms of ANTILOCALITY, a constraint that bans movement of complements of a head to the specifier of the same head. Abels assumes that the C head of the embedded clause is a phase head, and he observes that extraction of any XP from the embedded clause is required to pass through Spec,CP in order to respect the phase impenetrability condition (Chomsky 2000). Since the finite TP is a complement to the C head, it follows that TP-extraction requires comp-to-spec extraction, and Abels argues that this is ruled out by the antilocality constraint. However, Abels' proposal is incompatible with the growing body of evidence in favour of splitting up the CP into a number of distinct projections (see, e.g., Rizzi 1997, Roberts 2005, Kiss 2007, van Craenenbroeck 2010; but see, e.g., Abels 2012), since antilocality would only restrict fronting the CP-layer immediately dominated by the phasal C head (presumably Force), meaning that TP-fronting would not be restricted.[38] Considering this and other issues for Abels' antilocality constraint,[39] we conclude that the N-only constraint provides a better account of the restriction on fronting TPs, since the complement of C cannot host nominals.

4.2.4 *Verbal projections*

Finally, we consider how the N-only constraint accounts for a number of other restrictions on moving putatively verbal constituents in English. First, we consider VP-shells. Much work since Larson (1988) has motivated a VP-shell analysis of double object constructions in which the two objects are introduced by distinct heads in a shell structure which is vacated by cyclic verb movement to a higher *v* head. Example (140) schematises the implementation in Marantz (1993), where the direct object is introduced by V and the indirect object by an Applicative head, but the details are not important here.

[38] The silver bullet for Abels' account would come from evidence that a language that has multiple overt C heads still shows the C-stranding restriction when it comes to movement of a TP projection. David Willis (personal communication) indicates to us that Welsh may be such a language, although there are complications that temper the conclusion: Welsh only allows CP-fronting in reverse pseudoclefts, and these may not provide an appropriate movement test.

[39] At least one of Abels' other arguments for the antilocality constraint, the immobility of VPs under phasal *v*, is undermined by the preceding analysis of *v*P-fronting as base generation; see the next section. Other arguments for antilocality, such as the ban on fronting APs to the exclusion of degree modifiers (mentioned in passing by Abels 2012), should also follow from the N-only constraint, since nominals are of course incapable of occurring under DegP.

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(140) $[_{vP}$ subj $[_{v'}$ V+Appl+*v* $[_{ApplP}$ IO $[_{Appl'}$ t $[_{VP}$ t DO]]]]]

However, a long-standing problem for this account is that it is not possible to front a lower VP-shell excluding the verb, as (141) shows; see Takano (2000) and Funakoshi (2012) for discussion.[40]

(141) *$[_{vP}$ every child t_i a book], they gave$_i$.

In fact, this problem is general to all analyses of the verbal system that break up VP into numerous verbal shells, such as the now well-established *v*P-hypothesis, which breaks up the traditional VP into VP ('big-V P') and *v*P ('little-v P') and postulates V-to-*v* movement.[41] All such analyses would seem to predict that it should be possible to front a remnant VP containing an internal argument and a VP-adjunct. As (142b) shows, this is completely impossible; a suitable schematic laying out the problem is given in (142c).

(142) (a) No one answered John {quickly/in time/when he shouted}.
(b) *John {quickly/in time/when he shouted}, no one answered.
(c) $[_{vP}$ $[_{vP}$ t_i John] quickly...]

Of course, these restrictions are expected if we adopt the N-only constraint, since in all cases the relevant constituents are verbal and thus immobile.

Another area where movement tests have come into conflict with other sources of evidence for constituency is with small clauses. Consider (143), where the DP *John* is clearly interpreted as the subject of the embedded predicate *a true friend*, and one widely adopted analysis of this kind of structure is one where the two DPs form a small clause, for instance a PredP; the Pred head encodes the predication relation between the two DPs, much like *v*P does in the bifurcated verbal shell.

(143) I consider John a true friend.
I consider $[_{PredP}$ John $[_{Pred'}$ Pred [a true friend]]]

As with VP-shells, this analysis seems to be undermined by the fact that the small clause/PredP cannot be a target for movement, even though either the subject or the predicate can be moved separately (Marelj & Matushansky 2015).

[40] A reviewer suggests that this may be due to a general ban on the fronting of headless verbal phrases rather than a lack of nominalness. However, this cannot be the explanation, as such headless constituents can be fronted under certain circumstances in languages like German, as Stefan Müller (2015) has shown in detail with examples like (i).

(i) Alle Träume gleichzeitig lassen sich nur selten verwirklichen.
all dreams simultaneously let REFL only seldom realise
'All our dreams can only rarely be realised at the same time.'

[41] If one were to reject the verb-raising component of this analysis, the problem of fronting VPs containing the verb would arise. The explanation would be the same here as for supposed remnant VPs.

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(144) (a) *John a true friend, I would never consider.
(b) A true friend, I would never consider John.
(c) John, I would never consider a true friend.

As with VP-shells, this problem disappears once we admit the N-only constraint to the grammar: the PredP is not nominal and so it cannot be moved.

4.3 *Explaining the N-only constraint*

Finally, we turn to the matter of how to explain the N-only constraint. In many ways, the constraint is exactly the kind of thing we might have expected to find in the early days of government and binding theory, according to which movement involved inserting a pronoun into the base position which is then construed as a bound variable: in that case, the constraint would fall out of the fact that pronouns are nominals, and so movement would only be possible when the pronoun to be inserted would satisfy the selectional restrictions of the dominating head. Our explanation of the constraint is similar in spirit but employs the modern equivalent of classical trace theory, namely a version of Fox's (1999, 2002) TRACE CONVERSION rule (see also Sauerland 1998, 2004; Rullmann & Beck 1998). Fox proposes an account of the interpretation of traces working with Chomsky's (1995) copy theory of movement, where lower copies in chains are converted into restricted variables that are bound by the higher copy of the moved phrase. This is done by inserting a variable, removing the determiner of the lower DP, and replacing it with a definite determiner.

(145) TRACE CONVERSION
(a) Variable Insertion: (Det) Pred → (Det) [Pred λy(y=x)]
(b) Determiner Replacement: (Det) [Pred λy(y=x)] → the [Pred λy(y=x)]

Lambda abstraction over the variable thus ensures that the chain receives the appropriate bound variable interpretation.

As Fox (2002: 67) points out, trace conversion so defined is restricted to application in environments where Ds can be inserted, leading to the expectation that it is only compatible with nominal traces, since D is only selectionally compatible with nominals.[42] Fox notes that this leads us to expect that VP-traces cannot be interpreted by trace conversion, and he suggests this might account for their curious reconstruction behaviour. Relatedly, Takahashi (2010) observes that the categorial requirements of trace conversion may explain the fact

[42] Since the explanation given for the EMC in Section 4.1 and Thoms & Walkden (2015) is stated in terms of multidominance structures, it would perhaps be more appropriate to state the explanation here in terms of Johnson's (2010) multidominance-based implementation of trace conversion. We have favoured presenting Fox's version here, since it is stated in more familiar terms, but the same restriction would be derived if we adopted Johnson's version.

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that CP-fronting is only possible where DP-traces could be accommodated, as evidenced by the DP-requirement above. We therefore propose that this is what explains the N-only constraint, assuming that it is universal: trace conversion is required for the interpretation of movement chains, and the only gap positions that are compatible with trace conversion are those that are compatible with nominals in terms of selection and licensing. It may be possible in principle to move non-nominal categories, but the chains created will not be interpretable at the LF-interface. Although this account has the virtue of simplicity, numerous explanatory questions remain: for instance, why is trace conversion the only way to interpret movement chains? Why this rule in particular? How do we deal with apparent non-nominal traces in other languages? Interesting as they are, these questions are beyond the scope of the current paper.

5. Conclusion

In this paper, we have demonstrated that English *v*P-preposing does not have the properties that would be expected of a movement-derived dependency. Evidence for this conclusion is varied: the ellipsis-like licensing conditions on its occurrence, the availability of morphological mismatches, and reconstruction facts all point to a base-generation approach. By contrast, English participle preposing is a well-behaved case of *v*P-movement. We have shown that this follows from the interaction of two constraints: the Excluded Middle Constraint, which rules out derivations involving spellout of linearly intermediate copies only, and the N-only constraint, which only allows movement from positions that are compatible with nominals. We have also provided some discussion of this latter constraint, and suggested that its effects may be felt beyond English, although more research needs to be done in order to establish this. Overall, the paper shows that all that glitters is not gold: a construction that appears to be a straightforward case of movement at first glance may nevertheless fail to display the basic properties of movement on further investigation, and such failures have the potential to tell us much about the nature of syntactic structure building and linearisation.

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