Auxiliary selection and counterfactuality in the history of English and Germanic*

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The retreat of BE as perfect auxiliary in the history of English is examined. Corpus data are presented showing that the initial advance of HAVE was most closely connected to a restriction against BE in past counterfactuals. Other factors which have been reported to favor the spread of HAVE are either dependent on the counterfactual effect, or significantly weaker in comparison. It is argued that the effect can be traced to the semantics of the BE perfect, which denoted resultativity rather than anteriority proper. Related data from other older Germanic and Romance languages are presented, and finally implications for existing theories of auxiliary selection stemming from the findings presented are discussed.

1. Introduction

In earlier stages of its history, English used both HAVE and BE as auxiliaries to form the perfect.[1] In Old English and early Middle English (henceforth OE and ME), the choice between the two was determined primarily by the properties of the main predicate, much as in the other older Germanic languages, as well as modern German, Dutch and Italian. This is exemplified by the two ME examples

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1. We write HAVE and BE in small caps rather than italics to make clear that we are talking here not about the specific forms from a particular stage of English, but about the perfect auxiliaries more generally. I.e. HAVE is a cover term for Old English *habban*, Modern English *have* and Modern German *haben* and their various finite forms, while BE is a cover term for Old English *beon/wesan*, Modern English *be*, and Modern German *sein* and their finite forms, etc.

in 1.[2] In example (1a), the non-agentive, change-of-state verb *fall* takes ʙᴇ, like German *fallen*. By contrast, in (1b), the agentive activity verb *fight* takes ʜᴀᴠᴇ, like German *kämpfen*.

(1) a. *as   ha   þreo **weren** ifolen onslepe…*
       when they three were   fallen asleep…
       'When the three of them had fallen asleep…' (CMANCRIW-2,II.272.440)
    b. *…huanne hi **heþ** wel ʒuoʒte*
       …when   he has wel fought
       '…when he has fought well' (CMAYENBI,252.2315)

In the course of the ME period, ʜᴀᴠᴇ first began to show up with verbs that previously only took ʙᴇ. According to previous studies, ʜᴀᴠᴇ was favored at this time especially in various modal and irrealis contexts, past perfects, infinitive and progressive perfects, negatives, and iterative and durative contexts (see especially Rydén & Brorström 1987; Kytö 1997).[3] During the Early Modern English period (henceforth EModE), ʙᴇ was increasingly restricted to the most common intransitives *come* and *go*, before being pushed out here as well over the course of the 18th and 19th centuries. By around 1900, the modern situation was reached, where ʜᴀᴠᴇ is the universal perfect auxiliary, and ʙᴇ appears only in relics.[4]

This development raises a number of questions, both historical and theoretical. First, why did ʜᴀᴠᴇ start spreading at the expense of ʙᴇ in the first place? In other words, what made English different from German, Dutch and Italian, where ʙᴇ has been retained in full force up to the present? Second, what is the relevance of the factors identified by previous researchers which we noted above? Which of them really had the strongest effects, how are they related to each other, and why did they favor ʜᴀᴠᴇ in the first place? Third, why did the change take on the or-

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2. The data for this chapter come from the *York-Toronto-Helsinki Parsed Corpus of Old English Prose* (Taylor et al. 2003), the *Penn-Helsinki Parsed Corpus of Middle English*, 2nd edition (Kroch & Taylor 1999) and the *Penn-Helsinki Parsed Corpus of Early Modern English* (Kroch et al. 2005) The final line of each example gives the sentence ID as it appears in the original corpus file.

3. Notable earlier discussions of the change include Hoffmann (1934), Fridén (1948), Johannisson (1958), Mustanoja (1960) Traugott (1972), Zimmermann (1973), Kakietek (1976). Most of the ʜᴀᴠᴇ-favoring factors mentioned in the text were already identified by one or more of these scholars. However, we will mostly discuss the details reported by (Rydén & Brorström 1987) and Kytö (1997) because their studies were based on modern techniques of corpus-based research. Thus their claims are based on explicitly reported and replicable numbers.

4. E.g., ʙᴇ is retained in fixed phrases from the (archaic/archaizing) Christian liturgy like *Christ is risen*. Its productive occurrence with *gone* cannot be interpreted as a true holdover of its use as a perfect auxiliary. In this usage, *gone* is a (lexicalized) stative adjective, not a real perfect participle. Evidence for this is that ʙᴇ is not possible with *gone* in unambiguously eventive contexts (*They *are/have gone to the store*) and of course the fact that it is only *go* that behaves this way.

der of 800 years to go to completion? Was it really a single, monolithic change, or are we dealing with a series of potentially independent developments which conspired to erode away the use of BE? Fourth, what implications does this change have for general theories of auxiliary selection? Can we integrate the diachronic data from English into accounts designed to deal with synchronic data from German, Dutch and Italian, or will the English data force us to revise or even abandon such accounts?

The first question above will serve as our point of departure. We will look at the first appearance of HAVE with the verb *come* – one of its earliest clearly identifiable advances onto territory previously held by BE – and find that it relates to a ban on BE in past counterfactuals. Our examination of this counterfactual effect will lead us to at least partial answers to the other questions just posed. We will propose an account for the effect based on a difference in the semantic status of BE and HAVE, framed in terms of Iatridou's (2000) Exclusion theory of counterfactuals, and show how it relates to other factors that influenced auxiliary selection. We will present evidence on the chronology of the changes involved, showing that the spread of HAVE was in fact *not* a single change and offering a proposal for why the counterfactual effect became relevant when it did. Finally, we will present data from other languages that show similar effects and lay out the problems that such effects present for existing theories of auxiliary selection.

2.   The first appearances of HAVE with *come*

For a number of reasons, *come* is an ideal verb to focus on when investigating the loss of BE as a perfect auxiliary in English. First, among the verbs that can take BE in the perfect, it is by far the most frequent, which means that we can get large enough numbers to allow basic statistical analysis.[5] Second, clauses containing the past participle of *come* with a form of BE are unambiguous perfects in all periods. Since *come* has no transitive uses, there are no formally identical passives, and there is no uncertainty like we find with *he is gone*, as *come* never develops a lexicalized adjectival reading. Third, and perhaps most importantly, *come* selected BE categorically in the earliest historical periods of English. This means that we can identify as an innovation the point in time when *come* first starts showing up with auxiliary HAVE. Indeed, this is one of the clearest indicators we have for when the loss of BE in favor of HAVE first got underway. By examining the earliest examples

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5. For example, in our ME corpus, of the 676 perfects with verbs that take BE at least once, 273 have *come*. Next in frequency are *go* with 107 and *fall* with 39.

Table 1. Auxiliary selection with come

	OE	ME				EModE		
		1150–1250	1250–1350	1350–1420	1420–1500	1500–1569	1570–1639	1640–1710
BE	93	64	11	97	75	138	200	72
HAVE	0	1	0	14	11	20	32	25
Total	93	65	11	111	86	158	232	97
% HAVE	0%	1.5%	0%	12.6%	12.8%	12.7%	13.8%	25.8%

of *come* with HAVE, we may then be able to get an idea of why the change began in the first place.

Table 1 shows the incidence of the two auxiliaries with *come* throughout the time covered by the three corpora.[6] As alluded to above, BE is *obligatory* with *come* in OE, and nearly so through the first half of ME. HAVE first appears in significant numbers quite suddenly in the third ME period (1350–1420). Its frequency jumps immediately to around 13%, but then stays at essentially that same level for several centuries, well into EModE. In the third and final period of the EModE corpus (1640–1710), HAVE again becomes more common, but even still has only about a 26% share.

Some observations are possible purely on the basis of these numbers. First, it looks like we can put the beginning of our change in the 3rd period of ME. This is where HAVE first shows up with *come* in significant numbers, and this is where we will want to first focus our attention, to see if there is anything notable about the examples with HAVE.[7] Second, we have the beginnings of an answer to the third question posed above about why the loss of BE took so long to complete. Apparently, it was not a single gradual change, but rather a series of discrete changes, each increasing the frequency of HAVE by a small amount. Specifically, something happened around 1350 that first made HAVE possible with *come*. After this, things were stable again for a few hundred years, before something else happened around 1650 causing another jump in the use of HAVE. We do not yet have reliable data for the period after 1710 (Late Modern English), so we cannot say whether the subsequent development was a single gradual rise in the frequency of HAVE or a series of further discrete changes. In any case, we have confirmation that – at least with

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6. In the table, the ME and EModE data are grouped according to the periods distinguished by the corpora. The three periods distinguished by the OE corpus are collapsed, since there is no development to be seen there.

7. Actually, it may be that the change began in the second period. However, the M2 portion of the corpus is quite small in general, and perfects with *come* are particularly rare (note the fluctuation from 71 examples in M1, down to 11 examples in M2 and back up to 116 examples in M3), so we do not have enough data to tell.

Table 2. Perfects of come with HAVE by modality

| | ME | | | EModE | |
	1350–1420	1420–1500	1500–1569	1570–1639	1644–1710
Counterfactuals	5	9	7	9	7
Modals	4	1	2	8	4
Other	5	1	11	15	14
Total	14	11	20	32	25
% Ctf/Modal	64.3%	90.9%	45%	53.1%	44%

come – the replacement of BE by HAVE was still far from complete at the beginning of the 18th century.

What was it, then, that caused HAVE to first start showing up with *come* in period M3? As noted above, several factors have been identified by previous re-searchers as favoring the use of HAVE over BE, but the first examples of *come* with HAVE mostly fall into a single category. Of the 14 clauses in question, 9 are in what we might call modal contexts. 5 are counterfactuals, like (2a), while 4 have overt modal auxiliaries above a non-finite form of HAVE, like (2b) and (2c).[8]

(2) a. *And if þow **hadest** come betyme, he hade yhade þe maistre*
and if you had come timely he had had the master
'And if you had come in time, he would have prevailed.'
(CMBRUT3,227.4102)

b. *…she **shulde** nouȝt **haue** comen in his sight bi his wille*
'…she would not have come into sight by his will.'
(CMBRUT3,115.3483)

c. *…syþ þei **myton** liȝtly **haue** come to blysse*
'since they might easily have come to bliss'
(CMWYCSER,303.1386)

Indeed, the frequency of counterfactuals and modals among perfects of *come* with HAVE remains remarkably high throughout the time covered by our corpora, as shown in Table 2. Each column of the table splits up the perfects of *come* with

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8. Both Arnim von Stechow and an anonymous reviewer have pointed out that, from a semantic point of view, in some of these examples the modal seems to scope *under* the perfect auxiliary. Thus we would have in effect a perfect of the modal, not a perfect of *come*, in which case the appearance of auxiliary HAVE would be unremarkable. However, the morphosyntax of these sentences clearly places the modal above the perfect auxiliary, and a process which would derive this from the opposite underlying configuration would violate widely-assumed syntactic prin-ciples (see Condoravdi 2002; Stowell 2004: for discussion of essentially the same data in Modern English). What exactly is going on here to derive the apparent mismatch is not entirely clear, but barring a convincing analysis to the contrary, we will continue to assume that examples of this kind involve a perfect of *come*, and are thus of interest.

Table 3. Modal and counterfactual pexfects with all intransitives

	1150–1250	1250–1350	1350–1420	1420–1500
Intrans. perfects	294	145	794	565
Modals	3 (1%)	7 (4.8%)	54 (6.8%)	66 (11.7%)
Counterfactuals	5 (1.7%)	7 (4.8%)	91(11.5%)	83 (14.7%)

HAVE for a period into three categories: those with counterfactual semantics, those with a modal and all others, and indicates what percentage the counterfactual and modal sentence together make of the total. As we will see below, counterfactual and modal perfects are nowhere near this common overall, so it would seem that there is a connection between these contexts and the appearance of HAVE. What is at first somewhat baffling is why it is not until the third period of ME that we start finding *come* with HAVE in such contexts. If modality favored the use of HAVE at this time, why didn't it do so earlier? This is a question that we will need to address if we want to have an explanation for the start of the loss of BE in these environments.

A surprisingly clear answer is available. Perfects with counterfactual meaning or a modal above the auxiliary turn out to have been extremely rare in early ME, as shown in Table 3.[9] The top row of each column of the table gives the total number of intransitive perfects. The next two rows then indicate how many of these have an overt modal and how many have a counterfactual interpretation, along with in each case what percent of the total this represents. With *come* specifically, perfects with modals and counterfactuals are even more rare early on, as shown in Table 4.[10] So the reason why we don't find examples like *would have come* or *if he had come* before around 1350 is that there are very few examples at that time of modal and counterfactual perfects at all.[11] In other words, we do not *would have come* replacing earlier *would be come*. Indeed, we will see below that the latter was never actually possible. Rather, it is an innovation here that perfects are being used in modal contexts at all. In OE and early ME, modal and counterfactual clauses

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9. Our investigation of OE on this point is currently in progress. There are no perfects of *come* with modals in the OE corpus, and we have not yet found such examples with any other intransitive verbs. See below for discussion of the counterfactuals.

10. This lag seems to be due at least in part again to the small number of texts from the M2 period and the low occurrence of *come* in the few texts that we have.

11. Modals were far more common outside the perfect. Counting clauses of all types, the rate of occurrence of modals for the four periods of ME was 1150–1250 10.0%; 1250–1350 12.5%; 1350–1420 11.5%; 1420–1500 11.7%. The differences between these numbers and the corresponding numbers for perfect clauses in Table 3 are statistically significant for the first three periods (M1: χ^2 26.4, p < .001, M2: χ^2 7.7, p < .01, M3: χ^2 17.0, p < .001), but not the fourth, by which time the modal perfect was fully established.

Table 4. Modal and counterfactual perfects with come

	1150–1250	1250–1350	1350–1420	1420–1500
Perfects of come	65	11	111	86
Modals	0 (0%)	0 (0%)	4 (3.6%)	1 (1.2%)
Counterfactuals	2 (3.1%)	0 (0%)	5 (4.5%)	9 (10.4%)

were expressed with simple past subjunctive forms, potentially with modals, but without any perfect morphosyntax (see e.g. Mitchell 1985:85), as in the following OE example (from Molencki 2000):

(3) *ac   hit wære to   hrædlic gif he þa   on cildcradole   acweald wurde*
     but it   were too quick   if   he then on child-cradle killed   were
     'but it would have been too early if he had been killed in his cradle then'
     (ÆCHom i.82.28).

This change is just one part of the general expansion of the English auxiliary system and the spread of the perfect into new semantic contexts (see e.g. Traugott 1972; Warner 1993; Elsness 1997:for discussion of these developments).

This provides us with the beginnings of an understanding of our change. In the first half of ME, perfects first start being used in counterfactual and modal clauses, as part of the general expansion of the auxiliary system. At the same time, we see auxiliary HAVE showing up with *come*, a verb that previously appeared only with BE. A comparison of Tables 2 and 3 shows that these two innovations are related by more than just relative chronology. The frequency of counterfactuals and modals among perfects of *come* with auxiliary HAVE is far higher than it is among other perfect intransitives: between 1350 and 1420, 64.3% of HAVE + *come* perfects are counterfactuals or modals, compared with only 18.3% of other intransitive perfects; between 1420 and 1500 the frequencies are 90.9% and 26.4%.[12] Thus we can hypothesize that this initial spread of HAVE was in fact due (at least in part) to the increasing use of perfects in modal contexts. As noted in the Introduction, the fact that modals and counterfactuals favored HAVE in early English has been reported by previous researchers (see Fridén 1948; Mustanoja 1960; Traugott 1972; Rydén & Brorström 1987; Kytö 1997; Lipson 1999). However, the tight relationship between the first appearance of such contexts in the perfect and the very first advances of HAVE has not to our knowledge been made explicit until now.

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12. The percentages reported here for 'other intransitive perfects' are slightly lower than what one would get by adding the percentages for modals and counterfactuals in Table 3, because the latter are for *all* intransitive perfects, while the former exclude the perfects of *come* with HAVE, since it is their behavior we are comparing. The differences are again statistically significant: for M3 $\chi^2 = 20.2$, p < 0.001; for M4 $\chi^2 = 24.1$, p < 0.001.

3. Isolating the counterfactual effect

In order to further develop our tentative explanation for the first stage of the loss of BE, we need a better understanding of the effect that modal contexts had on auxiliary selection. To begin with, we need to more precisely characterize what 'modal context' means. To this point, we have been using this term to refer collectively to what look like two distinct types of perfect clauses – those with counterfactual semantics and those with an overt modal above the perfect auxiliary. We have kept the two clause types separate because they are identified in the corpus on the basis of different criteria, but have treated them together because they seem to have something in common. However, if we want to figure out how and why these factors really affect auxiliary selection, we will have to figure out what unifies them and distinguishes them from others which one might expect to also fall into the category of 'modal'.

To begin with, let us clarify exactly what we mean by 'counterfactual'. Into this category we place only those clauses where the implication is clearly that the proposition being considered does not (or did not) hold. This includes the following types, exemplified by the sentences in (12b):[13] counterfactual conditionals, both the antecedent clause (4a) and the consequent clause (4b); clauses which have essentially the function of the consequent of a counterfactual conditional, but have no conditional antecedent (4c), where *else* essentially means something like *if I were not satisfied*); and counterfactual wishes (4d).

(4) a. *and if they **had come** sooner, they could haue holpen them.*
         'and if they had come sooner, they could have helped them.'
         (GIFFORD-E2-P2,G3V.246)
     b. *he **had** never **come** to himself ... if he had not met with this allay*
         'he would never have come to himself ... if he had not met with this distraction'
         (BEHN-E3-H,189.165)
     c. *I am satisfy'd with every thing that pleases you; else I **had** not **come** to Town at all.*
         'I am satisfied with everything that pleases you; otherwise I wouldn't have come to town at all.'
         (VANBR-E3-H,32.10,11)

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13. The examples are taken from EModE because it is easier to understand than ME and is thus better suited for demonstration purposes. For consistency, all the examples have *come* as the main verb, with the exception of (4d), where an example with *go* is used because there are no counterfactual wishes with *come* in the EModE corpus.

  d. *And he … will wish he **had** with the poore peoples children **gon** barefoot.*
    'And he … will wish he had gone barefoot with the poor people's chil-
    dren.' (LOCKE-E3-P1,35.46)

Now, as it turns out, a division between counterfactual clauses and clauses with
modals is unwarranted for ME. Consider again the sentences exemplifying perfects
with modals above, repeated here in (5).

 (5) a. *… she **shulde** nouʒt **haue** comen in his sight bi his wille*
    '… she would not have come into sight by his will.'
    (CMBRUT3,115.3483)
  b. *… syþ þei **myton** liʒtly **haue** come to blysse*
    'since they might easily have come to bliss'
    (CMWYCSER,303.1386)

Sentence (5a) is talking about a situation where the woman in question *has* come
into the man in question's sight, thus the statement that she would not have done
so by his will is a counterfactual. Similarly, sentence (5b) is about the damned, i.e.
people who have not come to bliss, but could have easily done so if they had be-
haved properly. Again, it is a counterfactual. Indeed, *all* of the clauses containing
modals above intransitive perfects in our ME corpus turn out to have counterfac-
tual semantics like this. In other words, at this stage we don't yet find examples
like *He must have come to London* or *She may have gone home*, where the modal ex-
presses some epistemic meaning and is not counterfactual. It is not entirely clear
why this should be.[14] In any case, this allows us to hypothesize that what favored
HAVE was specifically counterfactuality, and not an ill-defined modality category
that subsumes counterfactuals and clauses with modals. If this is correct, then
once non-counterfactual perfects with modals start to show up in the language,
we might expect them to be able to take auxiliary BE. Such sentences do begin
to appear (though still in small numbers) in EModE, and as predicted, we find
auxiliary BE with a few of them:[15]

 (6) a. *Your Mother, you know, will be gone to Church.*
    (FARQUHAR-E3-P2,24.173)
  b. *My Spouse will be got to the Ale-house with his Scoundrels.*
    (FARQUHAR-E3-P2,24.174)

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14. We can speculate that this is just another facet of the process by which the modern auxiliary
system was gradually constructed. At first no modals were possible above the perfect, then only
a restricted type which expressed little more than counterfactuality, and only later the full array
of epistemic modals.

15. Note that we cannot analyze (6a) as an instance of the non-perfect use of *be gone* familiar
from Modern English due to the presence of the goal PP *to Church*.

Table 5. ME perfect auxiliary selection by modality

	BE	HAVE	% BE
Counterfactuals	3	183	1.6%
Modals	0	130	0
All other intransitives	540	942	36.4%

Table 6. EModE perfect auxiliary selection by modality

	BE	HAVE	% BE
Non-modal ctf	3	344	0.9%
Modal ctf	1	246	0.4%
All other intransitives	986	2362	29.5%

Now that we have identified counterfactuality as the relevant factor, we can consider just how strong its effect was. In order to do this, we will have to reverse the perspective we took on the data in the last section. Rather than looking at perfects with HAVE and figuring out how many of them are counterfactual, we must restrict our attention to the counterfactual perfects and see how the two auxiliaries are distributed among them. The results of this investigation are quite striking. Table 5 covers all ME intransitive perfects – i.e. not just those with *come*, but with all intransitive verbs – comparing the frequency of the two auxiliaries in counterfactual environments with their frequency elsewhere.[16] What we find is that BE is extremely rare with counterfactual perfects, whether an overt modal is present or not. It should be noted that an effect this categorical is remarkable for ME, which is otherwise known for showing variation, particularly in areas where there is change in progress. The effect remains just as strong through EModE, as shown in Table 6.[17] The counterfactual effect is thus not just a contributing factor in the selection of perfect auxiliaries, it is *the* determining factor in those clauses where it is at work.

Recall now that previous researchers have listed several other factors along with counterfactuals and modals as favoring the spread of HAVE at the expense of BE. While much of the relevant work – in particular that of Rydén & Brorström (1987) and Kytö (1997) – achieves a high quality of description, providing detailed statistical data on the various influencing factors, we would argue that it fails to explain why the various factors are relevant and how they are related to

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16. We continue to list clauses with modals separately from the other counterfactuals because, as noted above, the categories are formally distinct and thus were identified by different methods.

17. In Section 4 we will argue that most of the apparent counterexamples here are actually present counterfactuals, and that the counterfactual effect is in fact properly restricted to (the far more common) *past* counterfactuals.

Table 7. ME non-counterfactual present and past perfects

	BE	HAVE	% BE
Pluperfects	331	424	43.8%
Present perfects	189	469	28.7%

each other. We propose to address this issue by approaching the other factors from the perspective of the counterfactual effect. It is reasonably to choose this effect as the pivot precisely because it is the only one which is anywhere near categorical. Proceeding in this way turns out to be productive, since some of the other factors are in fact related to counterfactuality. In particular, the higher frequency of HAVE in certain contexts is due at least in part to the fact that these contexts tend to co-occur with counterfactuality.

This is most clearly the case is for the pluperfect. Kytö (1997), for example, claims that "[t]he past perfect, which highlights the perfectivity of action, paved the way for the rise of *have*…From early on, the use of *have* is more common in past perfect than in present perfect constructions" [52f.]. Indeed, the numbers from her study of corpora covering the time from Late ME up to the present indicate just this, with HAVE showing up in 55% of the past perfect clauses compared to 47% in the present perfect.[18] However, there is the potential here for interference from the counterfactual effect. Formally speaking, all counterfactual perfects that do not involve a modal are in fact pluperfects, with the past participle below a past form of the perfect auxiliary. That is, only *If I had gone* can be a counterfactual conditional. Something like *If I have gone* may be a conditional perfect, but cannot be counterfactual.[19] Given our finding that counterfactual perfects always take HAVE, they will skew the overall frequency of HAVE with formal pluperfects. Since present perfects are never counterfactual, what we really want to know is, how do they compare with NON-counterfactual pluperfects? As the examples in 7 show, we do find *come* with both BE and HAVE in this context.

(7) a. *For his tyme was not come to dyen at þe Pasc þat he hadde ordeynot*
'For his time had not come to die at the passover that he had ordained.'
(CMWYCSER,I,414.3405)

b. *For also thei hadden comun to the feeste dai*
'For they had also come to the feast day.'
(CMNTEST,IV,40.334)

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18. The difference in the percentages may seem small, but given the large number of examples (N = 2130), it is highly statistically significant: $\chi^2 = 18.5$, $p < 0.001$.

19. Of course, *If I went* can be a (present) counterfactual conditional as well, but is irrelevant to the discussion since it is not a perfect. See section 4 for further discussion.

Table 8. EModE non-counterfactual present and past perfects

	BE	HAVE	% BE
Pluperfects	364	805	31.1%
Present perfects	504	1267	28.5%

Table 9. Non-counterfactual perfects, negative vs. non-negative

		BE	HAVE	% BE
ME	Negative	12	50	19.4%
	Non-negative	528	942	35.9%
EModE	Negative	58	124	31.9%
	Non-negative	928	2238	29.3%

The relative frequency of the two auxiliaries with intransitives in non-counterfactual clauses in ME is given in Table 7. As it turns out, the pluperfect actually *disfavors* HAVE once we exclude counterfactuals, and the difference is statistically significant ($\chi^2 = 34.5$, p < .001). In EModE, the frequency of HAVE is still nominally lower with non-counterfactual pluperfects than with non-counterfactual present perfects, as shown in Table 8. In this case, however, the difference is not statistically significant ($\chi^2 = 2.43$, p < .20). In Section 4 we will make a suggestion as to why BE should have appeared more often in the past than in the present perfect. What is relevant for the moment is that it is not correct that the pluperfect itself favored the use of HAVE, at least not in the corpora at our disposal.

Negation has also been claimed to favor HAVE, with Kytö (1997) reporting that 68% of negative perfects take HAVE, compared to 53% of affirmatives. Again, however, we have to be on the lookout for interference from the counterfactual effect, since negation is common with counterfactuals of the type *If Jones hadn't X he wouldn't have Y*. Indeed, in our ME corpus, we find that 37.4% of negative clauses are counterfactuals, compared to only 15.9% of non-negative clauses. In EModE, 32.6% of negatives are counterfactuals, compared to 13.8% of non-negatives.[20] Excluding the counterfactuals from the negatives we get the numbers in Table 9. A statistically significant difference between negative and non-negative contexts remains in ME ($\chi^2 = 7.2$, p < .01), but in EModE they are essentially identical ($\chi^2 = .54$). At least in ME, then, negation does seem to have favored HAVE, though not nearly as strongly as counterfactuality.

Another category which has been claimed to strongly favor HAVE is the perfect infinitive. Of course, one of the main contexts where perfects show up with non-finite forms of the auxiliary is below modals. In order to avoid interference from

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20. These differences are again statistically significant. For ME, $\chi^2 = 30.3$, p < .001. For EModE, $\chi^2 = 69.6$, p < .001.

Table 10. EModE perfect auxiliary selection with sirnple infinitives

	BE	HAVE	% BE
Simple infinitives	20	127	13.6%
All other intransitives	970	2825	25.6%

the counterfactuality effect, we must exclude these and restrict our attention to examples like those in (8):

(8) a. *to take grete sham   & conscyence whan we rede them **to haue doon** so zelously in goddys cause*
'. . . to take great shame and conscience when we read that they have acted so zealously in God's cause'
(CMFITZJA,B1V.108)

  b. *to make vnable prelatis eithir curatis in the chirche of God, is **to haue come** to the hi+gest degree of trespasis*
'. . . to make people who are incompetent prelates or curates in the church of God is to have come to the highest degree of trespasses.
(CMPURVEY,I,32.1568)

An independent preference for HAVE remains here as well. Kytö (1997) reports that in her corpora, HAVE shows up with 87% of the infinitives compared to only 51% of all the other perfects. In our ME corpus, we found a total of 30 non-modal perfect infinitives, and only one of these has auxiliary BE. There thus seems to be a strong effect (though BE is not completely ruled out), but with such low numbers we cannot say much more than that. In EModE, simple infinitive perfects become far more common, yielding numbers large enough to allow more confident interpretation. Again, we find a clear tendency to favor HAVE, as shown in Table 10, though not as drastic as that in ME. The difference between infinitives and all other intransitives here is statistically significant ($\chi^2 = 10.8$, $p < .01$). Nonetheless, we again do not have anything like the categorical effect found with counterfactuals.[21]

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21. A possible explanation for the numbers here comes from a peculiar type of perfect infinitive found in older English that is unfamiliar to the Modern language, where the perfect seems to be showing up in the embedded non-finite clause due to something like a sequence of tense effect:

i. *for he was commaundyd to have londyd at Calys by the kynge*
'For he was commanded to land at Calais by the king.'
(CMGREGOR,206.1781)

A full 17 of the 30 infinitives we have found in ME are of this type. Under the analysis we will propose in Section 4, it is unsurprising that the BE perfect would be inappropriate here, since we will claim that it does not encode a past semantics in the way that the HAVE perfect does.

Table 11. EModE perfect auxiliary selection with pxesent participle auxiliary

	BE	HAVE	% BE
Progressives	50	87	38.5%
All other intransitives	940	2865	24.7%

Finally, Rydén & Brorström (1987) have reported that HAVE was favored also in perfects where the auxiliary is in the form of a present participle, as in the examples in (9).

(9) a. *he approved extremely of your having come away*
(DRUMMOND-E3-P1,2.4,201.37)
b. *and at night being come to the Towne, I found good ordinary Countrey entertainment*
(JOTAYLOR-E2-H,1,128.C2.9)

Here there is no formal connection to counterfactuals, so interference of the kind we found with modals and infinitives shouldn't be an issue. However, at least within our corpora, the present participle form seems to favor BE, not HAVE. We found no examples of this kind in the ME corpus, but there were 137 in EModE, the numbers for which are given in Table 11. Again, the difference shown here is statistically significant ($\chi^2 = 9.8$, p < .01). Kytö (1997) also finds a minor preference for BE during EModE, but in later periods this disappears. Since Rydén & Brorström (1987) also made their claim on the basis of data from Late Modern English, this may partly explain the discrepancy with our findings. In any case, whatever effects do show up here are relatively minor.

To sum up then, there are indeed several factors that correlate with higher frequencies of HAVE. However, the counterfactual effect stands clearly apart from the others, being the only one that is essentially categorical. Negative and infinitive perfects do tend to use HAVE more than affirmative and finite ones do, but these are tendencies, not hard and fast rules. Other factors that have been claimed to have such an effect, like the past perfect and the progressive, turn out not to do so at all, once interference from the counterfactual effect is removed. Our strategy, then, will be to first attempt to explain the counterfactual effect, and then to see if what we learn from that can shed light on the other factors.

4.   Towards an explanation

Three central points emerge from the discussion thus far which must inform the search for a convincing explanation of the counterfactual effect. First, the effect is essentially categorical. This points toward a solution in terms of sharply-defined

syntactic or semantic categories. Second, counterfactuality is of a different type than the other (primarily lexical) factors involved in auxiliary selection. In structural/scopal terms, things like argument structure, agentivity and lexical aspect are encoded fairly low, presumably within the VP/vP region, while counterfactuality is presumably encoded fairly high, probably somewhere in the IP region. Furthermore, counterfactuality overrides these other factors. That is, a counterfactual perfect will take auxiliary HAVE, no matter what the main verb is. Thus its effect would seem to be operating independently, on a different level than normal selection. Third, languages like German, Italian and Dutch show no sign of the effect. So whatever we suggest to account for older English must be able to handle this variation, and should ultimately be relatable to other ways in which (Middle) English perfects differ from perfects in these other languages.

With these points in mind, we would like to propose an analysis that makes use of Iatridou's (2000) theory of counterfactuals. Iatridou's point of departure is the fact that counterfactuality is marked by the same morphology that is used to encode past tense in languages like English and Greek. Thus for example in sentence (10a), the past form *had* encodes counterfactuality, not a temporal past interpretation. That is, the *if* clause is about having (or not having) a car now, not about having a car in the past.

(10)   a.   If she had a car, we could drive to Vegas.
       b.   If she had had a car, we would have driven to Vegas.

If we want to talk about having a car in the past, we need a second layer of past morphology, resulting in a pluperfect, as in (10b). In order to account for these data, Iatridou proposes that "past" morphology is not directly tied to past semantics. Rather, it spells out what she calls an Exclusion feature (ExclF), and this ExclF has the more abstract semantics given in (11). It encodes an exclusion relationship between some aspect x of the topic and the same aspect x of the utterance. This x can vary over times and possible worlds, yielding the two instantiations of (11) in (12):

(11)   T(x) excludes C(x)

(12)   a.   The topic time excludes the utterance time.
       b.   The topic worlds exclude the utterance world.

When x ranges over times, we get the past tense interpretation in (12a). That is, the time interval(s) that are being talked about in the utterance do not include the time at which the utterance is made. Iatridou argues that this results in a past, because a future interpretation is unavailable for independent reasons. On the other hand, when x ranges over possible worlds, we get the counterfactual interpretation in (12b). In other words, the world in which the utterance is made is not included in the set of possible worlds being talked about.

What is relevant for us is that this ExclF which can yield either a past or a counterfactual can only come from the finite tense marking, not from perfect morphology. A present perfect form like *If she has had a car* cannot be used to convey counterfactuality. This goes for older English as well as the modern language: we have found no formal present perfects with counterfactual meaning in the corpora. This means that in a past counterfactual pluperfect like *If she had had a car*, it must be the perfect morphology which contributes the temporal past meaning, since the finite tense-marking is handling counterfactuality. Now, since the perfect is periphrastic, we can ask which morpho-syntactic portion of it is actually responsible for this anteriority, the auxiliary or the past participle. Iatridou et al. (2005) have argued that in Modern English it is the auxiliary, since the participle has no such past meaning when it occurs independently, e.g. in the passive. This also holds for the ME and EModE passive, thus it is reasonable to assume that in the older stages of the language it was the auxiliary as well. Now, if the temporal meaning of the perfect is localized in the auxiliary, it would not be that surprising for different auxiliaries to have different temporal properties, i.e. for perfects with BE to be different from those with HAVE in this respect. We would like to propose that this was in fact the case, and that it is this difference which was responsible for the counterfactual effect and other restrictions on the older English BE perfect.

Consider that the historical source of the BE perfect is a resultative participle predicated of the subject, under a copula (see e.g. Traugott 1972:93, among many others). The anteriority in such a construction originally comes by implication from what it means to have a resultative state. I.e. it comes from the meaning of the participle, not from any temporal semantic features on the auxiliary.[22] Of course, a BE + participle construction can grammaticalize and become something other than the sum of its original parts. In the familiar modern European languages like German and French such structures are clearly no longer simple resultative stative constructions, but have come to have more general perfect or even simple past semantics. German examples like (13a) and the first conjunct of (13b), e.g., cannot be interpreted as describing resultant states:

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22. One might object that the same is true of the historical source of the HAVE perfect, and that we thus cannot explain the different behavior with HAVE and BE in this way. However, while this is true for very early stages in the development of the HAVE perfect, it has more clearly undergone subsequent grammaticalization away from its historical source than the BE perfect has. A sentence like *I have worked* with an unergative verb cannot be interpreted along the lines of the presumed ancestor of the HAVE perfect, something like *I have the can opened*. On the other hand, BE perfects like *I am come*, at least at the relevant stages of English, could still be interpreted compositionally as composed of a resultative stative participle plus copula. See Mustanoja (1960:500) for some related remarks.

(13) a. *Er ist zehn Jahre im   Ausland geblieben.*
      He is   ten   years in.the outland stayed
      'He stayed abroad for ten years.'

    b. *Er ist gegangen und dann gleich   wieder zurückgekommen.*
      he   is   gone   and   then immediately again   back.come
      'He left and then came right back.'

There is evidence, however, that the BE perfect in ME had not undergone this development.

First, a factor noted by other researchers to favor HAVE is the presence of iterative or durative semantics. We have waited to discuss it until now because it only makes sense in the light of the idea that the BE perfect is necessarily resultative. Iteratives and duratives are about the eventuality expressed by the verb, not its resultant state, so we can expect that they will be incompatible with the BE perfect.[23] Second, recall that BE shows up at a higher rate in pluperfects than it does in present perfects in ME, once we abstract away from the counterfactual effect. Let us now consider those data the other way around. Given a particular perfect auxiliary, what is the frequency of the pluperfect vs. the present perfect? Whereas only 47.5% of perfects with HAVE show a past tense form of the auxiliary (N=893), a full 63.7% of those with BE do (N=520). We have not investigated these data in enough detail to say with certainty what is going on here, but the difference can be explained if the HAVE and BE perfects differ in whether or not they introduce an anteriority relation. We can imagine that in instances where the pastness of an eventuality had to be made explicit, the simple BE perfect did not suffice and must be augmented with additional past morphology contributing an ExclF. With the HAVE perfect this was not necessary, since HAVE itself could contribute such a feature.

If this assessment of the two perfect auxiliaries is correct for the relevant period of ME, then the counterfactual effect can be explained. The BE + participle structure simply contains no specification for pastness. The resultativity of the participle is sufficient to supply an implication of anteriority in certain contexts, but the construction will not be appropriate in instances where a real past is required. This is of course exactly the situation in a past counterfactual. Consider again the relevant clause of ex. (2a), repeated as (14):

(14)   *And if þow **hadest** come betyme...*

The finite past tense morphology on *hadest* supplies the ExclF, which contributes counterfactuality to the interpretation. The past meaning is then contributed by

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23. See McFadden & Alexiadou (2006) for detailed discussion of the semantics of the older English BE perfect and its interaction with iterativity and durativity.

HAVE itself, and all is well. Consider, however, what would happen with a parallel example with BE. Here we would have the ExclF supplied by the past morphology, but no true past meaning contributed from below. If the ExclF is interpreted temporally, this yields the past of a BE perfect, i.e. a resultative state in the past, with no counterfactual meaning, as in example (1a) above and (15) below:

(15)   *And whan nyght was comyn, þe lordes & ladies wente to bedde*
       'And when night had come, the lords and ladies went to bed.'
       (CMBRUT3,3.52)

In principle, the ExclF of the past form of BE should also be interpretable as a counterfactual instead of a past if our analysis is correct. This would yield the counterfactual of a BE perfect rather than the past of a BE perfect. Given our claims about the BE perfect, this should mean something along the lines of "if you were (now) in the state of having come", which is not the same thing as the true past counterfactual "if you had come." Of course, utterances with such a semantics would only be appropriate under fairly marked circumstances, so we do not expect them to be very common, but they do seem to exist. In particular, most of the seven examples of BE with counterfactual perfects reported in Tables 5 and 6 can be interpreted in just this way. Consider e.g. those in (16):[24]

(16)   a.   *and this is to singnefie the certeynte of profecie, whos bifalling of tyme to comynge is so certeyn, as if it **were passid** now*
            'and this is to signify the certainty of prophecy, the happening of which in time to come is as certain as if it had already happened now.'
            (CMPURVEY,I,55.2214)
       b.   *The Fellow looks as if he were broke out of Bedlam.*
            'The fellow looks as though he had broken out of Bedlam' (the infamous London psychiatric hospital) (FARQUHAR-E3-H,60.477)
       c.   *yf he had your sowle I wene he shold be gone.*
            'If he had your soul, I think he would have/be gone.'
            (MERRYTAL-E1-P1,10.128)

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24. Note that in the 1st and 3rd persons singular, BE has a distinct past subjunctive form *were* which contrasts with the past indicative *was*, and that it is this subjunctive form which shows up in counterfactuals in older English (as well as conservative varieties of Modern English). See Iatridou (2000) for arguments on the basis of cross-linguistic evidence that it is still the past morphology that contributes the counterfactual semantics in such cases, not the subjunctive. All that is really important for us is that (at least at this stage of the language) a past subjunctive form cannot by itself contribute the equivalent of two ExclF features, i.e. contribute both past and counterfactual interpretation. Perfect morphosyntax under the past subjunctive morphology is required to contribute the past semantics.

The correct interpretation of these sentences is not certain, but present counter-factual readings are plausible or even likely. In the ME sentence (16a), the adverb *now* suggests a present state rather than a past eventuality. In the EModE (16b), the present tense in the main clause points to a present counterfactual interpretation of the embedded clause. Finally, in (16c), the antecedent clause *yf he had your sowle* looks like a present counterfactual, since it is formally a simple past rather than a pluperfect, thus we expect the consequent clause to be a present counterfactual as well.

5.   Some cross-linguistic notes

As noted above, none of the modern European languages that have formed the basis for theoretical discussion of perfect auxiliary selection have been reported to show anything like the counterfactual effect. The choice between HAVE and BE there seems to depend only on factors related to argument structure, telicity and other things determined within the vP. Higher clausal properties from the tense and mood area are irrelevant. However, older English is not unique in showing sensitivity to such things. Indeed, there is mounting evidence that this sort of in-teraction – while perhaps not the norm – is not uncommon. In this section we will briefly discuss the examples we have found of things like the counterfactual effect in other languages and discuss how such data bear on our analysis.

A preference for HAVE in modal contexts in older Germanic languages other than English was already noted by Kern (1912) and Johannisson (1958). Shannon (1995), largely following Kern, discusses the effects of modality on auxiliary selection in Middle Dutch and Middle Low German, noting for Middle Dutch "a strong, though by no means absolute tendency for mutative verbs, which of course are otherwise normally conjugated with BE in the perfect, to take HAVE in irrealis contexts" [p. 138]. Note especially example (17b), where the verb 'fall' ap-pears with BE in the realis matrix clause, but HAVE in the counterfactual (modal) embedded clause:

(17)   a.   **haddi** *hem oec niet ontlopen, si   haddent…*
            had he   them also not   escaped, they had…
            'Had he also not escaped from them, they would have…'
       b.   *veel   luden **sijn ghevallen** …die niet **ghevallen souden hebben**
            many people are fallen   …who not   fallen   would have
            dan…*
            but
            'Many people have fallen …who would not have fallen, but…'

Johannisson (1958:108) identifies "the subjunctive expressing unreality" as a key factor favoring ʜᴀᴠᴇ with verbs that otherwise took ʙᴇ in Old Swedish (though, interestingly enough, not in Old West Norse).

A similar pattern is reported by Ledgeway (2003) for 14th and 15th century Neapolitan. At that time, ʙᴇ was the rule with unaccusatives and certain types of reflexives, but was frequently replaced by ʜᴀᴠᴇ in modal contexts. Like English, Neapolitan ended up completely losing ʙᴇ as a perfect auxiliary (unlike standard Italian), and Ledgeway argues that the modal effect was the first step on the way to that change. Note, on the other hand, that Dutch did not ultimately lose ʙᴇ, but rather lost the counterfactual effect. So it seems that such an effect *can* combine with other changes to lead to the loss of ʙᴇ, but need not necessarily do so. This is consistent with the pattern shown in Table 1, where the appearance of ʜᴀᴠᴇ in counterfactuals correlates with just one of the two discrete jumps in the frequency of ʜᴀᴠᴇ with *come*.

The fact that the counterfactual effect has been found in a number of older European languages, all spoken approximately 600–700 years ago, is noteworthy, and may lend some additional support to the analysis we have proposed. A reasonable interpretation of the situation, assuming that it is not an accident, is that the counterfactual effect is a product of a fairly early stage in the grammaticalization of the ʙᴇ perfect.[25] In fact, this is essentially what we have been claiming. The counterfactual effect results because the ME and EModE ʙᴇ perfect remains at least fairly close to its resultative origins and does not develop true past semantics the way the ʜᴀᴠᴇ perfect does. The other European languages whose ʙᴇ perfects have the same historical source would be expected to go through a similar stage, though they may differ in their subsequent development. In Modern German, Dutch and Italian, the ʙᴇ perfect has clearly developed further into a true perfect or even simple past, functioning as a full analog to the ʜᴀᴠᴇ perfect. Thus there is no problem with using auxiliary *be* in past counterfactuals, as in the German example in (18) (modeled on (14)):

(18) *Wenn du pünktlich gekommen **wärest**…*
      if   you timely   come   were
      'If you had come on time…'

We can hypothesize that Middle Dutch, Middle Low German, Old Swedish and 15th century Neapolitan, like ME and EModE, had not (yet) reached this stage in the development of the ʙᴇ perfect. It remained an essentially resultative construc-

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25. It is not really problematic that we are dealing with two Germanic languages and one Romance. While it is true that these languages did not inherit the periphrastic perfect from a common ancestor, it is well known that the constructions have developed largely in parallel in them, presumably due at least in part to contact.

tion, and thus was inappropriate for past counterfactuals. In ongoing research we are investigating whether there is independent evidence to support this idea.[26]

6.   Problems for other theories of auxiliary selection

To this point we have offered little discussion of other theories of auxiliary selection. This is because most of them were formed without the older English facts in mind, and they simply are not built to deal with them. The well-known accounts of the perfect auxiliaries are phrased primarily in terms of argument structure relations, lexical semantics and (low) aspect, because as noted these are the factors that are relevant to selection in German, Dutch, Italian and French. We would not, however, expect any of these things to be affected by counterfactuality. It is unlikely that a theory of auxiliary selection couched in such terms could satisfactorily cover Middle and Early Modern English without extensive modifications. In this section we will briefly discuss some of the most influential theories and the issues that the counterfactual effect presents for them.

Perhaps the most popular analysis of auxiliary selection among generative syntacticians, associated with Burzio (1986) and many others, is that choice between BE and HAVE in languages like Italian, German and Dutch depends on the underlying position or grammatical function of the subject. BE is selected by unaccusatives, whose subject is an underlying internal argument, while HAVE is selected by unergatives and transitives, whose subject is an external argument. Kayne (1993) proposes motivates this difference in selection in terms of the presence or absence of a P head which is required to introduce the participial structure, but only when there is an external argument. The auxiliary verb is always underlyingly BE, but when the P is present, it incorporates into BE, yielding HAVE. Theories of this kind seem to work reasonably well for the modern European languages, and they get part of the story for older English – i.e. they distinguish more or less correctly between the verbs that always take HAVE (transitives and unergatives) and those that can at least sometimes take BE (the unaccusatives). However, they have no way to deal with counterfactuality effect, because this has nothing to do with argument structure. In particular, it is hard to see how putting *come* under a counterfactual would turn it into an unergative.

A more traditional account frequently offered specifically for the changes in auxiliary selection in the history of English is that BE was eliminated due to pres-

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26. It has recently come to our attention that counterfactual contexts allow the use of HAVE with verbs that otherwise require BE in certain spoken varieties of Modern Dutch and Norwegian. Unfortunately, this seems to have been little noted in the literature, and the details remain uncertain. We are currently investigating the phenomenon with native-speaker informants.

sure to avoid ambiguity (see e.g. Traugott 1972; Zimmermann 1973; Rydén & Brorström 1987). In particular, clauses with BE + past participle were potentially ambiguous between a perfect and a passive, while HAVE + past participle was unambiguously a perfect. Thus – so the reasoning goes – speakers increasingly used HAVE with verbs that had previously taken BE in order to avoid confusion. In support of this, the comparison with German is noted, where there is a separate auxiliary *werden* 'become' for the eventive passive, and *sein* 'be' has been retained as a perfect auxiliary. There are serious problems with this theory, however. First, languages like Italian and French seem to have no problem with using BE as an auxiliary in both the perfect and the passive. Second, only transitives regularly form passives, while only intransitives could take BE as a perfect auxiliary. Thus the only way that ambiguity of the proposed kind can arise is with verbs that have both transitive and intransitive uses, which are not distinguished morphologically. While this kind of alternation is reasonably common in Modern English, it was rare in the relevant older stages of the language. Consider that in our reading of the ME corpus, we found only 9 clauses to be ambiguous in this way, compared to 543 clear intransitives with auxiliary BE (1.7%). Finally, even if the ambiguity-avoidance theory could be used as a (partial) explanation for the loss of perfect auxiliary BE, it is again completely unhelpful for the specific pattern with counterfactuals. Counterfactual clauses should be no more prone to ambiguity than non-counterfactual ones, so there's no reason why they should so completely favor HAVE. Inasmuch as the data we have presented indicate an important role for the counterfactual effect in the loss of auxiliary BE, such theories would thus be at best incomplete.

Sorace (2000) takes a different approach, proposing that auxiliary selection is sensitive to a hierarchy of semantic verb classes. Verbs tend more or less strongly to select HAVE or BE depending on where they fall on the hierarchy. The verbs at one end – non-motional controlled process verbs like *work* – most strongly select HAVE, while those at the other end – change of location verbs like *arrive* – most strongly select BE. Furthermore, languages can vary in where on the hierarchy they draw the line between selecting HAVE and selecting BE. This approach provides a means to capture cross-linguistic variation and change in a formal descriptive framework, something that is notoriously problematic for unaccusativity-based theories. However, it provides no real explanation for why a given type of verb should behave one way and not another, and it gives no clue as to why languages should vary and change along the scale of the hierarchy. Furthermore, Sorace's theory has basically the same problem with the counterfactual effect as unaccusativity theories. Since her hierarchy is based on the semantics of the main predicate, there is no reason to expect things like counterfactuality to affect auxiliary selection. I.e. putting a modal above *come* won't convert it from a CHANGE OF LOCATION to, say, an EXISTENCE OF STATE verb.

The only theory of which we are aware which specifically addresses the counterfactual effect is that proposed by Shannon (1995).[27] Shannon proposes that BE is most strongly selected by clauses that approximate what he calls a mutative intransitive prototype, which is defined in terms of a cluster of semantic properties. Like in the theories already mentioned, properties of the eventuality like telicity and agentivity are relevant here, but Shannon claims that higher level properties of the utterance go into defining the prototype as well. In particular, the mutative intransitive prototype is defined as a positive assertion about a non-agentive eventuality denoting a change of state or place in the sole nominal argument (mutative is a cover-term for change of state or place used in the older literature on auxiliary selection). Things like irrealis mood and negation move a clause away from the mutative prototype by canceling the assertion that the change has taken place. Since this prototype is what triggers selection of BE, these factors can thus have the effect of favoring HAVE. Shannon's prototype-based theory suffers from many of the same deficiencies as Sorace's hierarchy-based theory. No real explanation is offered for why selection of BE should correlate with the mutative prototype. Furthermore, while it can accommodate cross-linguistic variation, it does not explain it. It is simply claimed that languages vary in how close an eventuality must be to the mutative prototype to trigger selection of BE. There is no attempt to relate the different behavior of, say, Italian and Middle Dutch to independently observable differences in the languages. Even on a descriptive level, the older English data discussed here may be problematic for Shannon's theory. As we have seen, counterfactuality on its own was enough to rule out BE without consideration of telicity, agentivity or anything else. Putting counterfactuality on the same level as these other properties in the definition of a single prototype fails to reflect this asymmetry, and saying that the prototype was hyper-sensitive to counterfactuality in Middle and Early Modern English would just be a restatement of the facts.[28]

Unlike most of these theories, the account we proposed in Section 4 can handle the special properties of auxiliary selection in older English. Furthermore, it distinguishes itself from Shannon (1995)'s theory in that it relates these properties to other characteristics of the perfect in the language. Specifically, older English had a

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27. Most of the other works which discuss the effect are essentially descriptive – i.e. they are concerned primarily with documenting the changes that happened in English, and only secondarily, if at all, with offering a cross-linguistically valid theoretical interpretation of those changes. Others are theoretically oriented (e.g. Traugott 1972; Lipson 1999), but are more concerned with other phenomena and do not offer an explanation for the counterfactual effect.

28. To be fair, it should be noted that Shannon was concerned primarily with data from Middle Dutch and Middle High German, and in those languages the counterfactual effect was apparently not categorical. His account is thus descriptively accurate for the languages it was specifically designed to deal with.

counterfactual effect while Modern German does not, because the older English BE perfect was still a stative resultative construction, while the modern German one is a full-fledged temporal perfect. Clearly, our account is not intended to replace other theories discussed here completely. We have not presented a theory of the general distribution of BE and HAVE for older English, let alone cross-linguistically, but have simply offered an explanation for the effect of counterfactuality on the choice of auxiliary. A complete account of the alternation between BE and HAVE in a language like ME will require a combination of our account of the counterfactual effect with some (perhaps heavily modified) version of one of the theories discussed in this section. As pointed out above, the counterfactual effect seems to be something that operates independent from and on top of the general patterns of auxiliary selection in the language, so such a modular approach seems appropriate.

7.   Conclusion and open questions

In this chapter we have argued that the initial retreat of BE as a perfect auxiliary in English was the tied to the rise of the counterfactual effect. We have shown that auxiliary BE was categorically incompatible with past counterfactual semantics, and that the first appearance of HAVE with *come* correlates with the first appearance of counterfactuals in the perfect. Other syntactic and semantic factors which have previously been claimed to favor HAVE have been shown to either be attributable indirectly to the counterfactual effect, or to be significantly weaker. We have proposed an analysis of the effect based on the proposal that the older English BE perfect was in fact still a transparent resultative stative construction, and in this way we were able to account for some of the additional facts which are not obviously related to counterfactuality. Phenomena similar to the counterfactual effect in related languages were then discussed, which lend some support to the diachronic aspect of our analysis. Finally, we have discussed the implications that the counterfactual effect has for familiar theories of auxiliary selection, both those based on languages like German, Dutch and Italian and those which have attempted to take the older English data into account.

Of course, a number of empirical and theoretical questions are raised by our findings and analysis which we have not yet addressed. Many of these concern the development of English after the period that we have focused on here, and are the subject of our ongoing corpus research. Most importantly, what is the nature of and explanation for the second jump in the frequency of HAVE with *come*, which came at the end of the EModE period? Was this what led to the ultimate disappearance of BE? Furthermore, how did the counterfactual effect fare in Late Modern English? Was there a period when the BE perfect developed into a true

parallel of the HAVE perfect before it disappeared, or did it remain restricted to resultative contexts? Even for the ME and EModE periods that we covered, questions remain regarding the influence of infinitives and negation on auxiliary selection. Will these reduce to interactions with the semantics of the BE perfect too, or is something else going on? Cross-linguistic issues arise as well. If our analysis of the difference between ME, Middle Dutch and Old Neapolitan on the one hand and the modern languages on the other hand is correct, then we should also find evidence for the counterfactual effect in earlier stages of German and French. Finally, as hinted at in the previous section, the account we have developed here for the counterfactual effect needs to be embedded in a general theory of auxiliary selection with which it is consistent, and which ideally can account for the subsequent stages in the loss of BE as a perfect auxiliary.

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