

Focus effects on particle placement in English and the left periphery of PP*

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1. Introduction

This paper examines topic and focus effects on word order in English particle verb constructions. Several authors have reported that speakers often prefer the Verb-Particle-Object (VPO) order when the object has new information focus, and the Verb-Object-Particle (VOP) order when the object is discourse-given (Bolinger 1971, Svenonius 1996a, Kayne 1998, Dehé 2002). We illustrate this effect in (1) and (2) from Svenonius (1996a), who notes, nevertheless that there is considerable cross-speaker variation in these judgments, and that for most speakers, both orders are at least partially acceptable in both contexts.

- (1) Q: Who will you pick up?
A: I'll pick (?the girls) up (the girls). (Svenonius 1996a)
- (2) Q: How are Turid and Ingrid going to get here?
A: I'll pick (the girls) up (?the girls). (Svenonius 1996a)

This paper reports on a judgment experiment with 125 native speakers of American English in an effort to examine these effects further. The results, which show that the variation in (1) and (2) is sensitive to both the topic-hood and focus-hood of the object, independently, are mispredicted by two previous approaches to these facts by Kayne (1998) and Dehé (2002). We propose that these effects reflect movement of the object or particle to a topic position high in the extended projection of the particle. The data thereby support an analysis suggesting that recently proposed structural parallelisms between the extended

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projection of P and those of V and N may also extend to discourse functional projections, high in the functional sequence (Svenonius 2010, Den Dikken 2010, Levinson 2011).

2. Previous approaches to focus effects in particle verb constructions

Two main syntactic approaches to the effect illustrated in (1) and (2) have been proposed in the literature.¹ The most detailed treatment of focus effects on particle placement in English is by Dehé (2002), who proposes that the VPO order is the “neutral” order in that it is (i) derivationally prior; and (ii) corresponds to a discourse neutral, “out of the blue” interpretation. Dehé claims that objects can only appear in the VOP order when they are defocused and within a syntactic domain bearing focus; the VPO order will be preferred otherwise. Dehé explains this effect in terms of a constraint on focus feature “binding” in the syntax. Specifically, Dehé proposes that particle verbs are merged as a complex V+particle head that takes the object as its complement. In the VPO order, both the object and the V+particle raise out of VP as in (3). In the VOP order, the verb and object raise out of VP, but the particle stays behind as in (4).

(3) **VPO order**

[_{VP} turn off_[+F] v [_{AgroP} the camera_[+F] AgrO [_{VP} ~~turn off~~_[+F] [_{DP} ~~the camera~~_[+F]]]]]
 (Adapted from Dehé 2002: 242)

(4) **VOP order**

[_{VP} turn_[+F] v [_{AgroP} the camera_[-F] AgrO [_{VP} ~~turn~~_[+F] off_[+F] [_{DP} ~~the camera~~_[-F]]]]]
 (Adapted from Dehé 2002: 245)

Dehé proposes that the “more marked” derivation in (4), involving excorporation of the verb, is required in order to satisfy the constraint in (5). That is, because the particle stays inside the VP, it is able to bind the Focus feature on the trace of the verb, inside its focus domain, namely VP. In VPO orders, the particle will raise out of VP along with the verb and the Focus feature on VP will be unbound, in violation of (5). Dehé furthermore suggests that for economy reasons, where the excorporating derivation in (4) is not required—in sentences where the object bears a focus feature—it is illicit.

- (5) **Condition on Focus Domains:** Within a focus domain, a [+F] focus feature must be bound by some kind of verbal affix if there is a mismatch with regard to focus features.

¹We set aside processing-based accounts by Arnold et al. (2000) as well as Svenonius’ (1996a) characterization of these facts as “stylistic and extragrammatical”.

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In support of her description of focus effects, Dehé reports on two experiments, one testing word order preferences in contexts without topic/focus interpretation biases, and another examining pitch ranges for objects in different word order conditions. As Svenonius (2005) notes, however, neither experiment illuminates the effect of focus interpretation on word order, because interpretation is either not biased directly, or is confounded with word order.

A second approach, closer in spirit to the one we develop here is Kayne's (1998) VP-external Focus proposal (cf. Belletti (2004)). Kayne (1998) proposes a Focus head above VP to which focused objects are attracted. Remnant movement of the VP to a position above FocP, WP, yields the VPO word order, which we illustrate in (6). Kayne proposes that the VOP order is derived by extraction from VP of the particle prior to Focus raising as shown in (7). Kayne does not spell out an account of the deviance of the latter derivation in focus contexts.

(6) **VPO order**
[_{WP} [_{VP} V ~~Obj~~ ~~Prt~~] W [_{FocP} Obj Foc [_{VP} V ~~Obj~~ ~~Prt~~]]] (Kayne 1998)

(7) **VOP order**
[_{WP} [_{VP} V ~~Obj~~ ~~Prt~~] W [_{FocP} Obj Foc [_{XP} ~~Prt~~ X [_{VP} V ~~Obj~~ ~~Prt~~]]]] (Kayne 1998)

In the following section, we discuss results from a judgment experiment that tests predictions of some of these different approaches, by biasing old versus new information interpretations on the object in a crossed design.

3. A judgment experiment

Subjects were 125 students at CUNY, Queens College, self-described native speakers of American English, aged 18-52, ($M=22.8$, $SD=6.6$), 91 women and 34 men. The experiment crossed two factors: word order (VPO vs. VOP) and focused constituent. We biased focus readings with a preceding *wh*-question focusing four kinds of constituents as in (8)-(11).

- (8) Q: What happened?
A: Ann cut (the tree) down (the tree). (Wide focus)
- (9) Q: What did Ann cut down?
A: Ann cut (the tree) down (the tree). (Obj. focus)
- (10) Q: What did Ann do?
A: Ann cut (the tree) down (the tree). (VP focus)
- (11) Q: What happened to the tree?
A: Ann cut (the tree) down (the tree). (Obj. given)

32 question-answer pairs were created for each of these eight conditions, consisting of a preceding *wh*-question and answer, using non-idiomatic verbs. Objects were all two-syllable definites, e.g. *the tree*. Lexicalizations were blocked and assigned to lists by Latin square with four items/condition/subject. For each subject, 32 experimental items were pseudo-randomized with 32 filler question-answer pairs, half with grammatical answers and half with ungrammatical answers.

Each subject judged 64 sentences in question-answer pairs in a self-paced web-based experiment using Ibex Farm (Drummond 2013). Subjects were asked to judge the naturalness of the answer sentence as a response to the preceding question using an 11-point scale (0-10) with endpoints labeled “Bad” and “Good”.

The data for each subject were first normalized by converting to Z-scores taken over the 32 filler sentences. Using these normalized values as the response variable, we fit six separate linear mixed effects models—one for each possible pairwise comparison between the four conditions in (8)-(11)—with fixed effects for word order and focus bias and random intercepts and slopes by subject and by item.

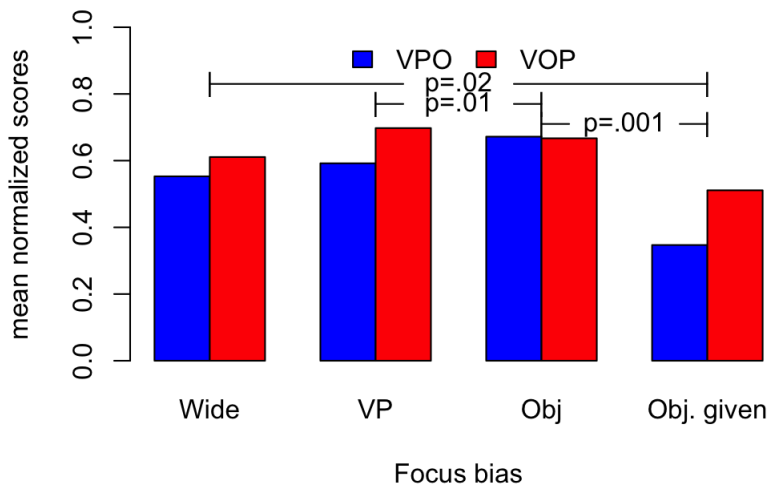


Figure 1: Mean normalized scores by condition

We illustrate the main findings in figure 1, which shows mean normalized scores by condition. Zero on the y-axis corresponds to the mean score for the 32 fillers, half of which were grammatical half ungrammatical. Mean scores for all eight conditions in figure 1 are comfortably above zero, in line with Svenonius’s (1996) observation that differences in acceptability among these conditions are subtle and that most speakers find both VPO and VOP orders at least partly acceptable regardless of topic and focus interpretation on the object. We note that both VPO and VOP conditions for the given object condition are

somewhat lower, plausibly reflecting the pragmatic oddness of repeating the object in the answer, as in (11).

Figure 1 shows two results relevant to the literature discussed above. First, the results reveal no support for Dehé's claim that VPO orders are preferred in sentence-wide focus and VP-focus contexts. Participants showed no preference between word orders in the former case ($p=.19$), and for the latter, the opposite effect reached significance ($p=.002$). Second, the results revealed significant order*focus interactions comparing: (i) VP-focus with narrow object focus sentences ($p=.01$); (ii) wide focus with given-object sentences ($p=.02$); and (iii) given-object with narrow object focus sentences ($p=.001$, see figure 1, all other interaction p 's $>.1$). The first of these interactions is unexplained by Dehé's approach, which predicts interactions only with the given-object condition. Similarly, Kayne's (1998) VP-external Focus approach, leaves unexplained the dispreference for VPO orders with given objects.

4. The left periphery of PP

Our analysis adopts the intuition explored in recent literature that the functional architecture of PP parallels that for the extended projection of N and V (Koopman 2000, Svenonius 1996a,b, 2010, Den Dikken 2010, Levinson 2011). We adopt a small clause structure for particle verb constructions and follow Svenonius (2010) in taking the object to be introduced as the specifier of a p head that takes the particle as its complement. In addition, following Rizzi (1997) and much subsequent work, we propose that the extended projection of P , like that for V , N and C/T , may contain discourse functional layers, which may trigger movement (Aboh et al. 2010, Rizzi 1997, Belletti 2004). Specifically, we assume a topic layer merged atop the extended projection of P , below V . We illustrate this structure—abstracting away from movement operations to be explained shortly—in (12).

(12) cut [_{TopicP} Topic [_{pP} the tree [_{p'} p [_{PP} down]]]]

On this approach, Topic might plausibly be identified as the position to which weak pronouns raise Johnson (1991). The effect for weak pronouns is nevertheless much stronger than for the full DP sentences discussed here, since for most speakers of English, weak pronouns obligatorily appear to the left of the particle. These facts suggest that the weak pronoun restriction constitutes a partially distinct phenomenon, and we set this issue aside in the remaining discussion.²

²Similarly, the topic position in (12) does not seem usefully reconcilable with the topic head proposed by Basilico (2003) as the position of the subject in adjectival small clauses, since the word order in such sentences appears insensitive to old-information/new-information interpretation: *Who do you consider intelligent? I consider MARIA intelligent.*

The availability of both VPO and VOP orders in wide-focus and VP-focus contexts indicates that particle placement variation is partly independent of contrasting topic/focus values on the object and particle. That is, these contexts suggest that there is some process unrelated to topic/focus interpretation that makes possible the word order alternation. Following Svenonius (1996a,b) and Ramchand and Svenonius (2002), we propose that particle verb word orders are determined in part by movement of the particle to a position above the first merged position of the object. Svenonius (1996b) likens this operation to the P-incorporation that derives possessive *have* from *be+P* (Freeze 1992, Kayne 1993). In particular, Svenonius (1996a) proposes that in VPO orders, the particle head adjoins to a Pred head merged above the object as in (13).³

- (13) Max [_{VP} smoked [_{PredP} out-Pred_[EPP] [_{PP} [_{DP} the cat] [_{P'} out]]]]
 (Svenonius 1996a)
-

Svenonius proposes that the particle raises to Pred to satisfy the latter's EPP feature. The particle's ability to do so is related to the fact that the particle incorporates an abstract nominal complement. In support of this idea, Svenonius (1996a) notes that VPO orders are impossible when the particle has an overt ground argument complement, as illustrated in the contrast in (14-a,b). In cases where no ground argument complement is present, Svenonius proposes that the nominal complement is incorporated into the particle.

- (14) a. Lisette rolled (down) the ball (down).
 b. Lisette rolled (*down) the ball (down) the hill.

VOP orders, Svenonius proposes, are derived from an alternative derivation whereby the object moves to PredP to satisfy this EPP feature.

- (15) Max [_{VP} smoked [_{PredP} [_{DP} the cat] [_{Pred'} Pred_[EPP] [_{PP} [_{DP} the cat] [_{P'} out]]]]]]
 (Svenonius 1996a)
-

As Ramchand and Svenonius (2002) note, support for head movement of the particle in VPO orders comes from the behavior of modifiers like *right*, which can precede the particle in VOP orders, but in VPO orders cannot appear at all—neither to the right of the object (16-b) in its first merged position, nor to the left of the particle (16-c).

³Slightly different labels are used Svenonius (1996b) and Ramchand and Svenonius (2002), but the proposals are essentially the same as they relate to variation in particle placement.

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- (16) a. We threw the rat right out.
b. *We threw out the rat right.
c. *We threw right out the rat.
(Ramchand and Svenonius 2002)

If *right* is merged as a head above the particle, then the unavailability of (16-b) is explained as a Head Movement Constraint violation, since the particle will have to have head-moved past *right*. Similarly, the unavailability of (16-c) is explained by the fact that [*right out*] cannot raise as a single head.

The analysis we develop is close in spirit to Svenonius' and Ramchand and Svenonius' approach in that we take VPO orders in wide/VP-focus contexts to be derived from head movement of the particle in a movement step possibly akin to that involved in the derivation of possessive *have* from *be+P*. We depart from Svenonius' proposal, however, in not taking this movement to be EPP-driven movement related to nominal properties of the particle. One challenge for this approach is that the particle verb alternation also occurs with "idiomatic" particle verbs, as in as in (17) and (18), for which it's unclear what the underlying ground argument might be.

- (17) Arthur looked (up) the number (up).
(18) Mandy chewed (out) the boys (out).

A second problem concerns what appear to be prepositional complements of particle verbs. As shown in (19-b) and (20-b), VPO word orders are also blocked when the ground argument co-occurs with *of*.

- (19) a. Marisa dug the telephone out of her bag.
b. *Marisa dug out the telephone of her bag.
c. Marisa dug out the telephone.
(20) a. Joe pushed the bowl off of the table.
b. *Joe pushed off the bowl of the table.
c. Joe pushed off the bowl.

Plausibly, *of* in these sentences is a ϕ -probe, merged to provide case for the ground argument, when the latter does not incorporate. However, other kinds of prepositions introducing ground arguments do not block VPO orders, as in (21) and (22). On Svenonius' and Ramchand and Svenonius' approach, something more, then, is needed to explain why the unincorporated ground arguments in these sentences do not block particle raising.

- (21) a. Marisa dug the telephone out from her bag.
 b. Marisa dug out the telephone from her bag.
- (22) a. Patrick will turn the money over to the police.
 b. Patrick will turn over the money to the police.

We instead adapt a proposal by Levinson (2011) about the interaction between ϕ -probes and preposition incorporation in HAVE/BE alternations in Germanic. Levinson argues that “strong” prepositions in predicative possession contexts that assign case (in e.g. Icelandic) do not incorporate into a higher copula, while languages with defective PP structures that do not assign case (German, English) must incorporate. Specifically, Levinson proposes that in BE languages, like Icelandic, the possessee is merged as the complement of a P head, *with*, and the possessor is introduced in the spec of a case-assigning p-head. In such languages, the P, which is affixal, will raise to the higher p, which will block incorporation into the higher copula, as in (23). In HAVE languages, on the other hand, there is no case-assigning p above PP, and the possessor argument is introduced in a higher vP. In the absence of p, the preposition raises and incorporates into the copula, as in (24).

(23) **BE languages**

[_{VP} *be* [_{pP'} POSSESSOR [_{p'} P-p [_{PP} P]] [_{DP} POSSESSEE]]]
 (Levinson 2011)

(24) **HAVE languages**

[_{vP} POSSESSOR [_{v'} P-*be* [_{PP} P]] [_{DP} POSSESSEE]]]
 (Levinson 2011)

This approach helps express the fact that in German, objects in attributive possession contexts (25-a) and predicative possession contexts (25-b) are case-marked differently. In the predicative possession example where P→*be* incorporation applies, the object is assigned accusative case by v, while in the attributive possession example, where incorporation does not apply, the object receives dative case from a different locus of case, namely p.

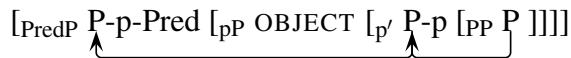
- (25) a. Die Frau mit der blauen Bluse
 the woman.NOM with the.DAT blue shirt
 ‘The woman with the blue shirt.’
- b. Hans hat ein Buch.
 Hans has a.ACC book
 ‘Hans has a book.’
 (Levinson 2011)

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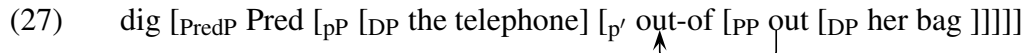
Levinson’s proposal leads us to expect the availability of case-sensitive preposition incorporation in other environments as well, and we propose that some particle verb constructions are one such context. We adopt from Levinson’s analysis the idea that P incorporation is sensitive to the case-assigning behavior of p. For our analysis of particle placement, we will not assume that the object in particle verb constructions are introduced by different heads in VPO and VOP orders (in a way parallel to Levinson’s analysis), for UTAH-related reasons, that is since it requires assuming that the figure argument can be merged in two different positions.

Instead, we assume that a silent Pred head merged above pP may probe and attract the particle, but not across a ϕ -probe, whose features, we propose, overlap with those involved in the probing relationship between Pred and P. In VPO orders, where the particle raises to Pred, P will first adjoin to a case-defective p that introduces the object. (The possibility of case-defective p is supported by standard analyses of pseudo-passives, where passivization is made possible by case deficiency of p/P (Kayne 2000, 109).) It is this optional head movement of p+P that governs variation in particle word orders in sentence-wide and VP-focus contexts like (8). We illustrate this movement step in (26).

(26) **Head raising of the particle**



In contexts where the particle verb construction contains a ground argument like (14), p will instead need to be a case-assigning probe—there being no other apparent source for case on the ground—and P cannot be probed by Pred. Similarly, in cases where VPO orders are blocked by the presence of a ground argument introduced by *of*, as in (19), we propose that *of* is merged as a case-assigning probe in p, which blocks P raising to Pred. Raising of P-to-p accounts for *of*’s surface position to the right of the particle, as in (27). (See Levinson (2011) for a likeminded approach to apparently bi-morphemic prepositions like *into*.) In the case of other kinds of prepositional complements of particle verbs, such as (21) and (22), the source of case on the ground argument is plausibly located in a lower prepositional shell.



To summarize, adapting Svenonius’ and Ramchand and Svenonius’ head-raising approach to the particle verb alternation, we have proposed that a pP-external Pred head variably probes and attracts P, but cannot do so across a case-assigning p-head. In sentence-wide and VP-focus contexts like (8), where the object and verb do not differ in topic/focus properties, it is this variable head movement to Pred that determines the choice between VPO and VOP orders.

Let us consider now, how these assumptions help us model the effects in figure 1. We assume that new information constituents differ featurally from discourse-old constituents in that the latter have a TOPIC-feature (Rizzi 1997). In particle verb constructions, discourse-old objects will be probed by the Topic head merged atop the extended projection of P, and will raise to TopicP, yielding the VOP order as in (28). Note that this movement will render invisible optional raising of the particle to PredP described above.

- (28) *Old information object contexts*
 cut [_{TopicP} [DP the tree]_[TOPIC] [_{Topic'} Topic [_{PredP} [DP the tree] down]]]

In contexts with narrow object focus, the particle verb will be discourse old and the particle will bear a topic feature. In such cases, the particle will raise to TopicP, yielding the VPO order, as in (29).

- (29) *Narrow object focus contexts*
 cut [_{TopicP} down_[TOPIC] [_{Topic'} Topic [_{PredP} the tree down]]]

Finally, in sentence-wide and VP-focus contexts, neither the particle nor the verb will bear a topic feature and neither will raise to TopicP. In such cases, the order of the particle and verb will be determined by variable raising of the particle to Pred, as in (26).

Unaddressed so far are two key facts noted in previous literature, namely that judgment differences are subtle, and there is considerable cross-speaker variation in these effects (Svenonius 1996a, Dehé 2002). The proposal so far incorrectly excludes completely VPO word orders in given-object contexts and VOP word orders in narrow object focus contexts. As figure 1 shows, these word orders are not generally excluded. Rather, on aggregate, they are somewhat degraded vis-à-vis the alternative word order in other conditions. We take this to reflect grammar competition as set forth in the work of Kroch and colleagues (Kroch 1989, 2001).⁴ From the perspective of grammar competition, one approach to the cross-speaker variation and gradience in the topic/focus effects discussed here is to posit competition between two different representations for particle verb structures—one, Grammar 1, where topic and focus are marked prosodically, with no effect on word order, and a second, Grammar 2, described above with a Topic head merged atop the extended projection of P attracting [TOPIC]-bearing constituents. On this approach, the gradient effects illustrated in figure 1 might then reflect competition for expression between Grammars 1 and 2. Again, figure 1 shows a slight aggregate preference for VOP orders in neutral (sentence-wide focus) and VP-focus contexts, but this preference, on the approach we

⁴This work has mainly focussed variation in production. This framework might be extended to gradience in intuitions of well-formedness in light of recent work showing close correspondences between frequencies of variants in production and intuitions of well-formedness in judgement experiments (Bresnan and Ford 2010).

consider here, will be permuted by competition with Grammar 2 in the object-focus and object-topic conditions. Future work might usefully address the distribution of these two kinds of particle verb grammars across speakers, incorporating speaker-related predictors into modeling and design.

5. Conclusion

This paper reports on a judgement experiment designed to test claims about topic/focus effects on particle placement in English. The results diverge from predictions in previous work by Kayne (1998) and Dehé (2002). We argue that the results reflect movement of defocused objects to a topic position in the extended projection of the particle. The results also bear out Svenonius' (1996a) observation of considerable cross-speaker variation in topic/focus effects. A challenge for future work is to understand better what conditions this cross-speaker variability.

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