3.2 Variation and Change in the Particle Verb Alternation across English Dialects

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3.2.1 Introduction

In line with Cheshire's (2005a, see also Cheshire, Edwards and Whittle 1989; Cheshire and Milroy 1993) work on the geographical patterns of syntactic variation, this chapter focusses on regional and grammatical effects on the English particle verb alternation.[1] We illustrate this variation in (1), which shows that, with a class of transitive verb + particle combinations, the particle may appear either immediately to the left of the verb or further to the right, following a direct object. We refer to these word orders as the VPO (verb-particle-object) and VOP (verb-object-particle) orders respectively.

(1) a)   She cut open the melon. (VPO order)
     b)   She cut the melon open. (VOP order)

While a considerable body of literature has focussed on different syntactic and processing constraints on the variation in (1) (Dehé 2002; Dikken 1995; Svenonius 1996a, 1996b; Toivonen 2001), relatively little work has discussed regional effects. Graffmiller and Szmrecsanyi (2018) discuss effects on particle placement in a broad sample of world Englishes, based on written corpora. They do not, however, examine regional variation within the UK, nor consider the contrast between UK and US varieties, our principal foci here. In particular, this paper reports on a controlled judgment experiment and a Twitter corpus study designed to address Hughes et al.'s (2005) claim, based on non-controlled evidence, that the VPO order is favoured in Scotland while the VOP order is favoured in Southern England. We also examine the possibility of regional effects on particle placement variation in North American dialects.

As with Cheshire's work (1996, see also Cheshire and Williams 2002) we also considering information structural effects on this variation. We test for these possible effects with a controlled judgment experiment with 297 native speakers from the British Isles and North America, and a Twitter corpus of tweets from the UK and US. The results from both the acceptability judgment study and the Twitter corpus reveal no

support for a North-South difference across UK dialects, but instead show a trans-Atlantic difference: respondents from the UK and Ireland favoured VOP orders while US participants favoured VPO orders, and Canadians showed an equal preference for both orders. Data from the Brown corpus and the Corpus of Historical American English (COHA) suggest that this cross-Atlantic difference reflects change toward an innovative VOP order that has proceeded more quickly in Old World dialects than in North America.

Our discussion is organised as follows. Section 3.2.2 of this paper reviews previous literature on social and linguistic effects on particle placement. Section 3.2.3 describes a judgment experiment testing regional and focus effects on particle placement. Section 3.2.4 reports and discusses results from a Twitter corpus providing additional support for the regional analysis in the experimental data. Section 3.2.5 presents data from three sets of historical corpora, which lend further support to the trans-Atlantic difference and suggest that the difference reflects a change toward VOP orders that is proceeding more quickly in Old World dialects. Section 3.2.6 summarises the discussion.

3.2.2 Social and Linguistic Effects on the Particle Verb Alternation

Much of the formal and sentence processing literature on English particle verbs has focussed on two kinds of linguistic constraints on particle placement. One set of studies has discussed the length or prosodic weight of the object as a processing or a phonological phrasing constraint on particle placement. Kroch and Small (1978), Gries (2001) and Lohse et al. (2004) all report evidence from corpus studies showing that "heavy" objects such as those in (2) tend to favour the VPO order.

(2) a) She turned off the fan I bought her for Valentine's Day. (VPO order)
   b) ?She turned the fan I bought her for Valentine's Day off. (VOP order)

Lighter objects, on the other hand, favour the VOP order. Indeed, speakers generally find the VOP order obligatory for unstressed, weak pronouns as in (3).

(3) a) *She turned off it. (VPO order)
   b) She turned it off. (VOP order)

Lohse et al. (2004) explain the object length effect in terms of a more general processing constraint, namely that processing is facilitated by a short distance between members of a syntactic dependency. Lohse et al.

take the relation between the verb and the particle to be a dependency governed by this principle. In the case of VOP orders but not VPO orders, heavy objects as in (2) incur a heavy processing cost because they create a large gap between the two elements in the particle verb dependency. VPO orders are therefore preferred in proportion to increasing object length, not because the VPO orders become easier to process, but because the corresponding VOP orders become harder to process as object weight increases.

A second set of studies has focussed instead on information-structural constraints on particle placement. Bolinger (1971), Svenonius (1996a), Kayne (1998) and Dehé (2002) note that given objects, or topics, favour placement further to the left, as found in the VOP order, while focussed objects favour placement further to the right, as in the VPO order. Svenonius (1996a) notes that, as an answer to the object *wh*-question in (4), the VPO order is more natural than the VOP order for many people.

(4) Q: Who will you pick up?

   A: I'll pick (?the girls) up (the girls). (Svenonius 1996a)

In contrast, as an answer to the question in (5), where the object is a previously introduced topic, Svenonius notes that many speakers prefer the VOP order. Svenonius reports that this effect is mild for many speakers and that other speakers report no such effect.

(5) Q: How are Turid and Ingrid going to get here?

   A: I'll pick (the girls) up (?the girls). (Svenonius 1996a)

A first goal of the judgment experiment described below is to examine possible focus effects more directly by biasing different kinds of focus interpretation independently of word order.[2] We also include in our design object weight, in an effort to test the possible interaction of object weight and discourse status. We describe these experiments in Sections 3.2.3 and 3.2.4 below.

A second goal of this paper is to test Hughes et al.'s (2005) claim of a dialectal difference in particle placement preference. Specifically, Hughes et al. (2005: 23) propose that Scottish speakers tend toward VPO orders (1a), while speakers from the south of England tend toward VOP forms (1b). The authors report no supporting evidence for this claim, however, and as far as we are aware, no other published literature has reported evidence to this effect in contemporary UK dialects. Based on limited historical corpus evidence, however, Elenbaas (2007: 273–279) speculates that in the Early Modern English period, VPO orders were favoured in areas most exposed to Scandinavian varieties, that is, the Danelaw in Northern and Eastern parts of England, while VOP orders were favoured elsewhere.

While no literature to date has discussed geographic correlates of this variation in the US, Hughes et al.'s claim of a Scottish-Southern English difference suggests the possibility of founder effects in North American dialects. That is, if Hughes et al.'s regional difference indeed exists and dates back at least to the time of North American settlement, then we might expect preferences for VPO versus VOP orders to appear in areas settled by Scots/Scotch-Irish migrants and Southern English migrants respectively. In particular, we might expect New England, which was mainly settled by speakers of Southern English dialects, to favour VOP orders, and that Appalachian dialects, which were founded largely by Scotch-Irish settlers, would favour VPO orders. (See Krapp (1925), Kurath (1949) and Montgomery (2006) for discussion of early North American migration and settlement patterns and their possible consequences for the emergence of North American regional dialects.) We assess evidence in favour of possible regional effects in Sections 3.2.3 and 3.2.4 below.

3.2.3 An Acceptability Judgment Study

3.2.3.1 *Data and Method*

The first data set we report on comes from an online judgment experiment conducted in the spring and summer of 2011. Subjects for the experiment were 297 self-described native speakers of English recruited online through personal contacts of the authors. One hundred forty five of these were from the UK or Ireland and 152 were from the US and Canada. Almost all had BA/BS-level degrees or higher. Subjects ranged in age from 18 to 84 (mean = 30), and 63% were women.

The experiment crossed three within-subjects factors, each with two levels: particle-object order, object length and focus status of the object. The particle-object-order factor had the levels VPO and VOP as illustrated in (1) above. Object length was operationalised as a binary factor: "short" objects were all three-syllable constituents with the definite article and a two-syllable noun, e.g. *the melon*; "long" objects were all seven-syllable DPs with a definite article, two two-syllable adjectives and a noun – for example *the heavy juicy melon*.

We followed Dehé (2002) in operationalizing focus as a binary factor by biasing new versus old information interpretations of the object. We did this using a cataphoric pronoun in a preceding clause, bound by either the object of the particle verb in the main clause or the subject of the main clause. In the former case, the object was considered "given" information, in that it was introduced by the pronoun in the preceding clause. In the latter case, only the subject was given, so the VP, including the object was "new" information.[3] Fully crossing these three binary factors yields eight conditions, which we illustrate in (6) and (7).

(6) It$_i$ was about to spoil, so Andrea cut (open) the (heavy juicy) melon$_i$ (open). (old object)

(7) Her$_i$ kids wanted a snack, so Andrea$_i$ cut (open) the (heavy juicy) melon (open). (new object)

Four lexicalizations were created for each of the eight conditions. The particle verbs chosen were all non-aspectual and compositional as described in Lohse et al. (2004). Lexicalizations were blocked by Latin square, such that each block contained a different lexicalization for each of these eight conditions. These blocks were then grouped into 32 lists, with each list containing four blocks; each subject therefore saw each condition four times. The 32 experimental sentences in each list were pseudo-randomised within blocks with 32 filler sentences, half grammatical and half ungrammatical. Subjects were semi-randomly assigned to lists by the experimental software, using a counter mechanism.

Subjects judged each of these 64 sentences in a self-paced online judgment experiment using Ibex Farm (Drummond 2011). The experiment was anonymous and subjects were neither paid nor did they receive academic credit for participating. Subjects rated each sentence on an 11-point scale by clicking an icon for a value ranging from 0 to 10 in a horizontal array, with endpoints labelled "Bad" and "Good" respectively.

3.2.3.2 Results and Discussion

The data for each subject were first normalised by converting to Z-scores, subtracting the mean and dividing by the standard deviation of the ratings of the 32 filler sentences. Since half of the fillers were ungrammatical, the experimental sentences with particle verbs tended to have positive Z-scores, between +0.5 and +1.0 units on average.

Using the lme4 package in R, we then fit a series of linear mixed effects models, with fixed effects for subject region/country and the above within-subjects factors, and random intercepts and slopes by subject and by item. For example, to test whether subject region significantly affected preference for the VPO or VOP order, two models were fit. Both had a random-effect structure consisting of (region * order | subject) and (region * order | item). The more complex model had a fixed-effect term for the region*order interaction while the simpler model had only main effect terms for region and order. A likelihood-ratio test was used to compare the two models and arrive at a *p*-value representing the significance of the region*order interaction.

The results support three main findings. First, the regional analysis revealed no support for any regional distinctions within North America (six regions, $p = .65$) or within the British Isles (12 regions, $p = .98$). That is to say, there was no significant region*order interaction on either side of the Atlantic. The analysis did, however, reveal a significant
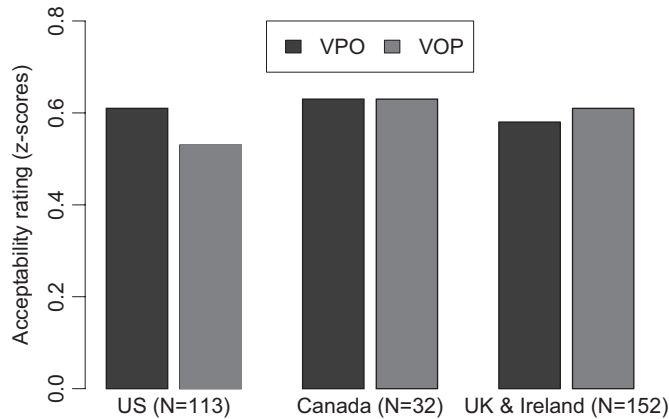
Figure 3.2.1 Mean normalized ratings for VPO and VOP orders by country.

trans-Atlantic difference. When subjects were recoded into a factor with three levels corresponding to the subjects' home country – US (N = 113) versus Canada (N = 32) versus UK/Ireland (N = 152) – the analysis revealed a significant country*order interaction (p = .001), with US subjects preferring VPO orders by .08 units, UK/Ireland subjects preferring VOP orders by .03 units and Canadian subjects showing no preference in either direction (Figure 3.2.1). We return to these results shortly.

The second finding is that there was no significant effect for the focus*order interaction. Figure 3.2.2 shows that VPO orders were in fact favoured somewhat by the new-object condition, in keeping with Dehé's (2002) and Svenonius's (1996a) discussion, but the difference of .04 units between conditions was not significant (p = .12). We speculate that the cataphoric pronoun technique used for biasing given versus new information interpretations of the object may not have been successful with this set of subjects.

Figure 3.2.3 illustrates the third main finding: a significant weight*order interaction (p = .00003). In sentences with light objects, VOP orders are preferred by .05 units, and in sentences with heavy objects, VPO orders are preferred by .07 units. That is, there is a difference of .12 units between the two conditions.

This third result aligns with much previous corpus-based work on placement, which has shown that heavy objects tend to be placed after the particle, while lighter objects and pronouns tend to precede the particle (Gries 2001; Kroch and Small 1978; Lohse et al. 2004). These processing and phonological accounts of the "weight effect" correctly predict that a heavy object is judged worse than a light object in the VOP
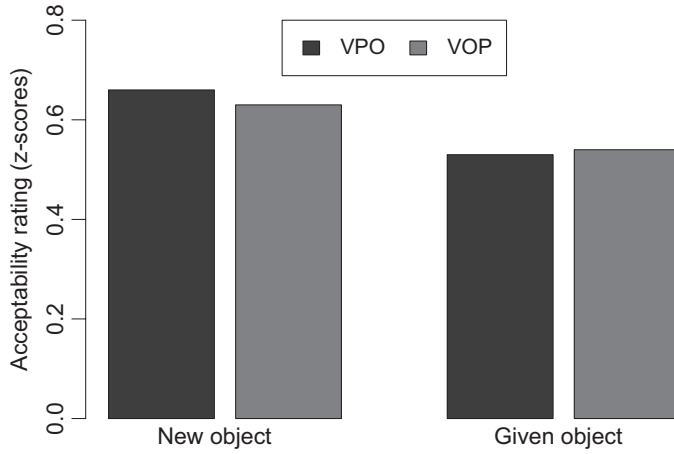
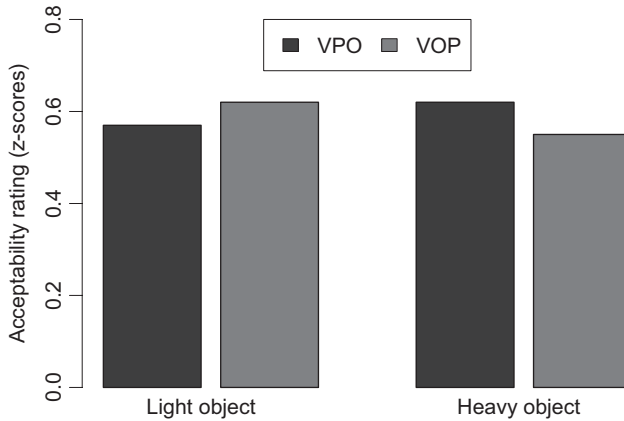*Figure 3.2.2* Mean normalized ratings for VPO and VOP orders by object type.

Figure 3.2.3 Mean normalized ratings for VPO and VOP orders by object weight.

order, where the object is interposed between the verb and the particle. In our study, this difference was .07 units (p = .0009).

In previous experimental studies of this type – and, implicitly, in corpus studies as well – subjects have chosen between two syntactic alternants or distributed a fixed number of rating points between them (Bresnan 2007; Melnick et al. 2011). Such designs make it impossible to independently assess the factors affecting the acceptability of the VPO and VOP orders. The present design, in which each order is evaluated

independently, reveals an effect not predicted in the literature: namely that heavy objects are actually judged better than light objects in the VPO order by .05 units (p = .03). Such an effect is unlikely to derive from processing constraints but could be explained if subjects implicitly evaluate sentences exhibiting one structure (e.g. VPO order) with respect to the equivalent sentences with the other structure (e.g. VOP order). That is, the well-motivated weight effect that disfavours heavy objects in the VOP order would lead to a preference for heavy objects in the VPO order, if subjects evaluate the relative acceptability of both orders when they are exposed to either of them, in a kind of perceptual version of competing grammars.

If weight effects in the VPO order are indeed parasitic on weight effects in the VOP order, then we would expect effects in the two word-order conditions to correlate across speakers. That is, speakers who show a stronger weight effect in VOP orders should also show a stronger weight effect in VPO orders. Figure 3.2.4 below shows that this is the case, at least on average; for each of the 297 speakers, it plots the (positive) effect of a heavy object on the VPO order against the (negative) effect of a heavy object on the VOP order. We see that the two effects are moderately correlated (r = −.394), and that the range of the VPO effect is smaller, consistent with it being a derivative of the VOP effect. However, we also observe that even those speakers who displayed no weight effect at all in VOP sentences still preferred heavy objects in VPO sentences, implying that there must at least be another, independent motivation for the latter effect.
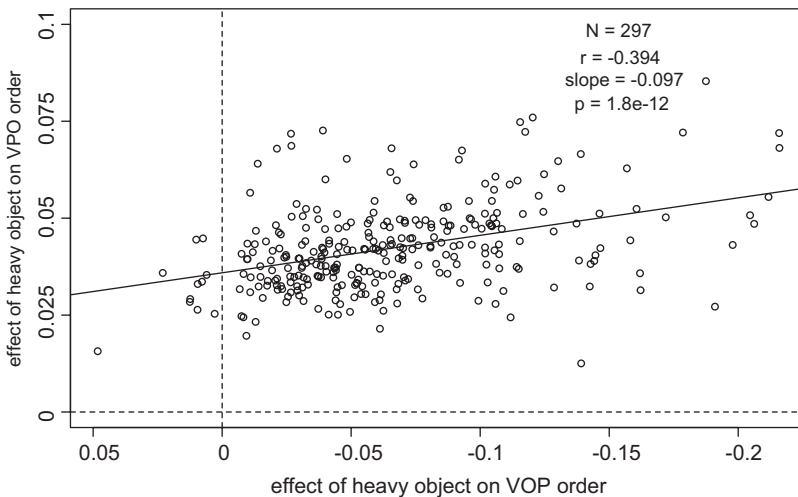

Figure 3.2.4 Correlation between object weight effects for VOP and VPO orders.

Finally, we note that the analysis revealed no significant higher-order interaction between country and focus (country*focus*order, p = .75) or country and weight (country*weight*order, p = .43), meaning there is no evidence for trans-Atlantic differences in these effects. Nor was there any significant interaction between focus and weight effects (focus*weight*order, p = .83).

3.2.4 A Twitter Corpus Study

To test for the possibility of similar regional effects in production, we examined variation between VPO and VOP orders in a bespoke Twitter corpus. The corpus consisted of tweets containing a variation on one of two base strings, *turn on the light* (VPO) and *turn the light on* (VOP). The volume of tweets was augmented by including examples with *turns* and *turned* as well as *turn off* as well as *turn on*, and *lights* as well as *light*. Before analysis, the data were cleaned by hand of song lyrics, quotations, memes, and other examples that did not reflect the production of the user.

The tweets were gathered between February and May of 2011 from Twitter API. The corpus was geocoded to areas within a 150-mile radius of four population centres in the UK and US: Oxford, England; Glasgow, Scotland; Pittsburgh, Pennsylvania; and Concord, New Hampshire. The search on the area centered around Glasgow gathered 236 tweets with

Figure 3.2.5 Twitter corpus catchment for US dialects.

Figure 3.2.6 Twitter corpus catchment for UK dialects.

the relevant strings from Scotland and Northern England. The Oxford-centered search gathered 1472 tweets from an area spanning most of the rest of England (it did not overlap with the Glasgow-centered search). The Concord, New Hampshire-centered search, which yielded 296 tokens, encompassed most of New England, in an effort to target an area founded by Southern English settlers. Finally, the Pittsburgh-centered search gathered 343 tweets and targeted an area of Appalachia and western Pennsylvania, whose founding settlers were largely of Scottish or Scotch-Irish origin (Montgomery 2006). We illustrate the different catchment areas for the US and UK dialect areas in Figures 3.2.5 and 3.2.6, respectively.

The results, again, show no evidence of regional effects within the UK (contra Hughes et al. 2005; Fisher's Exact Test p = .61), nor within the
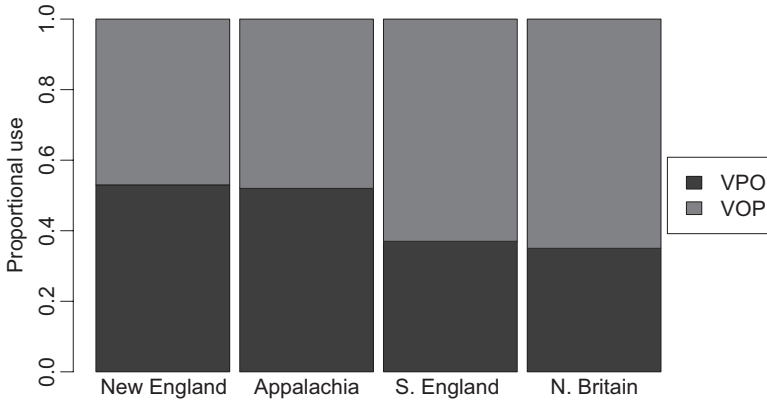
Figure 3.2.7 Proportional use of VPO and VOP orders by region.

US (p = .87). But the national results align very well with the acceptability judgment results reported above, in that the US Twitter users tend slightly toward the VPO order (53% VPO), while UK users tend more decidedly toward the VOP order (64% VOP).[4] For this trans-Atlantic difference, p = 6 x 10^{-13}. We illustrate these effects in Figure 3.2.7.

3.2.5 Evidence from Diachronic Corpora

A question that arises in light of the acceptability judgment data and the Twitter corpus data is how to explain the trans-Atlantic difference. We see three main possible explanations: a first possibility is that UK dialects have been innovative in moving toward VOP orders after the period of North American colonization; a second possibility is that US speakers have been innovative in tending toward the VPO order; a third possibility is that both dialects are changing but doing so at different rates; for example, both UK and US dialects could be moving toward the VOP order, but UK dialects have moved further and/or faster.

For help in adjudicating among these possibilities, we turn first to data from parsed diachronic corpora. We extracted particle verb constructions from four parsed corpora, The York-Toronto-Helsinki Parsed Corpus of Old English Prose (Taylor et al. 2003), the Penn-Helsinki Parsed Corpus of Middle English, 2nd Ed. (Kroch and Taylor, 2000), the Penn Parsed Corpus of Early Modern English (Kroch et al. 2004), the Penn Parsed Corpus of Modern British English (Kroch et al. 2010), and the Parsed Corpus of Early English Correspondence (Taylor et al. 2006). These corpora, together, cover a span of written British English from 850 to 1910. However, because the earliest period covered in these texts

(850–1430) contained very few unambiguous examples of the relevant verb particle construction (N = 72), data from this period were omitted.

We extracted only sentences with non-quantified, full-DP objects (that is, excluding pronouns and demonstratives, where the VOP order is obligatory). Additionally, we only considered clauses containing an auxiliary, a nonfinite verb, and in which the particle and DP both followed the nonfinite verb. This condition restricts the sample to clauses with head-initial TPs and VPs in earlier stages of English, as the modern verb particle alternation does not occur in the head-final versions of these structures in Old and Middle English. The resulting sample contained 888 clauses. We plot the proportion of VOP construction use by year in Figure 3.2.8, below. The size of the symbols is proportional to the number of tokens per year: the larger the circle, the greater amount of data for that year. The plot illustrates that the token numbers are unevenly distributed across years, with most years/texts having very few tokens. The plot also shows that, overall, the authors in these texts tend strongly toward VPO orders (91%), a finding likely related to the fact that this is a written corpus and VPO orders are favoured in more formal contexts (Kroch and Small 1978). The red logistic regression line in Figure 3.2.8 shows a very slight slope (+.001 log-odds/year). A likelihood-ratio test comparing models with and without a term for year does not support the hypothesis of a change toward VOP orders (p = .343).

This negative result from the historical written corpora, therefore, provides no help in deciding among the possible diachronic explanations of the cross-Atlantic difference discussed above. A further possibility to consider, however, is that the relevant changes are too recent to be reflected in these corpora. To test this, we use the Brown family
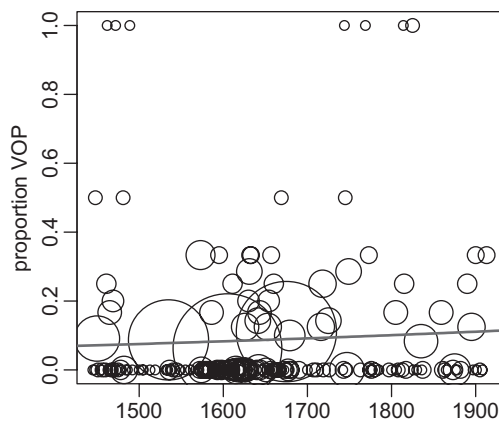

Figure 3.2.8 Proportion of VOP use by year (Penn/Helsinki/York Corpora).

of corpora, a set of written US and British English texts from 1961, 1991, and 2006, and a set of UK English texts from 1931 (Hundt et al. 1999a, 1999b; Johansson et al. 1978; Francis and Kučera 1964; Leech and Rayson 2005). The fact that these corpora are (i) matched for genre and style and (ii) span seven decades therefore lets us test the possibility of divergent rates of change in UK and US written English.

We extracted 2568 transitive particle verbs with objects consisting of a single determiner and a one-word noun, e.g. *an umbrella*, *the boat*. We coded these tokens for two linguistic fixed predictors: object definiteness (with levels *definite* and *indefinite*), and object length (in syllables). Social fixed predictors included year of text (as a continuous variable), country (with levels *UK* and *US*), and category of text (with levels *fiction, general, learned* and *press*). Using lme4, we fit a generalised linear model with random intercepts for particle verb and text.

Variables were selected by a step-up procedure similar to that employed in Goldvarb (Sankoff et al., 2005) and Rbrul (Johnson, 2009). Fixed main predictors improving the model significantly (α = .05) were added level-by-level. We then used this same step-up procedure to evaluate those two-way combinations where plotting suggested a possible interaction. Plotting suggested no likely interactions with >2 predictors. Table 3.2.1, below, summarises the generalised linear mixed model with

Table 3.2.1 Coefficients (logits), standard errors, *z*-values and *p*-values for fixed effects in the combined model, with 1 = VOP order. Number of observations = 2568.

AIC	BIC	logLik	Deviance
2110	2168	–1045	2090

Random effects

Groups name	Variance	Std. Dev.
Text (Intercept)	0.73696	0.85846
Particle Verb (Intercept)	3.80080	1.94956

Fixed effects	Estimate	Std. Error	z value	Pr(>|z|)
(Intercept)	–3.411856	0.314954	–10.833	< 2e–16***
Definiteness (Indef.)	–0.472501	0.240199	–1.967	0.04917*
Category (Fiction)	0.613450	0.246381	2.490	0.01278*
Category (General)	0.517391	0.261026	1.982	0.04746*
Category (Learned)	1.164136	0.446426	2.608	0.00912**
Year	0.018322	0.003845	4.765	1.89e–06***
Country (US)	0.692315	0.419829	1.649	0.09914
Year: Country (US)	–0.018462	0.007320	–2.522	0.01167*

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1.

1 = VOP. (Level labels for factors appear in brackets to the right of the variable label.)

The intercept is strongly negative (–3.411856 in log-odds units, $p <$ 2e–16), reflecting the strong tendency in the data toward VPO orders overall in these written data. In addition, indefinites favour VPO orders, as also reported in Gries's (2001) analysis of British National Corpus data. Since indefinite objects are more likely to refer to discourse-new entities, this effect can be linked to the effect of information structure discussed in Section 3.2.2. The text categories *learned*, *general* and *fiction*, all favour VOP orders relative to the reference level (*press*), perhaps reflecting a higher style of writing for *press*-category texts. Note that object length (in syllables) did not emerge as a significant predictor in the modelling, unlike in the experiment described in Section 3.2.3. The absence of length effects may be a consequence of the fact that objects extracted were all two word – article + noun – sequences, that is, this sampling may not have allowed for sufficient variation to make a weight effect detectable. Finally, the model in Table 3.2.1 shows a country*year interaction, which we illustrate in Figure 3.2.9: while in the US data, VPO/VOP variation is stable, in UK dialects, there is a change toward the VOP order. Note also, that the corpus results from 1991 and 2006 also align with the judgement and Twitter corpus findings that UK English speakers tend toward VOP orders more than US speakers. Compared to what we saw in Figure 3.2.7, the Brown family rates of VOP are lower for both countries, reflecting the more formal nature of these texts compared to the Twitter data.

The results from the Brown corpora therefore align with the first of the hypotheses suggested above, namely that this variation is stable in the US, while UK English is diverging in tending toward VOP orders.[5]

To examine the possibility of change in American English in greater time depth we turn, finally, to data from the Corpus of Historical
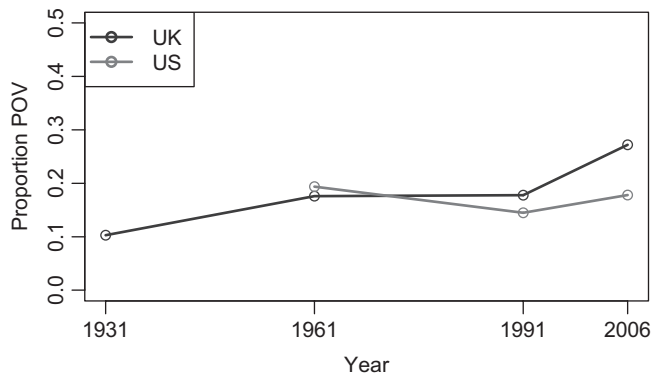

Figure 3.2.9 Proportion of VOP use by year (Brown Corpora).

American English (COHA). The COHA is a 400-million-word corpus of American texts balanced by genre and style from 1810 to the present. It is not syntactically parsed, making it virtually impossible to extract all particle verb tokens, as we did with the corpora above. Instead, we extracted 685 tokens of five common particle verb strings, shown in the upper left-hand corner of Figure 3.2.10 along with the number of tokens/string. Figure 3.2.10 plots the proportion of discontinuous forms by decade. The results show substantial change toward the discontinuous order during this period. Assuming a constant rate of change, a logistic regression (with a term controlling for the individual string) returns a slope of +0.01 log-odds per year in favour of the discontinuous order (p = .0003).

This evidence of change toward the VOP order over time in American English is in keeping with the third possibility suggested above, namely, that both British/Irish and North American Englishes are tending toward VOP orders, but the change began too recently to be reliably observed in the historical corpora.

The evidence of change toward VOP orders presented above suggests the possibility that English is undergoing a syntactic change in progress from an alternating system to a verb particle system more like that of modern Danish, in which the VOP order is obligatory (Faarlund 1977; Taraldsen 1983, 1991). In fact, given that Norwegian and Icelandic show an alternating system (Svenonius 1996a, 1996b, *inter alia*), and Swedish shows a very limited amount of the VOP order (Toivonen 2003), it is likely that Scandinavian used to uniformly show a verb particle alternation and that Danish has completed the same change that we have suggested is underway in modern English.
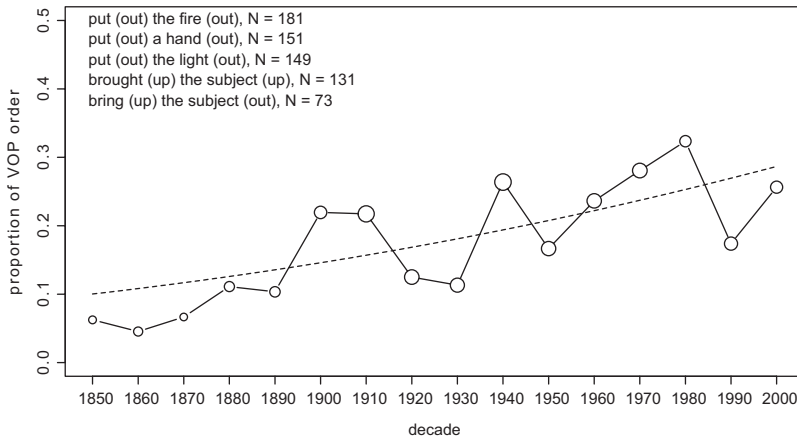

Figure 3.2.10 VOP order in the Corpus of Historical American English 1850–2009.

However, the data are also consistent with another explanation: the apparent change could be due to the loosening of a prescription against the VOP order in written English, with no change in progress at all in spoken English (see Cheshire 1994; Fox and Cheshire 2009 on effects of prescription on morphosyntactic variation, Kroch and Small 1978). If the VOP order has always occurred at a stable frequency but was consistently suppressed in writing until the nineteenth century, that would also explain the COHA and Brown trends and the lack of a change in the Penn corpora of historical English. The kind of data that would be most helpful in deciding between these possibilities would be diachronic corpora containing both spoken and written English from US and UK speakers matched for genre, style, and speaker-related social predictors. Such a data set does not exist as far as we know. Future work might explore these issues further.[6]

3.2.6 On Movement in the Particle Verb Construction

As mentioned in Section 3.2.2, several studies (Gries 2001; Kroch and Small 1978; Lohse et al. 2004) report evidence from corpus studies to the effect that a heavy direct object favours VPO order and disfavours VOP order, and conversely, a light direct object favours VOP and disfavours VPO order. The explanation proposed by Lohse et al. (2004) is that this is the effect of a principle of processing which favours a short distance between the members of a syntactic dependency (Hawkins 2004). The heavier the object is in the VOP order, the longer the distance will be between the verb and its dependent, the particle, and therefore, the more VPO order is preferred over VOP. While this predicts that heavy objects are dispreferred in VOP, it does not straightforwardly predict that light objects are dispreferred in VPO, especially when the structures are evaluated separately by test subjects under experimental conditions, as in our design. A possible explanation is, though, that subjects evaluate the relative acceptability of the two orders even when they are exposed to them separately. Effectively, VPO with a heavy object would be judged good because VOP would be bad with that object, and conversely, VPO with a light object would be judged bad because VOP with that object would be good. As pointed out in Section 3.2.3.2, this, in turn, predicts that subjects who show little or no dispreference for heavy objects in VOP, should correspondingly show little or no dispreference for light objects in VPO. We did, indeed, find such a correlation, but only a moderate one. Moreover, quite a few subjects displayed little or no weight effect in the VOP order, yet they did show a weight effect in the VPO order, dispreferring light objects. This casts doubt on the processing-based explanation: it may explain, or be part of the explanation, why heavy objects are dispreferred in VOP, but does not explain

why light objects are dispreferred in VPO. We should, therefore, look for alternative explanations.

The following is a syntactic account of the particle verb alternation that is consistent with our findings. We adopt a version of the theory articulated by Svenonius (1994, 1996a, 1996b) and particularly Ramchand and Svenonius (2002 see also Haddican and Johnson 2012). Following Ramchand's (2002) theory of 'lexical syntax', the maximal expansion of a predicate expresses three subevents, initiation, process, and result, which are syntactically represented as a hierarchy of projections. The predicate of a verb-particle construction has the following structure (R = Result).

(12) $[_{vP}$ Agent v $[_{VP}$ Undergoer V $[_{RP}$ Holder R $[_{PrtP}$ Prt Obj$]]]]$

vP expresses the Initiation event, with the specifier interpreted as the initiator (Agent) of the event, VP expresses the Process event, the specifier interpreted as undergoer, and RP the Result state, the specifier interpreted as the 'holder of the result'. Notably the same DP can be both Undergoer and Holder of Result by virtue of movement, overt or covert, from specRP to specVP. The particle and the object DP form a constituent below R. Crucially, either the particle or the object must move, the particle by head-movement to R, the object to specRP. Ramchand and Svenonius (2002) suggest that the trigger is a universal requirement to lexicalise the R-projection.[7]

This predicts cross-linguistic and possibly intralinguistic variation, which, of course, is what we find. Idealizing the situation somewhat we have (13) (see Svenonius 1996a, 1996b):

(13)   Swedish: Prt-movement only → VPO order
       Danish: Object-movement only → VOP order
       English, Icelandic, Norwegian: Prt movement or Object-movement → VPO and VOP

We can model this as two grammars, one with Prt-movement (call it Prt-Mvt), one with Object-movement (call it Obj-Mvt). In English, Icelandic, and Norwegian the two grammars are in competition. As we have shown, the choice between the two grammars correlates with heaviness, according to a certain pattern. To account for this, we propose that two connected, universal markedness conditions are at work here governing scrambling or object-shift type movement:

(14) a) Light objects: Movement is unmarked, non-movement is marked.
     b) Heavy objects: Movement is marked, non-movement is unmarked.

It is well known and very well documented in the literature that weakly stressed object pronouns tend to undergo leftwards movement in a variety of languages, including the Germanic languages (Holmberg 1999; Vikner 1994; Wallenberg 2008). This is an effect of (14a). In the Scandinavian languages and earlier stages of English (Wallenberg 2008), this movement is known as Object Shift, shifting an object pronoun across a negation and other constituents in the *Mittelfeld*, provided the verb also moves. In most of the languages Object Shift applies to pronouns only, but in Icelandic also to definite full NPs (Thráinsson 2007). Consider, therefore, the case of Icelandic. (15) exemplifies the fact that movement of a weak object pronoun in Icelandic is obligatory, (16) that movement of a lexical NP is optional, and (17) that the movement is dispreferred if the NP is heavy.[8]

(15) a) *Hún sá   ekki þá. (Icelandic)
          she saw not them
     b) Hún sá þá   ekki.
        she saw them not
(16) a) Hún sá   ekki strákana.
        she saw not   the.boys
     b) Hún sá   strákana ekki.
        she saw the.boys not
        'She didn't see the boys'.
(17) a) Hún sá   ekki strákana frá   Akureyri.
        she saw not the.boys from Akureyri
     b) ??Hún sá   strákana frá   Akureyri ekki.
         she saw the.boys from Akureyri not
         'She didn't see the boys from Akureyri'.

This corresponds exactly to what we see in connection with particle verb alternation in English (as well as Icelandic and Norwegian): With a weak pronominal object, object movement is obligatory, with a lexical NP object the movement is optional, but if the object is heavy, the movement is dispreferred. This is the effect of (14). Note also that no explanation in terms of processing along the lines of Lohse et al. can be appealed to in the case of Object Shift. There is no dependency relation between T (the host of the verb; see Thráinsson 2007) and the negation that would be hampered by a heavy object.

To be more precise, in the case of the verb-particle construction, the impact of (14) is as follows:

- For all speakers, if the object is a weakly stressed pronoun, Obj-Mvt is the only option; it is categorical.
- For a class of speakers, more numerous in the US than in the British Isles or Canada, Prt-Mvt is the preferred option when the object is a

lexical DP. If the object is heavy, Prt-Mvt is strongly preferred due to the markedness condition (14b).

- For another class of speakers, more numerous in the British Isles than in the US or Canada, Obj-Mvt is the preferred option; heavy as well as light objects can move. However, for heavy objects, markedness condition (14b) enters the picture, favouring Prt-Mvt over Obj-Mvt. The effect is, for these speakers, that VOP is always an option, but VPO is acceptable as well if the object is heavy.

In this perspective, the processing principle favouring short distance between dependents (Lohse et al. 2004) plays at most a supplementary role in the context of particle verb alternation in English. The change that we have found towards VOP order is an effect of increase in the use of Obj-Mvt at the expense of Prt-Mvt. The endpoint of this process is complete loss of the Prt-Mvt option, which is what we see in present-day Danish. The prediction is, however, that as long as Prt-Mvt is employed at all, it will be employed when the object is heavy, due to (14b).

3.2.7 Conclusion

Following Jenny Cheshire's thrust to explore the constraints underpinning syntactic variation, this paper has focussed on regional and other effects on the particle verb alternation in English. Our main new finding is evidence of a trans-Atlantic difference where British and Irish English speakers prefer the VOP order in both production (in a Twitter corpus) and perception (in a judgment experiment) to a greater extent than Canadian, and especially American, speakers. Analysis of variation in written English from the Brown corpora of UK and US English and from the COHA corpus suggest change toward the VOP order in both US and British Isles dialects but that this change has progressed more quickly in the British Isles.

Our results contribute to a series of recent findings describing changes in probabilities governing word order alternations across English dialects. Bresnan and Ford (2010), for example, report evidence from production and judgment data suggesting that Australian English speakers, more than American English speakers, tend toward prepositional datives (*give the ball to Tanya*) vis-à-vis double object constructions (*give Tanya the ball*). Grimm and Bresnan (2009) report corpus evidence suggesting that both British and American English are changing toward double object constructions, with US dialects leading the change. Similarly, Hinrichs and Szmrecsanyi (2007) present corpus evidence suggesting change in both British and American English (written and oral) toward the synthetic (Saxon) genitive (*the leader's courage*) versus the analytic (Norman) genitive (*the courage of the leader*). One interpretation of the above results sometimes entertained in the literature is "colloquialization" or

change in the written norms of these dialects toward more colloquial or oral forms (Hinrichs and Szmrecsanyi 2007). Our results suggesting change toward VOP orders which are favoured in spoken English, are in line with these results (Kroch and Small 1978), and highlight the need for a more comprehensive theory of processes of change that appear to affect geographically diffuse dialects concomitantly (D'Arcy et al. 2012).

We also demonstrate the potential benefits of an experimental methodology whereby the members of a syntactic alternation are evaluated independently, rather than by forced-choice or the distribution of rating points. The selection of a syntactic alternant has often been treated as a choice (or the outcome of a competition). Corpus data lends itself naturally to this treatment, which is also in keeping with variationist theory. In this approach, a factor favouring one alternant will necessarily disfavour the other alternant(s) to the same extent. However, by separating the presentation and evaluation of the VPO and VOP orders of the particle verb alternation, our judgment study shows that the situation is not so simple. For example, a heavier direct object makes the VOP order less acceptable (as expected), and it also makes the VPO order more acceptable (expected, perhaps, under a competition analysis). But although those subjects with a greater sensitivity to object weight in the VOP order also tended to show a greater effect in the VPO order, the correlation was only moderate. In addition, quite a few subjects displayed little or no weight effect in the VOP order, where it is motivated by processing considerations, yet, importantly, these same subjects – along with almost every other subject – did show a weight effect in the VPO order, despite the fact that such a weight effect in the VPO order is unmotivated by traditional processing accounts.

Such puzzling and theoretically intriguing findings could not emerge from a corpus study or a forced-choice task. This suggests that judgment studies allowing separate evaluation of the alternants are best equipped to investigate the mechanisms of what surfaces as syntactic "choice", but may be a more complex phenomenon.

Finally, the weight effect we found in VPO order, cutting across other variation, can be understood if the variation is an effect of variation between two grammars, one deriving the particle verb construction by particle movement, which yields VPO; the other by object movement, which yields VOP. In conjunction with a markedness condition which favours movement of light objects and disfavours movement of heavy objects, for movement of the object shift type, the weight effect follows.

Notes

2 See Cheshire (2005a, 2005b) for approaches to variation in focus constructions using corpus data.

3 An alternative way of biasing focus on the object is with wh-questions as the context, e.g. *What did* SUBJECT *do?* (to bias VP-focus readings) and *What happened to* OBJECT? (to bias a given-object reading). A disadvantage of this approach is that it requires repeating the subject and object in the question and answers, which speakers typically find pragmatically odd, particularly for heavy DPs. For this reason we chose the cataphor binding approach explained above.

4 In the judgment experiment, for light objects similar to those in the Twitter study, US subjects preferred the VPO order by .018 units; UK subjects preferred the VOP order by .104 units.

5 Comparing rates of change in US and UK English using the Brown corpora is nevertheless hindered by the fact that we did not have access to 1931-era Brown data for American English, which might indeed have suggested change in American English (Hypothesis 3 above).

6 To the extent that the *category* factor in the Brown modeling can be taken to reflect style differences, "stylistic loosening" explanation, might lead us to expect a country*category*date interaction in these data. No such interaction emerged in the modeling ($p = .256$).

7 An alternative model, also compatible with our findings, would be that VPO involves no movement, while VOP is derived by object movement.

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References

Bolinger, Dwight L. 1971. *The Phrasal Verb in English.* Cambridge: Harvard University Press.

Bresnan, Joan. 2007. "Is syntactic knowledge probabilistic? Experiments with the English dative alternation". In *Roots: Linguistics in Search of Its Evidential Base*, S. Featherston and W. Sternefeld (eds.). Berlin: Mouton. 77–96.

Bresnan, Joan and Marilyn Ford. 2010. "Predicting syntax: Processing dative constructions in American and Australian varieties of English". *Language* 86(1):186–213.

Cheshire, Jenny. 1994. "Standardization and the English irregular verbs". In *Towards a Standard English, 1600–1800*, D. Stein and I. Tieken-Boon van Ostade (eds.). Berlin: Walter de Gruyter. 115–133.

Cheshire, Jenny. 1996. "Syntactic variation and the concept of prominence". In *Speech Past and Present: Studies in English Dialectology*, J. Klemola, M. Kyto and M. Rissanen (eds.). Frankfurt: Peter Lang. 1–17.

Cheshire, Jenny. 2005a. "Syntactic variation and beyond: Gender and social class variation in the use of discourse-new markers". *Journal of Sociolinguistics* 9:479–508.

Cheshire, Jenny. 2005b. "Syntactic variation and spoken language". In *Syntax and Variation: Reconciling the Biological and Social*, L. Cornips and K.P. Corrigan (eds.). Amsterdam: John Benjamins. 81–106.

Cheshire, Jenny, Edwards, Viv and Whittle, Pamela. 1989. Urban British dialect grammar: the question of dialect levelling. English World-wide 10 (2):185–225

Cheshire, Jenny and Milroy, James. 1993. Syntactic variation in non-standard dialects: background issues. In J. Milroy, J. and L. Milroy (eds.) Real English:

The Grammar of English Dialects in the British Isles. Harlow: Longman, pp. 3–33.

Cheshire, Jenny and Sue Fox. 2009. "*Was/were* variation: A perspective from London". *Language Variation and Change* 21:1–38.

Cheshire, Jenny and Ann Williams. 2002. "Information structure in male and female adolescent talk". *Journal of English Linguistics* 30:217–238.

D'Arcy, Alexandra, Bill Haddican, Hazel Richards, Sali Tagliamonte and Ann Taylor. 2012. "Asymmetrical trajectories: The past and present of –*body*/–*one*". *Language Variation and Change* 25(3):278–310.

Dehé, Nicole. 2002. *Particle Verbs in English: Syntax, Information Structure, and Intonation*. Amsterdam: John Benjamins.

Dikken, Marcel den. 1995. *Particles: On the Syntax of Verb–Particle, Triadic and Causative Constructions*. Oxford/New York: Oxford University Press.

Drummond, Alex. 2011. *Ibex Farm*. spellout.net/ibexfarm.

Elenbaas, Marion. 2007. The synchronic and diachronic syntax of the English verb-particle combination. Doctoral dissertation, Radboud University, Nijmegen, Netherlands.

Faarlund, Jan Terje. 1977. "Transformational syntax in dialectology: Scandinavian word order varieties". In *Papers from the Trondheim Syntax Symposium*, T. Fretheim and L. Hellan (eds.). Trondheim: University of Trondheim. 65–83.

Francis, W. Nelson and Henry Kučera. 1964. *The Brown Corpus*. Providence, Rhode Island: Department of Linguistics, Brown University.

Grafmiller, Jason and Benedikt Szmrecsanyi. 2018. "Mapping out particle placement in Englishes around the world. A study in comparative sociolinguistic analysis". *Language Variation and Change* 30:385–412.

Gries, Stefan T. 2001. "A multifactorial analysis of syntactic variation: Particle movement revisited". *Journal of Quantitative Linguistics* 8:33–50.

Grimm, Scott and Joan Bresnan. 2009. "Spatiotemporal variation in the dative alternation: A study of four corpora of British and American English". In *Paper Presented at the Third International Conference Grammar and Corpora*, Mannheim, 22–24 September 2009.

Haddican, Bill and Daniel Ezra Johnson. 2012. "Effects on the particle verb alternation across English dialects". *University of Pennsylvania Working Papers in Linguistics* 18(2), Article 5.

Hinrichs, Lars and Benedikt Szmrecsanyi. 2007. "Recent changes in the function and frequency of Standard English genitive constructions: A multivariate analysis of tagged corpora". *English Language and Linguistics* 11:437–474.

Holmberg, Anders. 1999. "Remarks on Holmberg's generalization". *Studia Linguistica* 53:1–39.

Hughes, Arthur, Peter Trudgill and Dominic Watt. 2005. *English Accents and Dialects*. London: Hodder Arnold.

Hundt, Marianne, Andrea Sand and Rainer Siemund. 1999a. *Manual of Information to Accompany the Freiburg – LOB Corpus of British English ('FLOB')*. Freiburg: Department of English. Albert-Ludwigs-Universität Freiburg.

Hundt, Marianne, Andrea Sand and Paul Skandera. 1999b. *Manual of Information to Accompany The Freiburg – Brown Corpus of American English ('Frown')*. Freiburg: Department of English. Albert-Ludwigs-Universität Freiburg.

Johansson, Stig, Geoffrey Leech and Helen Goodluck. 1978. *Manual of Information to Accompany the Lancaster-Oslo/Bergen Corpus of British English, for Use with Digital Computer*. Oslo: Department of English, University of Oslo.

Johnson, Daniel Ezra, 2009. Getting off the GoldVarb standard: Introducing Rbrul for mixed-effects variable rule analysis. Language and linguistics compass, 3(1), pp.359–383.

Kayne, Richard S. 1998. "Overt versus covert movement". *Syntax* 1:128–191.

Krapp, George P. 1925. *The English Language in America*. New York: Ungar.

Kroch, Anthony. 1989. "Reflexes of grammar in patterns of language change". *Language Variation and Change* 1:199–244.

Kroch, Anthony and Cathy Small. 1978. "Grammatical ideology and its effect on speech". In *Linguistic Variation: Models and Methods*, D. Sankoff (ed.). New York: Academic Press. 45–55.

Kroch, Anthony and Ann Taylor. 2000. *The Penn-Helsinki Parsed Corpus of Middle English (PPCME2)*, 2nd edition. Philadelphia: Department of Linguistics, University of Pennsylvania. CD-ROM.

Kroch, Anthony, Beatrice Santorini and Ariel Diertani. 2004. *Penn-Helsinki Parsed Corpus of Early Modern English*. www.ling.upenn.edu/hist-corpora/PPCEME-RELEASE-2/index.html.

Kroch, Anthony, Beatrice Santorini and Ariel Diertani. 2010. *The Penn-Helsinki Parsed Corpus of Modern British English (PPCMBE)*, 1st edition. Department of Linguistics, University of Pennsylvania. CD-ROM.

Kurath, Hans. 1949. *A Word Geography of the Eastern United States*. Ann Arbor: University of Michigan Press.

Leech, Geoffrey and Paul Rayson. 2005. *The BLOB-1931 Corpus*. Lancaster: University of Lancaster.

Lohse, Barbara, John Hawkins and Thomas Wasow. 2004. "Processing domains in English verb-particle constructions". *Language* 80(2):238–261.

Melnick, Robin, T. Florian Jaeger and Thomas Wasow. 2011. "Speakers employ fine-grained probabilistic knowledge". In *Paper Presented at LSA*, Pittsburgh, PA.

Montgomery, Michael. 2006. "How Scotch-Irish Is Your English?" *Journal of East Tennessee History* 77(Supplement):65–91.

Ramchand, Gillian and Peter Svenonius. 2002. "The lexical syntax and lexical semantics of the verb-particle construction". In *Proceedings of WCCFL* 21, L. Mikkelsen and C. Potts (eds.). Somerville, MA: Cascadilla Press. 387–400.

Svenonius, Peter. 1994. Dependent nexus: Subordinate predication structures in English and the Scandinavian languages. Ph.D. thesis, University of California at Santa Cruz.

Svenonius, Peter. 1996a. "The optionality of particle shift". *Working Papers in Scandinavian Syntax* 57:47–75.

Svenonius, Peter. 1996b. "The verb-particle alternation in the Scandinavian languages". *Lingbuzz*/000046.

Taraldsen, Knut Tarald. 1983. Parametric variation in phrase structure: A case study. Ph.D. dissertation, University of Tromsø, Tromsø.

Taraldsen, Knut Tarald. 1991. "A directionality parameter for subject object linking". In *Principles and Parameters in Comparative Grammar*, R. Freidin (ed.). Cambridge, MA: MIT Press. 219–268.

Taylor, Ann, Arja Nurmi, Anthony Warner, Susan Pintzuk and Terttu Nevalainen. 2006. *The York-Helsinki Parsed Corpus of Early English Correspondence (PCEEC)*, 1st edition. York: Department of Linguistics, University of York. Oxford Text Archive.

Taylor, Ann, Anthony Warner, Susan Pintzuk and Frank Beths. 2003. *The York-Toronto-Helsinki Parsed Corpus of Old English Prose (YCOE)*, 1st edition. York: Department of Linguistics, University of York. Oxford Text Archive.

Thráinsson, Höskuldur. 2007. *The Syntax of Icelandic*. Cambridge: Cambridge University Press.

Toivonen, Ida. 2001. The structure of non-projecting words. Ph.D. dissertation, Stanford University, Stanford, CA.

Toivonen, Ida. 2003. *Non-Projecting Words: A Case Study of Swedish Verbal Particles*. Dordrecht, The Netherlands: Kluwer.

Vikner, Sten. 1994. "Scandinavian object shift and West Germanic scrambling". In *Studies on Scrambling*, N. Corver and H. van Riemsdijk (eds.). Berlin: Mouton de Gruyter. 487–517.

Wallenberg, Joel. 2008. "English weak pronouns and object shift". In *Proceedings of the 26th West Coast Conference on Formal Linguistics*, C. Chang and H. Haynie (eds.). Somerville, MA: Cascadilla Proceedings Project. 489–497.