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This is a contribution from *Developments in English Historical Morpho-Syntax*.

Edited by Claudia Claridge and Birte Bös.

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Counterfactuality and aktionsart

Predictors for *BE* vs. *HAVE* + past participle in Middle English

Judith Huber

In Middle English (ME), manner of motion verbs occur in perfect periphrases with both *BE* and *HAVE* as auxiliaries (e.g. *is/has run*, *is/has ridden*), the *BE*-variant being the older, the *HAVE*-variant the more recent form with these verbs. Los (2015) hypothesizes that the choice of auxiliary with manner of motion verbs in ME might depend systematically on aktionsart in that *HAVE* is chosen when the verb denotes a controlled process (e.g. *he has run fast for an hour*), and *BE* when the verb denotes a change of location (e.g. *he is run into town*), much as in Present-Day Dutch. Also taking into account other factors that have been suggested to influence the choice of *BE* vs. *HAVE* in Middle English (such as counterfactuality, infinitive, or past perfect), I test this hypothesis on data from the *Corpus of Middle English Prose and Verse*. I show that aktionsart is indeed a very reliable predictor, but overridden by counterfactuality.

Keywords: perfect, auxiliary selection, Middle English, counterfactuality, aktionsart, construal, manner of motion verb, mixed logistic regression

1. Development of periphrases with *BE/HAVE* + past participle in English

In Old and Middle English, both *BE* and *HAVE* combined with past participles of verbs to form perfect periphrases. Both periphrases have their prehistoric origin in resultative structures: Originally, *HAVE* combined with transitive verbs (cf. (1)) in a meaning of ‘possession’ (‘they had him as a killed one’) or, according to de Acosta (2013), one of ‘attained state’, where the subject achieves a result (‘they had killed him’). *BE* originally combined as a copula with participles of mutative intransitive verbs, i.e. verbs which denote a change of state (e.g. ‘become’, ‘grow’) or a change of location (e.g. ‘arrive’, ‘come’) (cf. (2)).

- (1) *hie hine ofslægenne hæfdon* (ChronA 252 (755), DOEC)
 they him killed had
 ‘They had killed him’ (trans.)
- (2) *ealswa heo ham wæren gecumene* (LS 29 (Nicholas) 0094 (261), DOEC)
 when they home were come
 ‘When they had (lit. ‘were’) come home’ (mutative intrans.)

With the grammaticalization of the *HAVE*-periphrasis into a more general perfect (see e.g. Wischer, 2004; Macleod, 2014; on the high frequency of perfect meanings in attestations of *HAVE* + past participle in Old English, cf. Johannsen, 2016), the combinational range of *HAVE* – originally restricted to transitive verbs as in (1) – had increased already in Old English to include intransitives, especially non-mutatives (such as *gesyngod* ‘sinned’ in (3), which does not denote a change of place or condition), but sometimes also mutatives (such as *inzeþrunge* ‘entered’ in (4)).

- (3) *we habbað gesyngod þæt we swa spræcon ongean þone ælmihtigan God*
 (ÆHom 21 319, from Łęcki 2010: 158)
 ‘We have sinned when we spoke so against the almighty God’ (non-mutative)
- (4) *hæfde þa se æðeling inzeþrunge* (And 303(990), DOEC)
 ‘Then the noble one had pressed inwards/entered’ (mutative)

Typically, however, mutative intransitive verbs still combine with *BE* (cf. (2)) throughout Middle English and Early Modern English, except in a range of contexts identified in the literature as favouring *HAVE* over *BE* already in these periods (e.g. Fischer, 1992: 256–262; Kytö, 1997; Łęcki, 2010: 159; Mustanoja, 1960: 502): These are predominantly combinations with modal verbs, past perfects, perfect infinitives, hypothetical statements, iterative/durative contexts, and contexts highlighting process/activity. These factors will be discussed in more detail in the next section. The *BE*-periphrasis drops out of use in standard English only in the Late Modern English period (cf. e.g. Anderwald, 2014), becoming almost entirely replaced by the perfect with *HAVE* around 1900 (e.g. Rydén & Brorström, 1987: 198), so that there is a long period of variation in which mutative intransitive verbs can occur with both *BE* and *HAVE*.

Los (2015: 76) links the variation between *BE* and *HAVE* in the history of English to the auxiliary selection hierarchy (ASH) proposed by Sorace (2000): This implicational hierarchy applies to intransitive verbs classified according to their aspectual and thematic characteristics; it suggests that in languages that have two perfect auxiliaries *BE* and *HAVE*, *BE* will be used most consistently with verbs that denote a change of location, *HAVE* with verbs denoting controlled processes, with a gradient in between (cf. Figure 1). The cutoff point in the hierarchy will be

different in different languages, and the verb groups around the cutoff point will display more auxiliary variation than the core ones (‘change of location’ and ‘controlled process’ respectively).

CHANGE OF LOCATION	selects <i>BE</i> (least variation)
CHANGE OF STATE	
CONTINUATION OF A PRE-EXISTING STATE	
EXISTENCE OF STATE	
UNCONTROLLED PROCESS	
CONTROLLED PROCESS (MOTIONAL)	
CONTROLLED PROCESS (NON-MOTIONAL)	selects <i>HAVE</i> (least variation)

Figure 1. Auxiliary selection hierarchy (Sorace, 2000: 863)

Los points out that manner of motion verbs are a particularly interesting type of mutative intransitive in this respect since they regularly denote both ‘controlled processes’ and ‘changes of location’ as in (5) and (6) respectively:

- (5) ‘Saw ye,’ quod she, ‘as ye *han walked wyde*, Any of my sustren walke you beside [...]?’
(Chaucer LGW 3, 978)
‘Did you, she said, while you were walking far and wide, see any of my sisters walking beside you?’
- (6) *Arcite unto the temple walked is* / of fierce Mars, to doon his sacrificse
(Chaucer CT.KT II, 2368–9)
‘Arcite has walked to the temple of fierce Mars to make his offering’
(both examples and translations from Los, 2015: 76–77)

On the basis of the ASH (Figure 1), manner of motion verbs in ‘process’ contexts, as *walked wyde* in (5), are therefore expected to combine with *HAVE*, whereas in contexts which highlight a change of location, as *unto the temple* in (6), they are expected to combine with *BE*. Based on a few examples, Los (2015: 77) hypothesizes that the difference between (5) and (6) might be systematic in Middle English manner of motion verbs, but points out that to substantiate this claim, “further research, with other verbs than just *walk*, is needed”.

The present paper attempts to do precisely that, and investigates perfect auxiliary alternation in eight frequent manner of motion verbs as attested in the *Corpus of Middle English Prose and Verse* (Section 3). In addition to the ASH-type (‘controlled process’ vs. ‘change of location’), other factors that have been reported to influence auxiliary selection in the history of English (see Section 2) are investigated too (Section 4.1–4.3), and their effects on the writers’ choice of *BE* or *HAVE* are evaluated in a mixed-effects logistic regression analysis (4.4). The implications of the results for different accounts of the development of the *BE*- and *HAVE*-periphrases in the history of English are discussed in Section 5. This section also discusses a

reconceptualization of the ASH-types ‘process’ and ‘change of location’ in terms of construal, as put forward by Beliën (2012, 2017) for Dutch, which could explain a few otherwise unexpected attestations of the *HAVE*-periphrasis.

2. *BE/HAVE* + past participle with mutative intransitives in Middle English – a case of auxiliary selection in the perfect?

The traditional account of the development of the *HAVE*- and *BE*-periphrases is one of a gradual and long-term replacement of *BE* by *HAVE*: *HAVE* increasingly encroaches on mutative intransitive verbs, which had originally constituted the domain of *BE*. Early examples of *HAVE* with mutative intransitives date from the Old English period (cf. (4)), but only after 1350 does *HAVE* occur more regularly with this kind of verb. It takes until the 18th century, however, for *HAVE* to become more frequent than *BE* with mutative intransitives, and until around 1900 until the development is completed (Kytö, 1997).¹

A range of contexts have been identified in which the spread of *HAVE* to mutatives takes place earliest (e.g. Łęcki, 2010: 156–162 on Old English; Fridén, 1948 on Middle and Early Modern English; Rydén & Brorström, 1987 on Late Modern English; Kytö, 1997 on Middle English to Late Modern English.) These are listed and illustrated in (a)–(f):

a. Combinations with modal verbs, as in (7)

- (7) *And ferther wolde han riden out of doute / fful fayn*
(a1425(c1385) Chaucer *TC* (Windeatt), 68)
‘And undoubtedly [Troilus] would have ridden further very gladly’

b. Past perfects, as in (8) (see also the Old English Example 4)

- (8) *For he hadde riden moore than trot or paas*
((c1395) Chaucer *CT.CY.* (Manly-Rickert) G.575)
‘Because he had ridden faster than trot or amble’

c. Perfect infinitives, as in (9) (see also *han riden* in (7), and *have copen* in (10a))

- (9) *Hym had ben bettere to haue ygo; þan so fer to haue iryde*
(c1400 *King Solomon’s Book of Wisdom* (LdMisc 622))
‘It would have been better for him to have gone than to have ridden so far’

1. On continued or new uses of *BE*-perfects in different varieties of English, however, cf., e.g., Werner, 2016; Yerastov, 2015.

- d. Hypothetical/counterfactual statements, as in (10a)–(10b) (see also *wolde han riden* ‘would have ridden’ in (7) and *hym had ben bettere to haue ygo* ‘It would have been better for him to have gone’ in (9)). Counterfactuals also tend to take *HAVE* in Middle Dutch and Middle Low German, cf. Shannon (1995: 138–141).
- (10) a. *he wende have copen by his felawe john / And by the millere in he creep anon*
(c1390 Chaucer CT.Rv.)
‘He thought he had crept in next to his friend John, but he crept in next to the miller right away’
- b. *and hys hors had be slayn yf he had not lept a syde*
(c1485 Caxton *Charles the Grete* (Herrtage))
‘And his horse would have been slain if it had not leapt aside’
- e. Iterative and durative contexts, as in (11a) (*many tymes*) and (11b) (*al niht*) respectively.
- (11) a. *for I hafe many tymes passed and riden it*
(?a1425 *Mandev.*(2) (Eg 1982))
‘Because I have passed and ridden it [i.e. the way] many times’
- b. *we habb[ep] hii-riden al niht*
(c1300 *Lay.Brut* (Otho C.13))
‘We have ridden all night’
- f. Contexts which highlight the process (or ‘activity’) character of an event rather than emphasizing the resulting change of state or location (as an ‘accomplishment’), as in (7–9) and (11). In the following, I will call this factor “aktionsart” (cf. Brown & Miller, 2013; Shannon, 1995: 134). In (7), for instance, Troilus is accompanying his lover Criseyde to the Greeks, where she is going to be exchanged for a Trojan prisoner of war. This means that the lovers have to part once they arrive, which is why Troilus would prefer the ride to take longer, in order to delay their separation. *Ferther wolde han riden* in (7) therefore can be characterized as highlighting the process of riding, not the change of location. The same is true for (8), where *moore than trot or paas* specifies the manner of riding, and where no change of location is predicated. In (9), the prophet Habakkuk is about to bring food to reapers in the field, when an angel tells him to bring it to Daniel in the lion’s den instead. Habakkuk refuses, upon which the angel grabs him by his hair and carries him through the air to Daniel (Dan 14,33–36). The narrator’s comment in (9) is that Habakkuk would probably have preferred to have walked (*ygo*) himself than to have “ridden” in this uncomfortable way – the focus, therefore, is again on the process of riding rather than on the resulting change of location. The same is true in (11a), where the narrator announces that he will tell the reader how to get to Jerusalem, claiming expertise on the basis of having travelled the way numerous times himself: The focus is on the process of getting to Jerusalem, rather than on the fact that the

author has been there. In (11b), finally, it is the temporal adverbial *al niht* that puts the focus on the process of riding. This difference between ‘process’ and ‘change of location’ aktionsart is exactly the parameter that is said to govern the variable auxiliary selection (*hebben* vs. *zijn*) with manner of motion verbs in Modern Dutch (Gillmann, 2015: 342–344; Sorace, 2000: 875).

All of the factors above have been reported to correlate with a use of *HAVE* as opposed to *BE* in the history of English. Yet they often overlap – the use of a modal verb (a), for instance, entails the use of a perfect infinitive (c), and often goes along with a hypothetical, counterfactual reading (d), as in (7). Similarly, also a past perfect (b) may be used to convey a hypothetical, counterfactual reading (d), as in (10b). Furthermore, as in (7–9) and (11), all factors (a–e) may coincide with process aktionsart rather than change of location.

These overlaps have been pointed out by McFadden & Alexiadou (2006, 2010; McFadden, 2017), who argue that essentially the early spread of *HAVE* (in the Middle and Early Modern English periods) can be reduced to the effect of counterfactuality (d) and to the fact – as they claim – that only the *HAVE*-periphrasis, but not the one with *BE*, develops into a more general perfect: The *BE*-periphrasis, they emphasize, remains resultative (“a copula construction built around a stative resultative participle” (2010: 421)), with the resulting state holding at the reference time (cf. similarly Mitchell, 1985: §§ 740–742; Brunner, 1962: 299). The *BE*-periphrasis with its resultative semantics would therefore hardly be compatible with iterative, durative, or process readings (e, f) anyway. According to this alternative account of the development of the *HAVE*- and *BE*-periphrases, the early spread of *HAVE* in the Middle and Early Modern English periods crucially does not happen at the expense of *BE*, because the latter was never possible in the contexts (a–f) to which *HAVE* spreads in the first place (McFadden & Alexiadou, 2010: 421). On the contrary, the *BE*-periphrasis is said to remain “stable throughout ME and EModE”; the actual replacement of *BE* by *HAVE* being a “separate and later change” (2010: 422) taking place in the Late Modern English period.

Therefore, whether the variation between *BE* and *HAVE* + past participle in Middle and Early Modern English should be viewed as a matter of auxiliary selection in the perfect – and therefore as a potential candidate for the application of the auxiliary selection hierarchy – crucially depends on the status of the periphrasis with *BE*: Has it grammaticalized into a perfect on a par with the *HAVE*-periphrasis, or is it still the copula + past participle, denoting a resulting state? The first view, with *BE* + past participle as a perfect, and hence the choice of *BE* vs. *HAVE* as a case of auxiliary selection, appears to be the traditional account, and is adopted, for instance, in Rydén & Brorström (1987), Kytö (1997), and many textbooks on the history of English or English historical syntax, such as Brinton & Arnovick

(2017: 228–229, 301, 372–373), Denison (1993: Chapter 12), Faiß (1989: 298), Fischer (1992: 256–261), Hogg (2002: 80–81), or Los (2015: 72–77). In the context of this traditional account, the present paper contributes an analysis of the respective weight of the different predictor variables on the choice of auxiliary in Middle English, exemplified on manner of motion verbs as a group of verbs which regularly occur in both relevant aktionsarten.

In the context of McFadden & Alexiadou's alternative account, in which only the *HAVE*-, but not the *BE*-periphrasis develops into a more general perfect (hence no 'auxiliary selection' in the perfect), the present paper's focus on manner of motion verbs provides an interesting test case: In McFadden & Alexiadou's data for Middle English (all 676 attestations of verbs that show *BE/HAVE* variation in *PPCME2* (Kroch & Taylor, 1999)), more than 40% are instances of *come* (McFadden & Alexiadou, 2006: FN5; see also McFadden, 2017: 168 for the very high share of *come* and *go* among the verbs taking a *BE* perfect in the history of English). *Come*, of course, is an "inherently telic" verb (Shannon, 1995: 141) which is typically used when the focus is on a change of location, but rather unlikely to be employed with a focus on 'process' or 'activity' (i.e. atelic), as the questionable outcome of a classic test for atelicity (e.g. Filip, 2011: 1189–1190), the combination with *for an hour* shows: *?They have come for an hour*. Following *come*, the next frequent verbs in McFadden & Alexiadou's Middle English data are *go* and *fall* (2006, FN5), which are arguably likely to be predominantly used for changes of location rather than processes as well. Considering moreover that verbs like *arrive* and *land* (both inherently highlighting change of location) and verbs denoting a change of state, like *become*, *cease*, *end*, *grow*, and *vanish* will equally have a penchant for resultative uses as opposed to process ones, the data are likely to be dominated by prototypical mutative intransitives (or in ASH-terms, by verbs denoting change of location or change of state). Manner of motion verbs, by contrast, are less prototypically mutative in that they are equally likely to be used for processes as they are for changes of location.² Consequently, they are also likely to show greater variation between *BE* and *HAVE*; they therefore form a critical group of verbs against which McFadden & Alexiadou's findings can be tested.

2. In the attestations of manner of motion verbs in *BE/HAVE*-periphrases from the CME, the ratio of process vs. change of location uses is almost fifty-fifty (120 process vs. 119 change of location), though note that with regard to the individual verbs, only *run* and *sail* are roughly equally used in both kinds of aktionsart (42/37 and 5/4 respectively) while *climb*, *creep*, *leap* and *swim* are more frequent in change of location contexts (2/10, 1/20, 2/30, 0/2), and *ride* and *walk* more frequent in process contexts (39/10 and 29/6).

3. Data and classification

In a first step, the *Corpus of Middle English Prose and Verse* (CME) was searched for attestations of the past participle forms of *climb*, *creep*, *leap*, *run*, *ride*, *sail*, *swim*, and *walk* in various spellings. These verbs were selected because they had emerged as the most frequent Middle English manner of motion verbs in Huber (2017: 188–190). In a next step, those attestations in which the participle combined with an auxiliary *BE* or *HAVE*, i.e. appeared in a perfect periphrasis, were filtered out manually, resulting in a total of N = 257 attestations from 110 different texts. The numbers of occurrences of the individual verbs in perfect periphrases with *BE* and *HAVE* respectively are given in Table 1:

Table 1. Periphrases with *BE/HAVE* + past participles of manner of motion verbs in CME

verb	BE	HAVE	total
<i>climb</i>	11	1	12
<i>creep</i>	15	6	21
<i>leap</i>	21	11	32
<i>run</i>	41	50	91
<i>ride</i>	10	40	50
<i>sail</i>	3	7	10
<i>swim</i>	–	2	2
<i>walk</i>	4	35	39
total	105	152	257

Beside the dependent variable of ‘type of auxiliary verb’ (*HAVE* vs. *BE*), I annotated the attestations according to the following predictor variables taken from the literature (see Section 2) and illustrated below:

- ‘subperiod’: ME 2, ME 3, ME 4³
- ‘counterfactual semantics’: yes, no
- ‘aktionsart’: process, change of location, ambiguous
- ‘form of auxiliary’: present, past, infinitive

I had originally also classified the attestations according to the variable ‘presence of modal verb’ (factor (a) in Section 2), but it turned out that in the data set, all attestations with modal verbs simultaneously had counterfactual semantics (cf. (13)),

3. For the variable ‘subperiod’, the periodization from the Helsinki Corpus – ME 2 (1250–1350), ME 3 (1350–1420), ME 4 (1420–1500) – was applied to the texts based on the manuscript date given for each text in the MED.

though not vice versa, cf. (12)).⁴ This is why an extra variable ‘presence of modal verb’ would not have made much sense. The variable ‘counterfactual semantics’ therefore also includes the attestations with modal verbs. Examples for attestations with counterfactual semantics are (12)–(13) (see also (10a)–(10b)).

- (12) *As thou right now were copen out of the ground, / Ne nevere er now ne haddest knowen me* ((c1395) Chaucer CT.Fkl.)
 ‘As if you had crept out of the ground right now, and had never known me before’
- (13) *He wolde have ronne upon that other / Anon [...] ne hadde be that Uluxes / Between hem made accord and pes* ((a1393) Gower CA (Frk 3))
 ‘He would have run against that other one immediately [...], if Uluxes had not reconciled them’

Next, each attestation was categorized as to whether, in terms of aktionsart (and also in terms of the ASH), it describes a process or a change of location. In (14), for instance, the lack of a directional adverbial and the presence of the adverb *wel* makes it clear that a process is described. Also the classic test for atelicity, adding *for an hour*, works perfectly fine (cf. also Examples 5, 7–9 and 11).

- (14) *He telth hire [...] hou his houndes have wel runne* ((a1393) Gower CA (Frk 3))
 ‘He tells her how his dogs have run well’

In (15a), by contrast, the directional adverbial *perinne* ‘into there’ is responsible for the telic, change of location reading. Such a directional adverbial is present in 114 of the 119 attestations that were classified as describing changes of location (cf. also Examples (6), (10), (12)–(13)). Five attestations, however, were classified as describing a change of location despite the lack of such an adverbial: in (15b), it is the presence of the prefix *at-* ‘away’ that telicizes the verb; in (15c), the fact that the guests have departed (and that Gamelyn therefore is alone) is stressed, i.e. their change of location rather than the process of their riding and going. The three remaining attestations that were classified as ‘change of location’ despite the lack of a directional adverbial are all of the same type as (15c).⁵

4. Two thirds of the counterfactual attestations (22/33) feature a modal verb.

5. Note that this type of attestation calls for a slight modification of McFadden & Alexiadou’s claim that manner of motion verbs like *run* or *ride* only take *BE* “when there is additional material containing a target state, like a goal PP” (2010: 418) – the target state need not necessarily be expressed in “additional material”, but may also be contextual, as shown by (15c).

- (15) a. *þe dore wes ope / Hennen weren þerinne I-crope*
 (?a1300 *Fox & W.* (Dgb 86))
 ‘The door was open, hens had crept into there’
 b. *heo [...] qualden alle þa ilke; þe aniht weoren atcropene*
 (c1275(?a1200) *Lay.Brut* (Clg A.9) 2828)
 ‘They [...] killed all those that had crept away by night’
 c. *ho Gamelynes gestes were riden and y-gon / Gamelyn stood anoon allone*
 [...] (c1415 *Gamelyn* (Corp-O 198), 348)
 ‘When Gamelyn’s guests had ridden and gone, Gamelyn stood suddenly alone’

Some attestations could not with any certainty be classified as highlighting either change of location or the process of moving and were therefore classified as ‘ambiguous’ with respect to aktionsart. This is the case in (16a), for instance, where both a change of location reading ‘was near the place as a result of having walked there’ and a process reading ‘had been walking near the place’ is possible. The same is true for (16b), where *þerynne* could be both directional ‘into it’ (i.e. change of location) and locational ‘(around) in it’ (i.e. process). 18 out of the 257 attestations had to be classified as ambiguous.

- (16) a. *afftyr styлле he stode for to here/Yff ony seruauant had walkyd ther nere*
 ((1449) *Metham AC* (Gar 141), 254)
 ‘And then he stood still to listen whether any servant had walked near there’
 b. *meny men haueþ i-walked þerynne and i-seie ryueres and stremes, but nowher konneþ þey fynd non ende* ((a1387) *Trev.Higd.* (StJ-C H.1))
 ‘Many people have walked in it [a cave in Cherdhole] and seen rivers and streams, but they could not find an end anywhere’

The literature usually further identifies durative and iterative contexts as favouring HAVE (factor (e) in Section 2). In the present data set – and probably with manner of motion verbs in general – durative and iterative readings go hand in hand with the process of moving being highlighted rather than the resulting change of location, as has been discussed with respect to (11a)–(11b) in Section 2, cf. also the durative (18b) (*a while*). Vice versa, none of the attestations classified as highlighting change of location had a durative or iterative context, which is why this factor was not included as a separate variable.

Finally, each attestation was categorized according to the form of auxiliary – present (17), past (18), or infinitive (7), (9), (10a), (13).

- (17) a. *Arcite is riden anon unto the toun* ((c1385) *Chaucer CT.Kn.*, 1628)
 ‘Arcite has ridden to the town at once’

- b. *and sir Gawein hath so riden till he com [...] a-gein the wyndowe*
 (a1500(?c1450) *Merlin* (Cmb Ff.3.11))
 ‘And Sir Gawain has ridden so [long] until he came [...] to the window’
- (18) a. *Whan Gemelyn þe zonge was riden out atte gate*
 (c1425 *Gamelyn* (Petw 7), 191)
 ‘When the young Gamelyn had ridden out at the gate’
- b. *when he hadde a while walkude þus Among þe children*
 (a1450 *St.Editha* (Fst B.3))
 ‘When he had walked a while like this among the children’

With these variables, all the factors listed in Section 2 are covered: Factors (b) and (c) (past perfect or perfect infinitive) are captured by the variable ‘form of auxiliary’, factors (a) and (d) (modal verb and hypothetical statements) by ‘counterfactuality’, and factors (e) and (f) (durative or iterative semantics, or process readings) are covered by ‘aktionsart’. The variable ‘period’ covers the possibility that the incidence of *HAVE* may increase throughout the Middle English period, as suggested in the traditional account of *HAVE* gradually encroaching onto *BE*-territory.

4. Results and discussion

This section will present and discuss the results, starting with the general results for the single variables (4.1). As counterfactual attestations turn out to almost categorically feature *HAVE* as auxiliary, I control for counterfactuality in Section 4.2 and additionally for aktionsart in Section 4.3. Section 4.4 presents the evaluation of the effects of the variables in a mixed-effects logistic regression model.

4.1 General results (N = 257)

4.1.1 Period

Table 2 shows that throughout the Middle English period, the share of *BE* vs. the one of *HAVE* is decreasing in the periphrasis with manner of motion verbs, from 62% in ME 2 to 33% in ME 4. In the traditional account, this would be interpreted as reflecting the spread of *HAVE* which starts to gradually replace *BE* in the perfect; in McFadden & Alexiadou’s account, alternatively, it would represent the grammaticalization of *HAVE* with its spread to new contexts, not at the expense of *BE*. The rising numbers of the periphrases in general will be due to the fact that the amount of extant text equally grows over time (the CME does not aim at balance with respect to period).

Table 2. *BE/HAVE*-periphrases with manner of motion verbs: period (N = 257)

	ME 2 (1250–1350)	ME 3 (1350–1420)	ME 4 (1420–1500)
<i>BE</i>	13 (62%)	38 (51%)	54 (33%)
<i>HAVE</i>	8 (38%)	36 (49%)	108 (67%)
	21	74	162

4.1.2 Counterfactuality

As shown in Figure 2 and Table 3, attestations with counterfactual semantics almost invariably (with a single exception only) feature *HAVE* as auxiliary, which makes counterfactuality a nearly categorical predictor for *HAVE*. This result is fully in line with earlier research (cf. e.g. Fischer, 1992: 261; McFadden & Alexiadou, 2010: 395).⁶

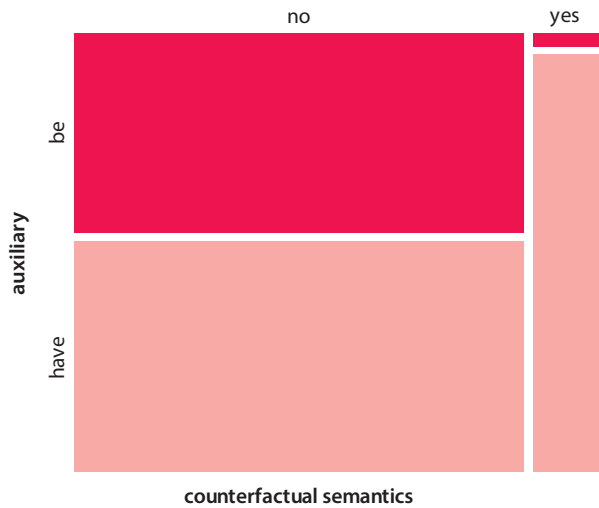


Figure 2. *BE/HAVE*-periphrases with manner of motion verbs: counterfactuality (N = 257)

6. The one attestation where *BE* is used despite the counterfactual semantics of the clause is given in (12) above and fits well to McFadden & Alexiadou’s (2010: 406) explanation of exceptional *BE* in counterfactuals as “present counterfactuals of result states” as opposed to normal past counterfactuals, which “convey [...] that the proposition being considered was contrary to fact at a particular time in the past” (ibid: 395): (12) is uttered by the “philosopher” in the Franklin’s Tale, who generously cancels a large debt that Aurelius owes him, basically saying ‘let’s start from scratch and act as if we had never met before’: *sire, I releesse thee thy thousand pound, / As thou right now were copen out of the ground, / Ne nevere er now ne haddest knowen me* ‘Sir, I release your thousand pounds to you as if you had crept out of the ground right now, and had never met me before now’. Arguably, and highlighted by the *right now*, the emphasis in *were copen out of the ground* is on Aurelius’ sudden first appearance as a “contrary-to-fact present state” (ibid: 405) rather than on the counterfactual idea of his creeping out of the ground prior to the moment of speaking.

Table 3. *BE/HAVE*-periphrases with manner of motion verbs: counterfactuality (N = 257)

	counterfactual semantics	
	no	yes
<i>BE</i>	46% (104)	3% (1)
<i>HAVE</i>	54% (120)	97% (32)

4.1.3 *Aktionsart*

Attestations with emphasis on the process of riding/walking etc. strongly tend to feature *HAVE* as auxiliary (in 95% of the cases), but the reverse tendency is less pronounced: Attestations in which the resulting change of location is emphasized do tend to have *BE* as auxiliary, but only in 74% of the cases, as shown in Figure 3 and Table 4.

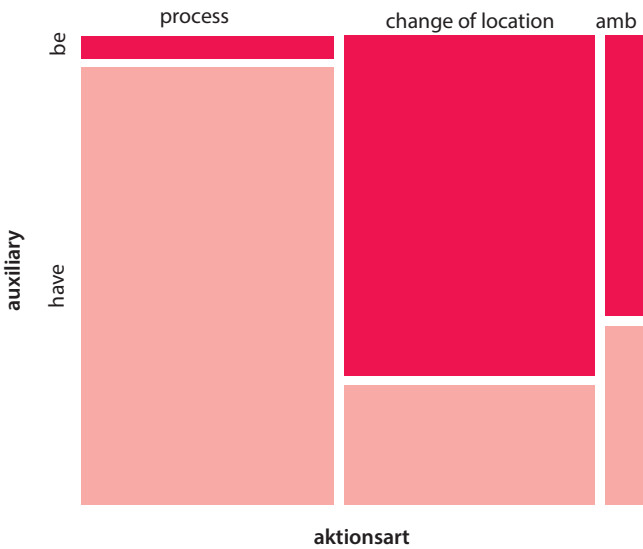


Figure 3. *BE/HAVE*-periphrases with manner of motion verbs: aktionsart (N = 257)

Table 4. *BE/HAVE*-periphrases with manner of motion verbs: aktionsart (N = 257)

	aktionsart		
	process	change of location	ambiguous
<i>BE</i>	5% (6)	74% (88)	61% (11)
<i>HAVE</i>	95% (114)	26% (31)	39% (7)

4.1.4 Form of auxiliary

With respect to the form of the auxiliary, Figure 4 and Table 5 show that infinitives indeed occur as *HAVE* most often (93%). The tendency for past to co-occur with *HAVE* is less strong (63%), and there is a slight tendency (55%) towards *BE* in the present.

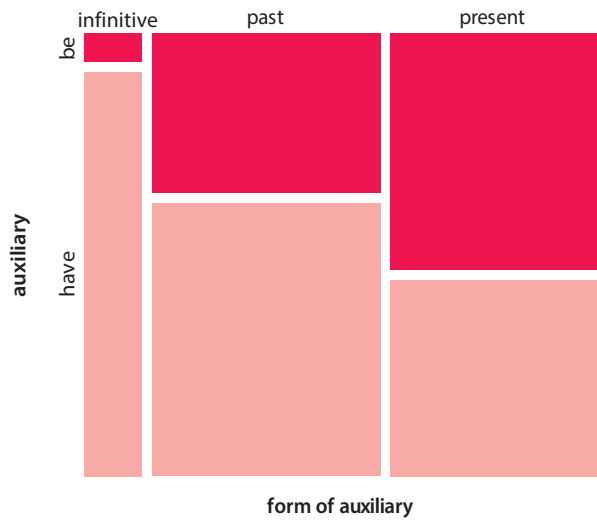


Figure 4. *BE/HAVE*-periphrases with manner of motion verbs: form of auxiliary (N = 257)

Table 5. *BE/HAVE*-periphrases with manner of motion verbs: form of auxiliary (N = 257)

	form of auxiliary		
	infinitive	past	present
BE	7% (2)	37% (44)	55% (59)
HAVE	93% (28)	63% (75)	45% (49)

4.2 Controlling for the “counterfactual effect”

Since counterfactuality turned out to correlate almost categorically with *HAVE* (Section 4.1.2), the next step in the analysis is to focus on the non-counterfactual attestations only (N = 224) to find out about the respective influence of the other variables independent of this “knock-out” factor.

4.2.1 Period

As shown in Table 6, there is an increase of the proportion of *HAVE* in the periphrasis throughout the Middle English period also in the non-counterfactuals. Disregarding the counterfactuals does not really change the picture: The increase of *HAVE* from ME2 to ME4 is almost the same as in Table 2.

Table 6. *BE/HAVE*-periphrases with manner of motion verbs (non-counterfactuals): period (N = 224)

	period		
	ME 2 (1250–1350)	ME 3 (1350–1420)	ME 4 (1420–1500)
<i>BE</i>	65% (13)	57% (37)	39% (57)
<i>HAVE</i>	35% (7)	43% (28)	61% (85)
	20	65	142

4.2.2 Aktionsart

This is quite different for the variable ‘aktionsart’: Once the counterfactuals with their strong tendency toward *HAVE* are disregarded, the correlation of ‘change of location’ with *BE* becomes a lot more pronounced (89% as opposed to 74%), as can be seen by comparing Figure 5 and Table 7 with Figure 3 and Table 4 in Section 4.1.3. The effect of aktionsart on the choice of auxiliary in manner of motion verbs, as hypothesized by Los (2015), is therefore quite systematic indeed, though clearly overridden by counterfactuality.

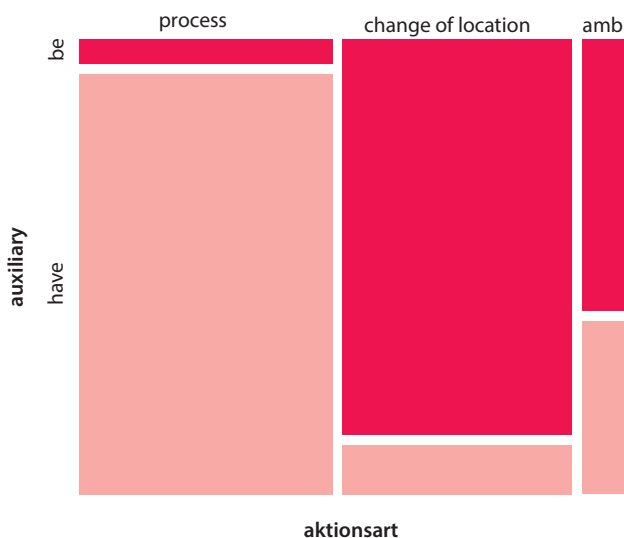


Figure 5. *BE/HAVE*-periphrases with manner of motion verbs (non-counterfactuals): aktionsart (N = 224)

Table 7. *BE/HAVE*-periphrases with manner of motion verbs (non-counterfactuals): aktionsart (N = 224)

	aktionsart		
	process	change of location	ambiguous
<i>BE</i>	6% (6)	89% (87)	61% (11)
<i>HAVE</i>	94% (102)	11% (11)	39% (7)

4.2.3 *Form of auxiliary*

Also in the non-counterfactual attestations, the slight tendency for past to co-occur with *HAVE* remains (62%), i.e. *had walked* is more frequent than *was walked*, for instance. These results markedly contradict the ones in McFadden & Alexiadou (2010: 397), who find only less than 7% *HAVE* in Middle English past perfect non-counterfactuals (as opposed to 14.5% in the present perfect), and therefore conclude that the alleged effect of past on *HAVE* does not exist, but is only a by-product of the counterfactual effect, since counterfactuals are often in the past tense. The different results shown in Figure 6 and Table 8 are probably due to the fact that the present study focuses on manner of motion verbs only. These are much more likely also to be used in process contexts (and hence with *HAVE*) than other mutative intransitives: As argued in Section 2, other mutatives, particularly *come*, the verb that dominates the data in McFadden & Alexiadou (2010), typically occur in resultative contexts, which, in turn, strongly favour *BE* anyway (cf. 4.2.2).

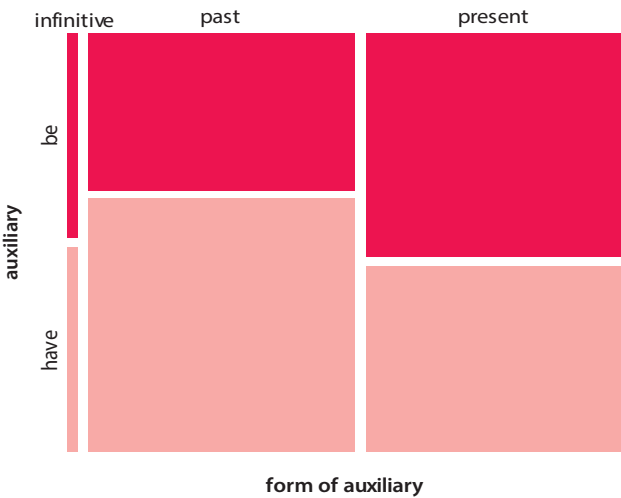


Figure 6. *BE/HAVE*-periphrases with manner of motion verbs (non-counterfactuals): form of auxiliary (N = 224)

Table 8. *BE/HAVE*-periphrases with manner of motion verbs (non-counterfactuals): form of auxiliary (N = 224)

	form of auxiliary		
	infinitive	past	present
<i>BE</i>	50% (2)	38% (43)	55% (59)
<i>HAVE</i>	50% (2)	62% (69)	45% (49)

4.3 Controlling for counterfactuality and aktionsart (N = 97)

In 4.1–4.2, we have seen that both the variables ‘counterfactuality’ [+ counterfactual] and ‘aktionsart’ [process] strongly correlate with *HAVE*. If we remove these attestations and narrow down the dataset further to only those 97 attestations that are both non-counterfactual and emphasize a change of location, and hence are highly likely to occur with *BE*, we see that the remaining attestations with *HAVE* all have their auxiliary in the past tense (see Table 9).

Table 9. *BE/HAVE*-periphrases with manner of motion verbs (non-counterfactuals, change-of-location): form of auxiliary (N = 97)

	form of auxiliary	
	past	present
<i>BE</i>	76% (34)	100% (52)
<i>HAVE</i>	24% (11)	–

Although at this level of detail, the numbers of attestations are necessarily rather low (N = 97), these results lend cautious support to the findings in 4.2.3 above: They suggest that the factor ‘past’ indeed favours *HAVE*, and, moreover, does so increasingly in the course of the Middle English period, as shown in Table 10 and Figure 7, where all the attestations with *HAVE* have their auxiliary in the past (i.e. occur with *had*).

Table 10. *BE/HAVE*-periphrases with manner of motion verbs (non-counterfactuals, change-of-location): period (N = 97)

	period		
	ME 2 (1250–1350)	ME 3 (1350–1420)	ME 4 (1420–1500)
<i>BE</i>	100% (12)	96% (27)	82% (47)
<i>HAVE</i>	–	4% (1)	18% (10)

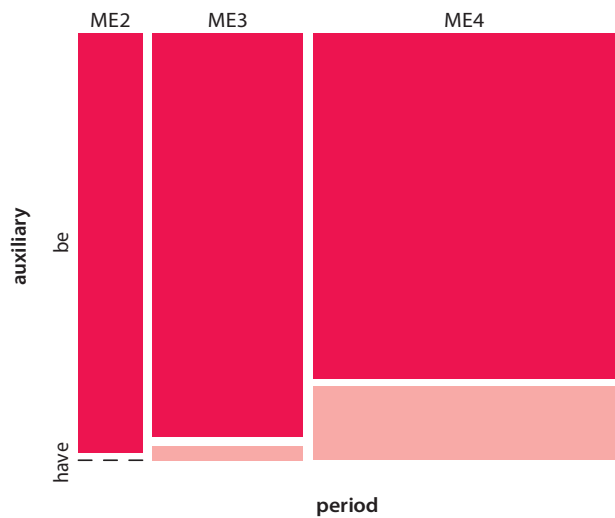


Figure 7. *BE/HAVE*-periphrases with manner of motion verbs (non-counterfactuals, change-of-location): period (N = 97)

4.4 Mixed-effects logistic regression analysis

In 4.1, the variable ‘counterfactuality’ was shown to have an almost categorical effect on the choice of auxiliary. To evaluate the effects of the other variables – ‘aktionsart’, ‘form of auxiliary’, and ‘period’ – on the choice of *BE* or *HAVE*, a mixed-effects logistic regression model was fitted to the data, limited to the non-counterfactual attestations (N = 224), using the `glmer` function of the `lme4` package (Bates et al., 2015) in R 3.1.2. A random effect was included for the individual verbs (with a variance of 2.058).⁷ Table 11 shows the model estimates.

Table 11. Estimated mixed-effects logistic regression model for the perfect auxiliary with manner of motion verbs data. Auxiliary *HAVE* is treated as the success

	estimate coefficient	exp(coefficient)	std. error
intercept	−4.1900	0.0151	1.2661
period: ME3	0.5961	1.8150	1.0957
period: ME4	1.6965	5.4548	1.0891
aktionsart: amb	1.7710	5.8767	0.7738
aktionsart: process	5.5533	258.0878	0.7528
auxform: infinitive	−0.5363	0.5849	1.5757
auxform: past	1.5766	4.8385	0.6110

7. Many thanks are due to the StaBLab at LMU Munich, particularly to Andreas Hueck, for their help with the logistic regression.

Generally in Table 11, an exponentiated coefficient greater than one means that, *ceteris paribus*, the odds of *HAVE* are greater than in the reference category (ME2; change of location; present); an exponentiated coefficient smaller than one means that the odds for *BE* are greater than in the reference category. More specifically, the odds of *HAVE* are higher in periods ME3 and ME4 compared to the reference period ME2; they are roughly five times higher if the auxiliary is in past form compared to the reference form present, and more than 250 times higher in process aktionsart compared to change of location (the reference aktionsart).

In a likelihood ratio test – which evaluates the effect of each of the variables as a whole on the null-hypothesis (i.e. the hypothesis that the variable has no influence on the auxiliary) – the variables ‘aktionsart’ and ‘form of auxiliary’ were shown to be significant predictors ($\chi^2(2) = 119.2, p = 2.2e-16$ (***) for ‘aktionsart’ and $\chi^2(2) = 8.5052, p = 0.01423$ (*) for ‘form of auxiliary’), while ‘period’ was no significant predicting variable ($\chi^2(2) = 4.7785, p = 0.0917$). Hence, in addition to confirming ‘aktionsart’ as a highly significant predictor, this analysis suggests that, despite the low numbers we saw in Section 4.3, ‘form of auxiliary’ is a significant predictor for the choice of *HAVE* vs. *BE* as well.

5. Implications for different accounts of the *BE/HAVE*-periphrases

Two different accounts of the *BE/HAVE*-periphrases in the history of English were sketched in Section 2: On the one hand, the traditional view that sees both as perfect periphrases, with a gradual replacement of *BE* by *HAVE* as auxiliary over several centuries starting in Middle or even Old English; on the other, McFadden & Alexiadou’s (2006, 2010) account according to which only the *HAVE*-periphrasis develops into a more general perfect, while the *BE*-periphrasis remains resultative until it starts to fall out of use around 1800. How do the results presented in Section 4 relate to these two accounts respectively?

In the frame of both accounts, manner of motion verbs are a rewarding object of study: Among the mutative intransitive verbs, they can be expected to show the highest degree of variation with respect to factor (f) in that they are most likely to be used in ‘process’ and ‘resultative’ (i.e. change of location) contexts alike. That other mutative intransitives – particularly the highly frequent *come* – are less likely to occur in ‘process’ contexts, in turn, may entail the danger of underrating this factor in a general corpus analysis of verbs that show *BE/HAVE* variation. Concentrating on manner of motion verbs avoids this danger.

With regard to the respective weight of the factors influencing auxiliary selection in manner of motion verbs, the analysis in Section 4 confirms McFadden & Alexiadou (2010) in showing that counterfactuality is not only one among many predictor variables, but the most categorical one: In counterfactual statements,

the auxiliary is almost always *HAVE*, irrespective of any other factors that would predict *BE* (4.1.2).

A restriction of the data to non-counterfactual attestations (4.2, 4.4) shows that aktionsart correlates with choice of auxiliary quite systematically: Change of location contexts usually feature *BE* (in 89% of the cases), process contexts *HAVE* (in 95% of the cases). With regard to the traditional account, this corroborates Los' hypothesis (2015: 77), though with the qualification that the influence of aktionsart is overridden by counterfactuality. The strong correlation of *BE* with change of location contexts also conforms with McFadden & Alexiadou's assessment of the Middle English *BE*-periphrasis as a mere resultative.

Form of auxiliary (past vs. present tense) turns out to be a third significant predictor variable, though of lesser influence than the other two: The odds of *HAVE* are higher if the auxiliary is in the past tense compared to the present tense, even in non-counterfactuals. This is in line with the traditional account of a gradual replacement of *BE* by *HAVE* in the perfect, according to which past tense is a context to which *HAVE* spreads early on. In McFadden & Alexiadou's scenario (2010), by contrast, in which the spread of *HAVE* at the expense of *BE* is only dated to the Late Modern period, this is unexpected: The present study finds a slight encroachment of *HAVE* onto *BE*-territory (non-counterfactual change of location contexts) in manner of motion verbs already starting in the late Middle English period. It should be stressed, however, that this only concerns eleven attestations, and that their use of *HAVE* may perhaps be explained in other ways, as discussed in the following.

First, in five of the attestations, the unexpected *HAVE* could arguably be due to a priming effect of a preceding occurrence of *HAVE*, as in (19a)–(19b) (see also 21).⁸

- (19) a. *And whanne Aaron hadde do this, and hadde runne to the myddis of the multitude* ((a1425(c1395) *WBible*(2) Num 16, 47)
 'And when Aaron had done this [i.e. taken the censer with incense] and had run into the midst of the assembly'
 b. *Thus ledde hym the devell that he hadde serued, that he hadde lepte in to the ryver and drowned hym-self* (a1500(?c1450) *Merlin* (Cmb Ff.3.11))
 'The devil whom he had served had led him so that he had leapt into the river and drowned himself'

Second, the occurrence of *HAVE* in these attestations could also more generally be due to the fact that manner of motion verbs combine with *HAVE* more often than

8. Note that the function of the past form in *had lepte* in (19b) is hard to explain anyway: It can neither be a counterfactual past, because the parson in the story in fact leaps into the river and drowns himself, nor does anterior past make sense for *had lepte* (in contrast to the clearly anterior *had served*).

other mutatives because they are more frequently used in process contexts.⁹ This might lead to a strengthened mental association of these individual lexemes to auxiliary *HAVE*, an entrenchment which could then also bring about combinations with *HAVE* in change of location contexts, i.e. the former domain of *BE*.

Third, even though the eleven attestations in question are telic (and therefore categorized as ‘change of location’ in the present paper), it is possible that the choice of the auxiliary *HAVE* is motivated by a construal of the event as a ‘type of act’ rather than a ‘change of location’. This is the argument put forward by Beliën (2012, 2017) for Present-Day Dutch, in order to account for attestations such as (20), in which the auxiliary *hebben* ‘have’ is used with a manner of motion verb and a telic PP (*in het zwembad* ‘into the pool’), thus violating the allegedly “perfect relation between telicity and auxiliary choice” (2012: 12) in Dutch (where usually auxiliary *zijn* ‘be’ is used in telic contexts, auxiliary *hebben* ‘have’ in atelic ones).

- (20) *En ze heeft dinsdag eindelijk in het zwembad gesprongen! Ze is nu over d[']r angst heen*
 ‘And she finally jumped into the pool on Tuesday! She is over her fear now’
 (Beliën, 2012: 12)

According to Beliën (2012, 2017), this kind of attestation shows that auxiliary choice in Dutch is not merely a function of telicity, but depends on the speaker’s construal of the event, in the cognitive grammar sense in which “differences in grammatical structure [...] highlight one facet of the conceived situation at the expense of another” (Langacker, 1987: 39). Choosing *hebben* ‘have’ as auxiliary means construing the motion event as a type of act. This typically coincides with atelicity, but it also works with telic events: In (20), for instance, the use of *hebben* foregrounds the girl’s feat of jumping into the pool, as a “remarkable act” (Beliën, 2012: 21), while backgrounding the change of location that was part of the motion event.

If this analysis is adopted for Middle English, it could be an explanation for *HAVE* in the apparent counterexamples to Alexiadou & McFadden’s (2010) account. In (19a), for instance, Aaron’s running into the middle of the assembly with the censer to prevent the people from dying of the plague could equally be construed as a ‘remarkable act’; likewise the suicidal leap into the river in (19b). Another such example of *HAVE* used in a non-counterfactual change of location context is (21), from the story of the missionary journey of the apostles Barnabas and Saul to Cyprus. Due to the PP *to Pafum*, the motion event is clearly telic. Yet,

9. In the present dataset, restricted to manner of motion verbs, 59% of the attested periphrases have the auxiliary *HAVE*, as opposed to only 19% in McFadden & Alexiadou’s data with all verbs that show *BE/HAVE* variation (2010: 396, Table 1). See also FN 2 for the share of process contexts in the individual verbs.

here again, one could argue along the lines of Beliën (2012, 2017) that the use of *HAVE* points towards a construal of the motion event as a ‘type of act’ rather than a ‘change of location’. The PP *bi al the ile* ‘through all the isle’, which refers to stages of the journey prior to the endpoint in Paphos, supports this reading.

- (21) [...] *and wenten forth to Seleucia, and fro thennus thei wenten bi boot to Cipre. And whanne thei camen to Salamyne, thei prechiden the word of God in the synagogis [...] And whanne thei hadden walkid bi al the ile to Pafum, thei founden a man, [...] to whom the name was Bariesu*

(a1425(c1395) WBible(2), Acts 13: 4–6)

‘And they went on to Seleucia, and from there by boat to Cyprus. And when they came to Salamis, they preached the word of God in the synagogues [...] And when they had walked through all the isle to Paphos, they found a man [...] whose name was Bar-jesus’

A reason for the higher odds for *HAVE* in the past tense (i.e. as anterior past) in this type of attestation might be that perhaps anterior events, even though they may be telic, tend to be presented more generally as ‘types of act’ (*when they had DONE this*) rather than ‘changes of location’ in narrative texts.

Seen this way, the use of *HAVE* in these attestations does not disagree with Alexiadou & McFadden’s (2006, 2010) account at all. On the contrary, it would constitute an instance precisely of the experiential perfect into which the *HAVE*-periphrasis is grammaticalizing – only that in these cases, it combines with telic events.

In sum, therefore, although these attestations at first sight contradict McFadden & Alexiadou’s account, they cannot really be read as counterevidence: They can too easily be explained in other ways and, if one allows for construal of telic events as type of act, they go perfectly well with the experiential perfect meaning of the *HAVE*-periphrasis.

6. Conclusion

In this paper, I have investigated the variation between *BE* and *HAVE* with past participles of manner of motion verbs in Middle English on the basis of 257 attestations of the verbs *climb*, *creep*, *leap*, *run*, *ride*, *sail*, *swim*, and *walk* in the relevant periphrases from the CME. Their analysis shows that the effect of counterfactual semantics on *HAVE* is almost categorical (cf. also McFadden & Alexiadou, 2006, 2010). Overridden only by the counterfactual effect, aktionsart is also a very systematic predictor, with *HAVE* occurring in 95% of the ‘process’ contexts and *BE* in 89% of the (non-counterfactual) ‘change of location’ contexts, which confirms

the hypothesis put forward in Los (2015: 77). The results of a mixed-effects logistic regression analysis (Section 4.4) indicate that, next to aktionsart as a highly significant predicting variable, the form of auxiliary is a significant predictor as well, with higher odds for *HAVE* in the past tense. This finding agrees with the traditional account of *HAVE* gradually replacing *BE* as perfect auxiliary in intransitive verbs, in which the past tense is one of the *HAVE*-favouring contexts. At first glance, the finding is problematic in McFadden & Alexiadou's (2010) scenario, according to which this replacement only happens in Late Modern English. However, as discussed in Section 5, the attestations on which this predictor ultimately hinges are few and their use of *HAVE* might well be motivated by other factors such as priming or construal of a telic event as a 'type of act'.

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