Arbeitspapier 106

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Co-variation of Form and Meaning in the Loss of Auxiliary Selection in English

Introduction

This project is a corpus-based investigation of the decline of auxiliary selection in the formation of the English perfect. We know that at some point in its history, English ceased to be a language that, like most Germanic and Romance languages, uses the HAVE auxiliary with some verbs and the BE auxiliary with others. In order to better understand the details of this transition, I collected a large corpus of sentences with periphrastic perfects from literary texts available on the Internet, covering the years 1560-1875 (= year of author’s birth). The results show that, during the long period of variable auxiliary selection, the choice of auxiliary reflected a previously UN-encoded contrast in meaning.

Evidence for semantic structure is always indirect, being more a matter of what entailments go with a particular construction than what constructions are possible or grammatical in a language. This fact makes the diachronic study of semantics through corpora particularly difficult. Because such projects are (as far as I know) uncommon, the methodological details may be of interest to others. So after review of the basic facts of the case, I discuss some of the issues that came up when assembling and analyzing the corpus. Then, following a more thorough discussion of the semantic variability of the data, I address the implications that this meaning shift has for a theory developed by Kroch and others working in the area of morphosyntactic change.

It has long been observed that linguistic change implies variation at some stage of the grammar in question. A great deal of the work in contemporary sociolinguistics concerns the interpretation of variation. Specifically, sociolinguists use the distribution of new and old forms to answer questions about the motivation for language change and the mechanism(s) by which this change is accomplished—i.e. how innovative forms embed themselves in the grammar. These are the sorts of questions I will mainly be concerned with; however, there is a growing body of synchronic investigation on the variable distribution of HAVE and BE in the Germanic and Romance languages (cf. Kayne, Freeze, Platzak, Gueron), and in the last part of the paper I will say a few words about what I believe to be the relevance of this work to the diachronic situation in English.
2. Basics of auxiliary selection

In auxiliary selection languages, the potential BE-selecting verbs are unaccusatives-verbs in which the single argument shows object-like properties as opposed to subject-like properties (compare the unaccusative in 1a-b to the unergatives in 2a-b).

(1) a. Han *har/er rejst.
   he *has/is gone
b. Si *ha/è arrivati
   they *have/are arrived

(2) a. Han har/*er sovet.
   he has/*is slept
   (Danish)
b. Si ha/*è mangiati.
   they have/*are eaten
   (Italian)

There are many internal lexical-semantic distinctions within the general class of unaccusative verbs (For a thorough discussion of unaccusative verb classes, see Levin and Rappaport-Hovav 1996), and auxiliary selecting languages differ in how widespread BE-selection is among the unaccusative verb types.

3. Assembling the corpus

For the purposes of conducting a constrained and systematic search of texts from various historical periods, I restricted my search to the class Levin and Rappaport-Hovav call ‘verbs of inherently directed motion,’ a class which includes verbs such as come, go, fall, rise/arise, depart, arrive, land, return, gather, and meet. I wanted to be able to maintain some degree of comparability between verbs, since we have no other assurance that the individual verbs within the class were not behaving differently (through some form of classificational drift or lexical diffusion). Of the verbs sampled, only come, go, and fall, and become and occur in sufficient numbers for cross-verb comparison, and so only these verbs were included in the corpus.

Essentially, what I wanted to get at was the decline over time of the use of BE + past-participle as a perfect. However, contemporary usage suggests that not all such strings are actually perfects. In particular, consider the case with gone:

(3) a. John has gone.
   b. John is gone.

The alternation in (3) does not mean that there is (variable) contemporary BE selection when forming a perfect of the verb go. There are three types of evidence against treating (3b) as a perfect. First and most obviously, there are many types of modification which, in contemporary English, are restricted in their use with gone, several of which are listed in (4): The construction does not combine comfortably with modification that delimits the path, goal, beginning time, or manner of going.

Though become is transitive, it is universally classed as a BE verb in auxiliary-selecting languages.
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(4)  a. John had gone to the store.  
    b. ?John was gone to the store. (goal)  
    c. John had gone on the interstate.  
    d. ?*John was gone on the interstate. (path)  
    e. John had gone as soon as possible.  
    f. ?John was gone at 12 sharp. (beginning time)  
    g. John had gone effortlessly/by car.  
    h. ?John was gone effortlessly/by car. (manner)

BE + gone and HAVE + gone also have different entailments with respect to the current status of the underlying eventuality: (3b) entails that John is still gone, whereas (3a) carries no such entailment: John may have gone and then returned. In this sense, gone resembles past participles like drunk or finished in (5-6):

(5)  a. John had finished (with) his homework.  
    b. John was finished with his homework.

(6)  a. John had drunk.  
    b. John was drunk.

This distinction turns out to be of little help in the sampling process, since it is not usually possible to deduce these sorts of temporal entailments from a written text. However, I discuss below a way in which the sample seems to reflect the entailment facts of contemporary usage.

The most compelling argument against analyzing (3b) as a BE-selecting perfect is the fact that a perfect may be formed from BE + gone. There is evidence that this sort of stative adjective used to be more widespread within the verb class in question; compare (7) and (8).

(7)  John has been gone for ages  
(8)  And with that Diabolus gave back, thinking that more aid had been come.  
    (Bunyan)

For this reason, it would not be sufficient to simply remove the gone tokens from the sample. I needed some way of disambiguating the stative adjective from the perfect for all of the verbs included in the sample tokens occurring with any hint of agentivity – mainly purpose (9) or delimiting modification (10), modification describing manner (11), or coordination with a verbal past participle (12).

(9)  a. They are come to give us joy. (purpose)  
    (10) a. They were gone to Hartfield. (goal)  
      b. I was really gone from Randalls. (source)  
      c. I had not gone three steps... (extent)  
      d. ...after so many hazards as I had gone through... (path)
(11) She had come as fast as she could (rate/pace)  
(12) When they had been all walking together, he had so often come and walked by her, and talked so very delightfully!—
Any tokens that did not have some type of disambiguating modification were excluded from the sample.

4. Sample overview

I first searched the Penn-Helsinki corpus of Middle English, which is comprised of texts dated from AD 1150 to AD 1500. In the entire corpus, I found only fourteen examples of HAVE + come. Of these, 12 occurred in irrealis environments – either in counterfactuals (13) or as complements of modal verbs (14).

(13) ... and **had I not that tyme comen** he sholde haue taken his lyf from hym...
(14) ... for south ye **myght have comen** to my counter, ...

The search of the Middle English corpus established two things: 1. An adequate sample would have to cover a later period of the language, and 2. Irrealis environments were the first places where **BE** was replaced with **HAVE** in this verb class. Indeed, looking at the Early Modern English data, it appears that **HAVE** was categorically used with modals and counterfactuals, except where **BE** was used to denote futurity. Because the use of **HAVE** was categorical in them, the modal and counterfactual tokens were also excluded from the sample.

Table 1 shows the token distribution of the four verbs in the Project Gutenberg texts, divided by the period during which the author was born. Table 2 gives the percentages of **BE** perfects over time for each verb, and for the three transitive verbs (*come*, *go*, and *fall*) as a group.

<table>
<thead>
<tr>
<th></th>
<th>1560-1575</th>
<th>1608-1625</th>
<th>1660-1675</th>
<th>1710-1725</th>
<th>1760-1775</th>
<th>1810-1825</th>
<th>1860-1875</th>
<th>Total</th>
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<tbody>
<tr>
<td>come</td>
<td>39</td>
<td>96</td>
<td>30</td>
<td>19</td>
<td>54</td>
<td>144</td>
<td>23</td>
<td>405</td>
</tr>
<tr>
<td>gone</td>
<td>76</td>
<td>38</td>
<td>72</td>
<td>17</td>
<td>59</td>
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<td>33</td>
<td>378</td>
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<tr>
<td>fallen</td>
<td>21</td>
<td>11</td>
<td>17</td>
<td>7</td>
<td>25</td>
<td>32</td>
<td>16</td>
<td>129</td>
</tr>
<tr>
<td>become</td>
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<td>9</td>
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<td>9</td>
<td>27</td>
<td>37</td>
<td>14</td>
<td>134</td>
</tr>
<tr>
<td>Total</td>
<td>164</td>
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<td>129</td>
<td>52</td>
<td>165</td>
<td>296</td>
<td>86</td>
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*Table 1* e-texts: http://www.promo.net/pg/list.html

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<tbody>
<tr>
<td>come</td>
<td>82%</td>
<td>97%</td>
<td>67%</td>
<td>26%</td>
<td>35%</td>
<td>18%</td>
<td>0%</td>
<td>71%</td>
</tr>
<tr>
<td>gone</td>
<td>64%</td>
<td>66%</td>
<td>56%</td>
<td>35%</td>
<td>32%</td>
<td>18%</td>
<td>6%</td>
<td>64%</td>
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<tr>
<td>fallen</td>
<td>71%</td>
<td>73%</td>
<td>41%</td>
<td>29%</td>
<td>0%</td>
<td>6%</td>
<td>0%</td>
<td>71%</td>
</tr>
<tr>
<td>become</td>
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<td>73%</td>
<td>41%</td>
<td>29%</td>
<td>0%</td>
<td>6%</td>
<td>0%</td>
<td>71%</td>
</tr>
<tr>
<td>3 trans.</td>
<td>71%</td>
<td>87%</td>
<td>56%</td>
<td>30%</td>
<td>28%</td>
<td>17%</td>
<td>3%</td>
<td>71%</td>
</tr>
</tbody>
</table>

*Table 2* Percentages of **BE** perfects
When plotted graphically, the decline in the percent of BE perfects in the sample follows an S-shaped curve (Figure 1).

The S-shaped curve is familiar from the study of sound change and syntactic change. This trajectory is a typical quantitative picture of the loss of an outgoing linguistic variant: the rate of change is rapid at the beginning and end of the process, and slower in the middle (but note here the period of initial increase, due probably to stylistic differences between the earliest texts, which drew heavily from the morality plays of Bunyan, and the second-earliest category, in which the plays of Shakespeare are most heavily represented). It is interesting to note that the S-shaped curve also appears in a linguistic change that, as we will see, involves meaning differentiation.

When the verbs are plotted individually (Figure 2), it is apparent that they pattern as a class—with the exception of become, which, being a transitive verb, is arguably not a real member of the class.
5. A closer look: Semantic differentiation of the auxiliaries

As I became more familiar with the Gutenberg texts, I began to suspect that the two forms of perfects did not distribute identically. I came upon many examples such as the following:

(15) a. For *after* that the children of God *had* gone in vnto the doughters of men and had begotten them childern, the same childern were the mightiest of the world and men of renowne. (EME 1)

b. Thus *twice before*, and jump at this dead hour, with martial stalk *hath* he gone by our watch

c. For a mile or thereabouts my raft went very well, only that I found it drive a little distant from the place where I *had* landed *before* (Defoe).

d. “...and my conscience, which *was* not *yet* come to the pitch of hardness to which it *has since*, reproached me with the contempt of advice, and the breach of my duty to God and my father” (Defoe)

e. *Am* I come near ye *now*? (Shakespeare)

The two forms show a tendency toward the entailment difference pointed out above in the discussion of contemporary *have gone/be gone*: *BE* kept appearing in contexts where the eventuality persists into the reference time, as in (15d and e), where the sentence is modified by *now*. Conversely, *HAVE* seemed to appear with unusual frequency where the eventuality is more certain to have ended or taken place in the past, as in (15a, b, c), where it coincides with the modifiers *after, twice, and before*. Such examples suggest that, during the period when there was variation in the auxiliary used to form the perfect in this verb class, the morphological variation was exploited semantically.

This meaning distinction is reminiscent of the distinction between what are sometimes referred to as the Universal perfect and the Existential perfect (cf. Anagnostopoulou et al. 1997 draft). In Reichenbachian terms, where $T$ = topic time, $R$ = reference time, and $S$ = the time of utterance, the distinction is whether or not $T$ and $R$ are ever contemporaneous: the Universal Perfect means that the reference time is included in the interval during which the eventuality holds, and the Existential perfect places the eventuality prior to the reference time (16-17; [ ] represents the duration of the eventuality).

(16) Mary has always lived in Chicago – why should she move now? *(Universal)*

([T]….R/S: Mary still lives in Chicago)

(17) Mary has read Valley of the Dolls 5 times *(Experiential)*

([T]….R/S: Mary read before now)

Existential perfects may be formed on verbs of any aspectual class, but Universal perfects are restricted to statives (i.e. *live*).

During the period when two auxiliaries were available in forming the perfect for a given verb, it seems that they were (or at least tended to be) used to denote these two
different meanings of the perfect. This is a difficult point to argue when dealing with historical texts, since the evidence for these sorts of temporal entailments is quite indirect. However, as suggested above, there are some differences in the way these two Perfects can be modified; for instance, the Universal Perfect cannot be modified by iterative adverbials, like many times or twice. Table 4 shows that HAVE is more prevalent than would be expected (given the overall distribution) with modification that contraindicates the Universal Perfect reading, whereas BE is more likely with now:

<table>
<thead>
<tr>
<th>Year of birth:</th>
<th>1560-1575</th>
<th>1608-1625</th>
<th>1660-1675</th>
<th>1710-1725</th>
<th>1760-1775</th>
<th>1810-1825</th>
</tr>
</thead>
<tbody>
<tr>
<td>now + BE</td>
<td>20</td>
<td>22</td>
<td>13</td>
<td>7</td>
<td>17</td>
<td>4</td>
</tr>
<tr>
<td>now + HAVE</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>times* + BE</td>
<td>5</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>times + HAVE</td>
<td>8</td>
<td>8</td>
<td>1</td>
<td>6</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

* = X times, before, since, after

Table 3.

When plotted as percentages of perfects selecting BE (figure 3) and HAVE (figure 4), the effect is quite clear: though the direction and general rate of change is consistent in every category, the difference is dramatic.

Figure 3
Figure 4

The HAVE/BE distribution is reminiscent of the be gone/have gone alternation in another way: because only be gone is durative in nature, have gone cannot occur in a while clause (18). The problem is not that perfects cannot be temporal antecedents for while, but rather that the underlying eventuality must be stative, as in know and have (19).

(18) Mary read a book while John was/*had gone
(19) a. I’ve read Valley of the Dolls four times while I have lived here.
    b. John has read Valley of the Dolls four times while I have known him.

There are several examples of BE + past participle while clauses in the corpus, some with modification that identifies the construction as a perfect:

(20) a. We found her a ship of Bristol, bound home from Barbadoes, but had been own out of the road at Barbadoes a few days before she was ready to sail, by a terrible hurricane, while the captain and chief mate were both gone on shore. (Defoe)
    b. The dwarf, watching his opportunity, while Glumdalclitch was gone to the side-board, mounted the stool that she stood onto take care of me at meals, took me up in both hands, and squeezing my legs together, wedged them into the marrow bone above my waist, where I stuck for some time, and made a very ridiculous figure. (Swift)

Examples like these suggest that the class of verbs has been reclassified in terms of the possible aspectual interpretations they support, and that the auxiliaries played some part in the composition of meaning: the same verbs act more telic with HAVE than with BE. In any case, these BE perfects do not have exactly the same meaning as their contemporary (HAVE) counterparts.
6. A semantic trajectory?

So, the earliest data show that modal/counterfactual use of HAVE perfects were the first to appear in this verb class. In other words, these irrealis contexts seem to be the wedge that introduced the HAVE perfect to this verb class. The question then becomes: how did the HAVE perfect come to be used in non-irrealis contexts? It seems possible that there is some sort of interpretational side-effect connecting modals to the Existential interpretation of the perfect (and to the interpretation of have gone as opposed to be gone).

The different interpretations of the perfect can be represented with a period structure making use of time intervals. We begin with a set of points in time and a precedence relation: \([T, \prec]\); i.e. a partial order of points in time. The basic units of a period structure are uninterrupted and dense sets of points in time, i.e. intervals.

Let \(I(T)\) be all the sets in \(T\) such that:

\[
\forall x, y \in I, \forall z \in T \ [\text{if } x \leq z \leq y, \text{ then } z \in I]
\]

In addition to the usual algebraic operations, we define the relations \(<\), \#, and \(\circ\):

Let \(i, i' \in I(T)\)

- \(i \prec i'\) (i completely precedes i') iff \(\forall t \in i, \forall t' \in i': t < t'\)
- \(i \# i'\) (i is temporally included in i') iff \(i \subseteq i'\)
- \(i \circ i'\) (i overlaps i') iff \(i \cap i' \neq 0\)

We can now give meaning postulates that distinguish BE perfects from HAVE perfects with respect to the \# relation:

\[\text{HaveC}(j, x_i) \iff \exists y_i [C(j, y_i) \land \exists z_i [z_i \# y_i \land z_i \prec x_i]]\]

John has come at interval \(x\) iff there is an interval \(y\) during which ‘John comes’ holds, and some subset \(z\) of interval \(y\) precedes interval \(x\).

\[\text{BeC}(j, x_i) \iff \exists y_i [x_i \# y_i \land C(j, y_i) \land \exists z_i [z_i \# y_i \land z_i \prec x_i]]\]

John is come at interval \(x\) iff there is an interval \(y\), which temporally includes interval \(x\), during which ‘John comes’ holds, and some subset \(z\) of interval \(y\) precedes interval \(x\).

The definitions differ only in that, for \(\text{BeC}(j, x_i)\), it is specified that \(x_i\) (the reference time) is a subset of \(y_i\) (the topic time). (Note that the denotation given for HAVE looks very much like a denotation for the simple past tense. This may not be as problematic as it seems, since the perfect in English is, famously, often interchangeable with the simple past.)

It seems reasonable to assume that temporal expressions are constrained by linearity; i.e. \(\forall x, y, z \in I(T) [x < y \lor y < x \lor x \cap y = \emptyset]\). Modals, on the other hand, are usually associated with anti-linear, branching structures. Suppose the definitions of \(\text{BE}(x, i)\) and \(\text{HAVE}(x, i)\) were imposed upon a branching structure like that in Figure 5,

\[\text{A better semantics would indicate in some way a systematic relation between verbs of inherent motion and their resulting states. In this case, ‘John comes’ is an unfortunately imprecise way of indicating that ‘John is here, under his own volition.’}\]
where the bold line represents actual time (and the points, actual moments in time) and the other branch is a series of unrealized worlds.

Figure 5.

The usual interpretation of a modal, say \( \text{could}(X, j, i) \), is that there is a world accessible to \( j \) from \( i \) where \( X \) is true. A plausible interpretation of an expression like \( \text{could have} \) is that \( \text{could}(X, j, i) \) is asserted, where \( i \) is in the (actual) past. Say that interval \( i_1 \), the reference time, contains point \( c \), and \( i_2 \), the topic time, contains point \( b \). The definition for \( \text{BE} \) could never be satisfied, since there is no convex interval which includes point \( b \) and point \( c \). The definition for \( \text{HAVE} \), on the other hand, can be satisfied. Perhaps the logical constraints on modals (and the incompatibility with the \( x \neq y \) part of the meaning of \( \text{be} \)) led to a different interpretation of \( \text{HAVE} + \) past participle — one deduced in a compositional fashion from its modal use.

The account sketched above assumes that a lexical association with a relation can be extended from one semantic domain to another. The trajectory of change involves an extension from the modal domain to the temporal/aspectual domain. This is not unprecedented: Iatridou (1996) gives a similar account of the contribution of past-tense morphology in the interpretational contrast between normal conditionals and counterfactuals, in which a relation from the tense domain is used in the modal domain. There are examples of languages where language contact and shift results in perfect morphology is used to denote special epistemic positions, such as the Macedonian Dubitative Perfect (Friedman 1997) and the Bulgarian Perfect of Evidentiality (Izvorski 1997). These can be looked at as ways of instantiating the pigeon-hole principle: where the language does not supply expressions for every denotation, some denotations must share. In the cases above, morphology is borrowed that superimposes an old relation on a new domain.

7. Conclusion

There is a steady accumulation of research on the synchronic facts of auxiliary selection. Discussions of the distribution of auxiliaries, either within a language or crosslinguistically, have tended toward syntactic explanation. Kayne (1993) and Freeze (1993) both propose that the \( \text{HAVE} \) auxiliary is the spellout of a movement-driven incorporation of \( \text{BE} + \) an abstract pronoun-like feature; Platzack (1987) argues that auxiliary selection among the Scandinavian languages is an epiphenomenon of the null subject parameter. Whatever the merits of the syntactic approach to auxiliary selection, it is difficult to see how such analyses could explain the diachronic situation in English: the decline in auxiliary selection did not coincide with any change in pro-drop or word-order possibilities.
The next obvious place to look for an explanation of the loss of this (putatively) syntactic feature is the work of historical syntacticians. Kroch (1994) invokes the Blocking Principle from morphology as a cause of syntactic change. The Blocking Principle states that: \textit{Stable linguistic systems do not permit equivalent morphological (or syntactic) doublets} (i.e. dived/dove). Kroch argues that all morphosyntactic change indicates the existence of competing grammars, with each member of the doublet represented in one or the other grammar. The argument for competing grammars has been made convincingly in cases such as the evolution of periphrastic \textit{do} in Middle English (Kroch 1989) or the change from V-to-C to V-to-I movement in Yiddish (Santorini 1993), and on the evidence of cases such as these, Kroch (1994) makes some explicit claims about the underlying mechanism of linguistic change:

\begin{quote}
“We have seen that the historic evolution of competing variants in syntactic change is similar to the evolution of morphological doublets. In both cases, the coexistence of variant forms is diacronically unstable: one form tends to drive the other out of use and so out of the language” (Kroch 1994: 17).
\end{quote}

The old grammar is replaced by a new one at the same rate in all environments, since each environment is representative of an underlying grammar which is the actual locus of change. In some cases, it can appear that certain environments “lead” in the change, since the input rate of application of the new form may be greater or less, but this is not to be taken as evidence that change progresses independently in individual linguistic environments. In other words, Kroch argues that it is \textit{not} the case that forms in specific environments change by a process of analogy with other environments—i.e. “generalization” of the application of a new rule.

Since auxiliary selection has so often been analyzed as a syntactic phenomenon, we would expect that this sort of analysis, and specifically the invocation of the Blocking Principle, would apply to a case where auxiliary selection is lost in a language. However, note that the Blocking Principle, as stated, can be satisfied in more than one way: either one or the other morpheme may be lost or their status as doublets may change via a process of semantic differentiation. In the present case, it seems clear that the process involves more than a meaning-neutral transition from one morpheme (BE) to another (HAVE). Along the way, there seems to have been a language-internal redistribution of grammatical distinctions. Of course, this begs the question: why did the BE perfect go out of use? I don’t have an answer for this, but possibly it was asymmetry. In other words, perhaps having the morphological resources to distinguish these two senses of the perfect in only one verb class was too cumbersome. Note again that meaning one entails the other: \textit{I am come} entails \textit{I have come}: any situation in which \textit{I am come} is felicitously uttered also supports the statement \textit{I have come}. Therefore, if one or the other interpretation had to survive, it makes sense that it would be the more broadly applicable. This case study leaves many unanswered questions. There remain many questions about the semantic status of the auxiliaries in stable auxiliary selecting languages. But some questions of more general interest also suggest themselves: How can morphosemantic change be most efficiently be investigated in a corpus? Is morphosemantic change like other sorts of linguistic change? What can diachronic variation tell us about synchronic variation?
References:


