Chapter 8

Micro- and nano-change in the verbal syntax of English

Eric Haeberli
University of Geneva

Tabea Ihsane
University of Geneva

The verbal syntax of English undergoes substantial changes in the Late Middle and Early Modern English periods. The outcome of these changes is a clear division between main verbs and auxiliaries with respect to their syntactic behaviour. On the basis of quantitative data tracing the diachronic development of the distribution of verbal elements with respect to adverbs, this paper argues that the path towards the present-day system with a separate syntactic class of auxiliaries involved several small-scale steps that can be considered to be of the micro- and nano-type in Biberauer & Roberts's (2012; 2016) terminology.

1 Introduction

As is well known, the verbal syntax of English undergoes important changes in the transition from Middle to Early Modern English. On the one hand, finite main verbs stop moving to the inflectional domain (decline of V-movement, cf. Roberts 1985; 1993; Kroch 1989; Pollock 1989 among many others), and, on the other hand, auxiliaries start forming a clearly distinct class of elements (recategorization of auxiliaries, cf. e.g. Lightfoot 1979; 2006; Warner 1993). In this paper, we will examine how these two developments interact, and we will show that what has generally been treated as major syntactic changes may have involved smaller steps with brief periods of variation at what, in Biberauer & Roberts's (2012; 2016) terms, could be called the micro- and nano-parametric level.

Eric Haeberli & Tabea Ihsane. 2020. Micro- and nano-change in the verbal syntax of English. In András Bárány, Theresa Biberauer, Jamie Douglas & Sten Vikner (eds.), *Syntactic architecture and its consequences I: Syntax inside the grammar*, 159–173. Berlin: Language Science Press. DOI: 10.5281/zenodo.4041208

Our evidence comes from the distribution of finite verbal elements and adverbs. Besides negation, adverbs have been considered as the main diagnostic for V-movement out of the VP to the inflectional domain, the assumption being that certain adverbs and negation are merged above the VP and that the occurrence of the verb to the left of these is a sign of V-movement whereas the occurrence of the verb to the right signals the absence of such movement (cf. Emonds 1978; Pollock 1989 among many others). In the literature on the loss of V-movement in the history of English, discussions have generally focussed mainly on negation and the rise of *do*-support. In Haeberli & Ihsane (2016), data involving adverbs are examined in detail, and it is shown that the two diagnostics for V-movement do not pattern alike. Whereas V-movement past adverbs declines relatively quickly between the middle of the 15th century and the middle of the 16th century, the loss of V-movement past negation starts only in the 16th century and takes well into the 18th century to be completed. On the basis of this contrast, Haeberli & Ihsane conclude that the loss of V-movement in the history of English is a two-step process (cf. also Han 2000; Han & Kroch 2000 for this claim based on different evidence). In the first phase, around 1500, V-movement to a high inflectional head is lost (T in Haeberli & Ihsane's analysis) whereas V-movement to a low inflectional head is maintained (Asp). This leads to a situation where V-movement past adverbs is lost while movement past negation still remains productive. Then, in the second phase, V-movement out of the VP is lost entirely and finite main verbs no longer occur to the left of negation.

Given that the first phase in the loss of V-movement starts in the 15th century, we would expect it to interact with the second major change affecting the verbal syntax in Early Modern English, i.e. the change in the syntactic status of auxiliaries. It is generally assumed in the literature that auxiliaries belong to the category V in early English, but that they are then reanalysed as belonging to a functional category in Early Modern English. For modals, this change has been situated approximately in the early 16th century (cf. e.g. Lightfoot 1979: 110; 2006: 31; Roberts 1993: 310f.). Since the decline of V-movement past adverbs already starts in the 15th century, we would expect that auxiliaries first participate in this change, but that they stop doing so with the categorial reanalysis in the early 16th century. In the following section, we will examine the diachronic development of adverb placement with respect to auxiliaries in order to determine whether such an interaction between the decline of V-movement and the recategorization of auxiliaries can indeed be observed.[1]

[1]An anonymous reviewer suggests that the interaction between the loss of verb movement and the recategorization of auxiliaries should also be tested on the basis of subject–verb inversion

2 Adverb placement with different types of verbal elements

Old and Early Middle English had relatively frequent occurrences of adverbs between a subject and a finite main verb (SAdvV order) due to a certain variability in subject and verb placement. This system is simplified in the course of the Middle English period, and the subject and the finite verb are increasingly adjacent. In structural terms and under the assumption that adverbs are diagnostics for V-movement, this development can be considered as a trend towards a French-style grammar in which the verb moves past adverbs to T and the subject occurs in Spec,TP in non-interrogative clauses (cf. Haeberli & Ihsane 2016: 531ff. for discussion). In the middle of the 15th century, however, this trend is inverted and the frequency of the word order SAdvV increases again. In the data presented by Haeberli & Ihsane (2016: 512), the rate of SAdvV measured against the total number of clauses with an adverb to the right of the subject reaches its lowest point in the period 1420–1475 (8.5%). This rate increases to 16.5% in the period 1475–1500 and to 37.3% in the period 1500–1525, both changes being statistically significant. This quick rise of medial adverb placement, which is followed by a certain stability, can be considered as a symptom of the loss of V-movement past adverbs. The fact that SVAdv is not entirely lost is due to an alternative option to derive this word order that is independent of V-movement and that remains in use until today (right-adjunction of the adverb in the traditional account). There are contexts, however, in which a word order option depends entirely on the presence of V-movement, and these contexts provide support for the hypothesis that V-movement past adverbs is lost around 1500 (cf. Haeberli & Ihsane 2016: 514–520). Adverb placement with finite main verbs can then be taken as a base-

contexts as found in questions, where the verb must move out of the VP to reach a higher V2 position in the CP-domain. However, it is not clear whether subject–verb inversion data would provide us with useful evidence for the purposes of our investigation. First, the Mainland Scandinavian languages suggest that finite verbs can still move to C even after the loss of V-to-T movement. And secondly, although standard generative accounts assume that a verb has to move through the inflectional domain on its way to C, direct movement to C would be conceivable in more recent frameworks (cf. e.g. Roberts 2012 for an approach that allows movement from one phase head to another (i.e. v-to-C); or cf. also approaches viewing V2 as a phonetic form (PF) phenomenon). Given these observations, it seems that the adverb data considered below provide more solid evidence for our purposes than subject–verb inversion data. However, it would no doubt be worth exploring the consequences of the findings in Haeberli & Ihsane (2016) and in this paper with respect to how V-movement to C developed in the history of English, but we will have to leave this issue for future research.

line against which to examine the development of auxiliaries.[2] Assuming that auxiliaries have the same categorial status as main verbs in early English, we expect their distribution with respect to adverbs to develop in parallel until the two types of elements become categorially distinct.

2.1 Modals

Haeberli & Ihsane (to appear) examine the development of the distribution of modals with respect to adverbs. One of their findings is that, throughout Old and Middle English, the frequency of the order SAdvM(odal)V measured against SMAdvV and SMVAdv is considerably lower than the frequency of SAdvV measured against SVAdv. Although this quantitative difference could be interpreted as suggesting that modals do not occur in the same structural position and thus do not have the same categorial status as main verbs already in early English, Haeberli & Ihsane show that such a conclusion is not necessarily correct and that other factors may play an important role in the quantitative contrast. If this is the case, the comparison should rather focus on the general diachronic trajectories, and in this respect the two contexts turn out to match up to 1500. This is shown in Table 8.1, which presents data for adverb placement with respect to finite modals from 1350 to 1650 (from Haeberli & Ihsane to appear) and compares them with main verbs (frequencies in the final column from Haeberli & Ihsane 2016: 512).[3]

[2] In this paper and in Haeberli & Ihsane (2016), we include data involving any type of adverb in our counts. A reviewer considers this as potentially problematic as different types of adverbs might occur in different positions in the clause structure. Two observations can be made here. First, given that one of the crucial word orders examined below (SAdvAuxV) occurs with very low frequencies, a further subdivision of the data according to adverb types would not allow us to obtain any meaningful results, possibly even if we extended our corpus substantially. However, even if the amount of available data were larger, it is not clear whether adverb type indeed interferes in a significant way with the change considered here. Data involving finite verbs and adverbs are more abundant, and with those no clear adverb type effect can be detected (cf. Haeberli & Ihsane 2016: 516–520, 524–525 for discussion).

[3] The data in the tables in this paper are based on the following three parsed corpora: *The Penn–Helsinki Parsed Corpus of Middle English 2* (PPCME2 (1150–1500); Kroch & Taylor 2000), *The Parsed Corpus of Early English Correspondence* (PCEEC (c. 1410–1695); Taylor et al. 2006), and *The Penn–Helsinki Parsed Corpus of Early Modern English* (PPCEME (1500–1700); Kroch et al. 2010). Overlaps between PCEEC and PPCEME have been removed. The data cover all main and subordinate clauses with an overt subject and a one-word AdvP of any type. In addition to the elements referred to in the word order patterns (S, A(dv), V, M(odal), *be*, *have*), further constituents such as objects, adjuncts or, in clauses with an auxiliary, a second non-finite element may occur in any position in these clauses. An anonymous reviewer points out that it might be problematic to collapse main clause and subordinate clause data as the two clause types may

Table 8.1: The distribution of finite modals and adverbs following an overt subject in Late Middle and Early Modern English (PPCME2, PCEEC, PPCEME)

Period	SAMV	SMAV	SMVA	Total	%SAMV	%SAV
1350–1420	26	312	266	604	4.3	9.9
1420–1475	10	419	484	913	1.1	8.5
1475–1500	14	159	185	358	3.9	16.5
1500–1525	4	177	114	295	1.4	37.3
1525–1550	19	553	375	947	2.0	33.9
1550–1575	28	453	316	797	3.5	34.9
1575–1600	20	661	386	1067	1.9	34.0
1600–1625	18	706	386	1110	1.6	40.9
1625–1650	21	686	475	1182	1.8	39.8

The periods 1350–1420 and 1420–1475 show the end of a gradual decline in the frequencies of SAdvMV and SAdvV order from Old English onwards, with the low point being reached in 1420–1475.[4] In the following period 1475–1500, we see a significant increase of SAdvX both with modals (χ^2: 11.00, $p < 0.001$) and with main verbs (χ^2: 36.35, $p < 0.001$). But whereas this rise continues with main verbs in the period 1500–1525 and the frequencies then remain relatively stable, the rate of SAdvMV order drops in a statistically significant way to the level before 1475 (χ^2: 3.94, $p < 0.05$). After that, there are two small increases

behave differently with respect to adverb placement. For the auxiliary data, this concern does not seem to be warranted. If we take all main and subordinate clauses containing an adverb and a finite auxiliary (excluding copula *be*) and we measure the rate of SAdvAuxV order in the two clause types separately, we can observe that between 1350 and 1650 the frequency of SAdvAuxV order indeed tends to be slightly higher in subordinate clauses but that this contrast is statistically significant in only one of the subperiods (1525–1550). To collapse main and subordinate clauses does therefore not seem to alter the general diachronic picture we obtain and it has the advantage of increasing the sample sizes. As for the baseline with finite main verbs, the clause type difference is somewhat more important (cf. Haeberli & Ihsane 2016: 524, fn. 52) in that SAdvV order is significantly more frequent in subordinate clauses in 5 of the 9 subperiods between 1350 and 1650. However, the general diachronic trajectory is similar, with SAdvV order sharply rising in the periods 1475–1500 and 1500–1525 in both clause types and with the frequencies then remaining, with some fluctuations, at the same level. For our purposes, it is this general diachronic picture that is essential. Distinguishing clause types would not alter our conclusions in any substantial way.

[4] For the Old English and Early Middle English data, cf. Haeberli & Ihsane (2016: 512; to appear).

with SAdvMV order but neither of them reaches statistical significance.[5] Finally, SAdvMV stabilizes at a slightly lower level.

From a structural point of view, the developments in Table 8.1 can be interpreted as follows. As shown by Haeberli & Ihsane (2016), the increase in SAdvV order with main verbs around 1500 is best analysed as a symptom of the loss of V-movement. The same could then be said for the parallel development with modals in the period 1475–1500. At this point, modals still have the status of verbs and V-movement past adverbs therefore declines, leading to an increase in SAdvMV order. In the following period, however, modals start being reanalysed as elements merged (presumably relatively high) in the functional domain and the order SAdvMV therefore declines again. This analysis thus identifies exactly the same moment in time for the recategorization of the modals (i.e. the early 16th century) as earlier proposals made in the literature on the basis of entirely independent evidence (cf. e.g. Lightfoot 1979: 110; 2006: 31; Roberts 1993: 310f.).

2.2 *be*

Let us now consider the behaviour of other auxiliaries with respect to adverb placement. In early English, auxiliary *be* can co-occur with a main verb in the present participle form or the past participle form, and with the latter both in the active and the passive voice. Our corpus contains too few examples with present participles and the active voice to allow for meaningful separate quantitative analyses. Table 8.2 therefore combines the three contexts and thus covers clauses with finite *be* and any non-finite main verb.

As with modals, we see an initial decline in SAdv*be*V order. However, in contrast to the modals, the low point of 0.9% is reached only in the period 1475–1500 rather than in the period 1420–1475. But subsequently we see the same quantitative pattern as with modals: a rise to 3.7% followed by an immediate decline to 1.3%.[6]

The development of auxiliary *be* can now be compared to that of copula *be*. Table 8.3 presents data involving copula *be* followed by some non-verbal predicate.[7]

[5] Comparisons of the different periods give the following results: 1500–1525 vs. 1525–1550: $\chi^2 = 0.52$; $p < 0.5$; 1525–1550 vs. 1550–1575: $\chi^2 = 3.75$, $p = 0.053$; 1500–1525 vs. 1550–1575: $\chi^2 = 3.52$, $p = 0.061$.

[6] These two developments do not quite reach statistical significance, however (rise in 1500–1525: two-tailed Fisher exact test, $p = 0.057$; decline in 1525–1550: two-tailed Fisher exact test, $p = 0.073$).

[7] Clauses with an elided predicate are not included. Furthermore, we also excluded clauses of the type *It so is that …* as some early texts use them repeatedly without variation in adverbial placement and the regular occurrences of these clauses would distort the general picture somewhat.

Table 8.2: The distribution of auxiliary *be* and adverbs following an overt subject in Late Middle and Early Modern English (PPCME2, PCEEC, PPCEME)

Period	SA*be*V	S*be*AV	S*be*VA	Total	%SA*be*V
1350–1420	19	232	161	412	4.6
1420–1475	8	327	147	482	1.7
1475–1500	2	157	65	224	0.9
1500–1525	8	150	56	214	3.7
1525–1550	5	264	123	392	1.3
1550–1575	10	291	109	410	2.4
1575–1600	11	374	117	502	2.2
1600–1625	8	398	117	523	1.5
1625–1650	8	329	103	440	1.8

Table 8.3: The distribution of copula *be* and adverbs following an overt subject in Late Middle and Early Modern English (PPCME2, PCEEC, PPCEME)

Period	SA*be*	S*be*A	Total	%SA*be*
1350–1420	17	189	206	8.3
1420–1475	4	270	274	1.5
1475–1500	2	139	141	1.4
1500–1525	8	77	85	9.4
1525–1550	17	220	237	7.2
1550–1575	13	224	237	5.5
1575–1600	11	218	229	4.8
1600–1625	15	331	346	4.3
1625–1650	21	393	414	5.1

Once again, we see an initial decline which, as in the case of auxiliary *be*, reaches its low point in the period 1475–1500 with 1.4% SAdv*be* order. Then, there is a statistically significant rise to 9.4% (two-tailed Fisher exact test, $p = 0.007$) and a subsequent decline that is gradual over several periods.

2.3 *have*

Finally, consider adverb placement in clauses with the finite auxiliary *have* and a main verb in the past participle form. The relevant quantitative data are provided in Table 8.4.

Table 8.4: The distribution of auxiliary *have* and adverbs following an overt subject in Late Middle and Early Modern English (PPCME2, PCEEC, PPCEME)

Period	SA*have*V	S*have*AV	S*have*VA	Total	%SA*have*V
1350–1420	2	69	109	180	1.1
1420–1475	5	85	174	264	1.9
1475–1500	2	49	66	117	1.7
1500–1525	6	65	42	113	5.3
1525–1550	26	191	135	352	7.4
1550–1575	17	199	148	364	4.7
1575–1600	11	261	158	430	2.6
1600–1625	11	257	145	413	2.7
1625–1650	7	272	148	427	1.6

The rate of SAdv*have*V is already very low in the initial period 1350–1420. It then remains low up to 1500 and rises in two steps to 5.3% and 7.4%. Whereas the first increase is not statistically significant, the difference between 1475–1500 and 1525–1550 is (χ^2: 5.04, $p = 0.024$). After 1550, the rate of SAdv*have*V declines. The change is not statistically significant if we compare adjacent periods but the contrast between the periods 1525–1550 and 1575–1600 is clearly significant (χ^2: 10.01, $p = 0.002$).

As with *be*, we may now compare the auxiliary data with those for the main verb uses. Table 8.5 shows the distribution of main verb *have* with respect to adverbs.

The frequency of SAdv*have* order declines until the end of the 15th century. It then rises in the following three periods and remains stable around 20% until 1650. Thus, up to 1550, auxiliary *have* and main verb *have* undergo similar developments.

2.4 Discussion

Figure 8.1 summarizes the findings reported in Tables 1 to 5. The dates for the different data points correspond to the middle of each period distinguished in the tables (e.g. 1448 for the period 1420–1475).

Table 8.5: The distribution of main verb *have* and adverbs following an overt subject in Late Middle and Early Modern English (PPCME2, PCEEC, PPCEME)

Period	SA*have*	S*have*A	Total	%SA*have*
1350–1420	7	57	64	10.9
1420–1475	8	109	117	6.8
1475–1500	1	39	40	2.5
1500–1525	5	34	39	12.8
1525–1550	15	62	77	19.5
1550–1575	12	42	54	22.2
1575–1600	16	68	84	19.0
1600–1625	18	72	90	20.0
1625–1650	21	64	85	24.7

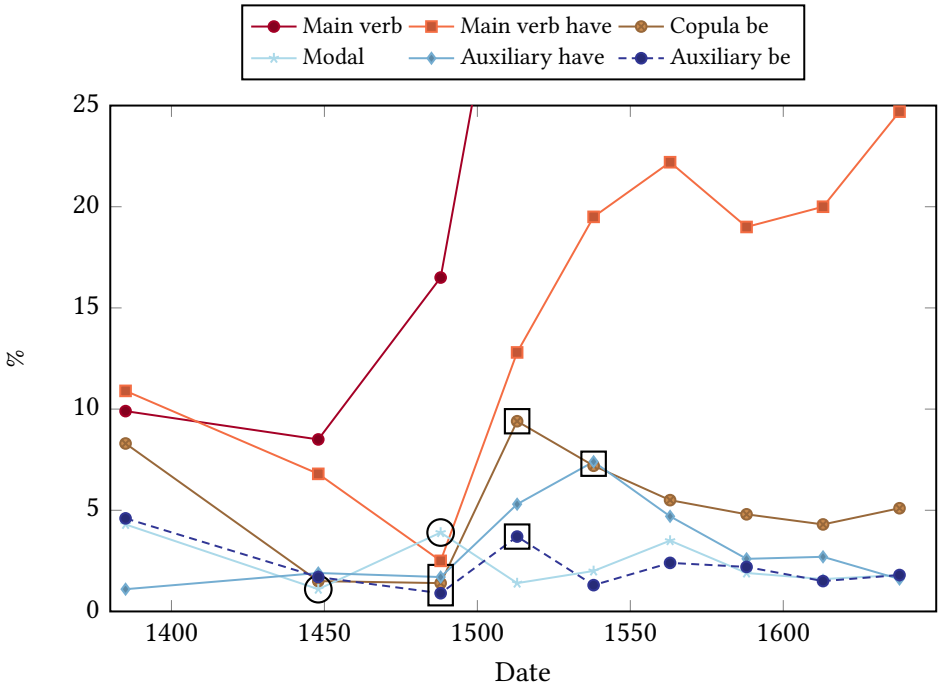

Figure 8.1: Frequency of pre-verbal/pre-auxiliary/pre-copula placement of adverbs in Late Middle and Early Modern English

One might wonder whether these low-frequency data, where potentially relevant differences occasionally lack statistical significance, allow us to draw any reliable conclusions. Although it is impossible to fully dispel such concerns without substantially extending our database, it is nevertheless extremely striking how regular the quantitative patterns in Figure 8.1 are. With each type of auxiliary and copula *be*, we can first detect a phase of decline in adverb placement to the left, then a very brief rise of this word order, and finally another decline. This pattern seems to be too regular to be entirely accidental.

Interestingly, this common pattern does not occur entirely in parallel across the different contexts. SAdvMV order (circled data points in Figure 8.1) rises together with SAdvV in the period 1475–1500. It immediately declines again in the period 1500–1525 while SAdvV keeps rising. As for *have* and *be* (rectangle and squares in Figure 8.1), their frequencies for adverb placement to the left remain low in the period 1475–1500 (rectangle in Figure 8.1). The rise occurs in the period 1500–1525 and is thus delayed by one period compared to modals and main verbs. Finally, the decline of SAdv*be*(V) order is also delayed by one period compared to modal verbs (1525–1550 rather than 1500–1525) and the decline with SAdv*have*V starts even later (squares corresponding to peaks in Figure 8.1). Thus, we have the sequence main verb/modals > *have*/*be* for the rise of SAdvX order and the sequence modal > *be* > auxiliary *have* for the decline of SAdvX.

These observations suggest that both the decline of V-movement and the recategorization of auxiliaries take place stepwise, with different lexical items being affected by the changes at different times. Let us consider V-movement first. In Minimalist terms, the increase of SAdvX order can be related to the loss of one or several unvalued formal features on V and of a V-feature on one or several corresponding functional heads, these features being required to establish the Agree relation that gives rise to V-movement (cf. Haeberli & Ihsane 2016: 528ff. for an account of main verbs). We will not go into the details of a feature-based analysis here and will simply refer to the unvalued feature(s) on V as F. In early English, all verbal elements are of the category V and they carry F as they all undergo movement. The initial rise in SAdvX order with main verbs and modals in Figure 8.1 suggests that a new variant of these elements emerges in the period 1475–1500 that lacks F and that leaves main verbs and modals in a lower position. At this point, the option without F is not available yet for *have* and *be* both in their main verb and auxiliary uses. This situation corresponds to what, following Biberauer & Roberts (2012; 2016), we could call nanoparametric variation. A change in the formal features of V affects almost all elements of this category

with the exception of two specific lexical items.[8] This nanoparametric variation is very short-lived, however, and in the period 1500–1525 variants of *have* and *be* appear that lack F and this leads to an increase in the rate of SAdvX order.

At that point, modals are already a step ahead again. The frequency of SAdvM drops, suggesting, as discussed above, that they are reanalysed as being merged directly in the functional domain. If parameters are conceived of as changes in formal-feature specifications of heads and we include categorial features among the class of formal features, we could compare the reanalysis of modals to what Biberauer & Roberts (2012; 2016) call a microparametric change: A subclass of verbal elements (modals) is affected by a change with respect to a formal feature.[9] The class of items affected by recategorization is then gradually extended. First, in the period 1525–1550, SAdv*be*(V) order declines with *be*, suggesting that *be* is also reanalysed as being functional rather than of the category V.[10] Finally, auxiliary *have* can be argued to be recategorized in the period 1550–1575 when SAdv*have*V declines. *Have* in its use as a main verb, however, remains a member of the category V and, just like with main verbs, the variant lacking F is strengthened, thereby giving rise to increasing occurrences of SAdv*have* order. These steps could be considered as being of the nanoparametric type as they involve individual items that are reanalyzed (first *be*, then auxiliary *have*).

Before concluding, let us briefly consider why the changes described above may have proceeded the way they did. For the first contrast (delay in the decline of V-movement with *be*/*have*), we do not at present have a plausible explanation. As for the different steps with the decline of SAdvX order, however, the following scenario would be conceivable. In line with various proposals made in the literature, we can assume that, by the end of the Middle English period, recategorization of the modals becomes a natural consequence of developments affecting their status within the category of verbs. From a morphological point of view, modals become distinctive because, as the only surviving members of

[8] Biberauer & Roberts (2012) suggest that a similar scenario holds for the very final phase in the loss of V-movement in English, when some specific verbs such as *know* or *doubt* preserve a feature on V triggering V-movement past negation longer than other verbs.

[9] Whether all modals change at the same time, or whether there is some earlier "leakage" into the functional domain with some specific modals, and therefore some nano-change (cf. Roberts & Roussou 2003: 43), cannot be determined on the basis of our data as the number of examples per modal per period is fairly small (but cf. Haeberli & Ihsane to appear for some data for *may*, *shall*, and *will*, which do not show any substantial difference in their diachronic development).

[10] It is likely that, after the reanalysis, *be* is not merged in the same position as the modals and that not all uses of *be* are merged in the same position. Furthermore, once auxiliaries have been recategorized, they may undergo movement within the functional domain. We have to leave a detailed investigation of these issues for further research.

the present-preterite class of verbs, they lack 3SG agreement morphology and because their past forms become opaque from a semantic point of view as they no longer necessarily express past-time reference (Lightfoot 1979; 2006). Furthermore, as Roberts (1985: 42) points out, with the loss of the subjunctive/indicative distinction in Middle English, "the modals commonly appeared as 'semantic substitutes' for verbal inflection" and they "were being construed as clausal operators, like subjunctive inflection". Finally, as Roberts & Roussou (2003) argue, important morphological evidence for a biclausal structure with modals is lost once their complements no longer carry infinitival morphology. Given these developments, the reanalysis of the modals as functional elements in a monoclausal structure could be considered as a natural response to the "emptying" of the functional domain due to the decline of V-movement.

The reanalysis of the modals can then be argued to have paved the way for analogical processes with the other verbal elements that are of a functional nature and do not assign thematic roles. The SAdvX data suggest that *be* is reanalysed first as being merged in the functional domain (1525–1550) and auxiliary *have* somewhat later (1550–1575). A possible explanation for the delay with *have* could be that main verb uses and auxiliary uses seem to influence each other. This is first observed in the period 1475–1500, where SAdvX with main verb *have* and SAdvX with auxiliary *have* continue declining together at a point when this word order already increases with other main verbs. Similarly, it could be argued that SAdvX with auxiliary *have* keeps increasing in the period 1525–1550 under the influence of main verb *have*, which, at this point, starts patterning more with other main verbs. It is only in the following period that auxiliary *have* aligns with other auxiliaries rather than with other uses of *have*.

3 Conclusion

The verbal syntax of English undergoes substantial changes in the Late Middle and Early Modern English periods. The outcome of these changes is a clear division between main verbs and auxiliaries with respect to their syntactic behaviour. On the basis of data tracing the diachronic development of the distribution of verbal elements with respect to adverbs, we have argued in this paper that the path towards the present-day system may have involved several small-scale intermediate steps that can be considered to be of the micro- and nano-type in Biberauer & Roberts's (2012; 2016) terminology. First, in the phase of decline of V-movement past adverbs, two specific lexical items (*be* and *have*) undergo the change only after a short delay. Then, in the phase of the recategorization of auxiliaries as

functional elements, modals are affected first, followed by auxiliary and copula *be*, and finally by auxiliary *have*. Each of these intermediate stages is very short-lived, confirming Biberauer & Roberts's (2016) suggestion that micro- and, in particular, nano-variation are highly prone to change. The clear auxiliary/main verb distinction that characterizes Present-Day English syntax can thus be argued to have emerged from a sequence of small-scale changes in a way that is reminiscent of lexical diffusion effects.

Abbreviations

3	third person		corpus of Early Modern
PCEEC	The parsed corpus of Early		English
	English correspondence	PPCME2	The Penn–Helsinki parsed
PF	phonetic form		corpus of Middle English 2
PPCEME	The Penn–Helsinki parsed	SG	singular

Acknowledgements

It is with great pleasure that we dedicate this paper to Ian Roberts. For the first author, this paper is a token of his immense gratitude to Ian for having played an important role in sparking initial interest in diachronic syntax.

Earlier versions of this material were presented at the 8th days of Swiss linguistics (University of Zurich), the 16th diachronic generative syntax conference (DiGS16, Hungarian Academy of Sciences, Budapest), and the 18th international conference on English Historical Linguistics (ICEHL18, KU Leuven). We thank the audiences at these conferences as well as two anonymous reviewers and Theresa Biberauer for their comments and suggestions. This work was supported by the Swiss National Science Foundation under grant no. 143302.

References

Biberauer, Theresa & Ian Roberts. 2012. Towards a parameter hierarchy for auxiliaries: Diachronic considerations. *Cambridge Occasional Papers in Linguistics* 6. 267–294.

Biberauer, Theresa & Ian Roberts. 2016. Parameter typology from a diachronic perspective: The case of conditional inversion. In Ermenegildo Bidese, Federica Cognola & Manuela C. Moroni (eds.), *Theoretical approaches to linguistic variation,* 259–291. Amsterdam: John Benjamins. DOI: 10.1075/la.234.10bib.

Emonds, Joseph. 1978. The verbal complex of V′-V in French. *Linguistic Inquiry* 9(2). 151–175.

Haeberli, Eric & Tabea Ihsane. 2016. Revisiting the loss of verb movement in the history of English: Evidence from adverb placement. *Natural Language & Linguistic Theory* 34(2). 497–542. DOI: 10.1007/s11049-015-9312-x.

Haeberli, Eric & Tabea Ihsane. To appear. The recategorization of modals in English: Evidence from adverb placement. In Barbara Egedi & Vera Hegedűs (eds.), *Functional heads across time: Syntactic re-analysis and change*. Oxford: Oxford University Press.

Han, Chung-hye. 2000. The evolution of *do*-support in English imperatives. In Susan Pintzuk, George Tsoulas & Anthony Warner (eds.), *Diachronic syntax: Models and mechanisms*, 275–295. Oxford: Oxford University Press.

Han, Chung-hye & Anthony Kroch. 2000. The rise of *do*-support in English: Implications for clause structure. In Masako Hirotani, Andries Coetzee, Nancy Hall & Ji-yung Kim (eds.), *NELS 30: Proocedings of the thirtieth annual meeting of the North East Linguistic Society*, 311–325. Amherst, MA: GLSA Publications.

Kroch, Anthony. 1989. Reflexes of grammar in patterns of language change. *Language Variation and Change* 1(3). 199–244. DOI: 10.1017/S0954394500000168.

Kroch, Anthony, Beatrice Santorini & Lauren Delfs. 2010. *The penn–helsinki parsed corpus of early modern English*. University of Pennsylvania. http://www.ling.upenn.edu/hist-corpora/PPCEME-RELEASE-3/index.html (19 June, 2020).

Kroch, Anthony & Ann Taylor. 2000. *The Penn–Helsinki Parsed Corpus of Middle English*. Second edition. University of Pennsylvania. http://www.ling.upenn.edu/hist-corpora/PPCME2-RELEASE-4/index.html (19 June, 2020).

Lightfoot, David W. 1979. *Principles of diachronic syntax*. Cambridge: Cambridge University Press.

Lightfoot, David W. 2006. Cuing a new grammar. In Ans van Kemenade & Bettelou Los (eds.), *The handbook of the history of English*, 24–44. Oxford: Blackwell.

Pollock, Jean-Yves. 1989. Verb movement, universal grammar, and the structure of IP. *Linguistic Inquiry* 20(3). 365–424.

Roberts, Ian. 1985. Agreement parameters and the development of English modal auxiliaries. *Natural Language & Linguistic Theory* 3(1). 21–58. DOI: 10.1007/BF00205413.

Roberts, Ian. 1993. *Verbs and diachronic syntax: A comparative history of English and French*. Dordrecht: Kluwer.

Roberts, Ian. 2012. Phases, head movement and second-position effects. In Ángel J. Gallego (ed.), *Phases: Developing the framework*, 385–440. Berlin: De Gruyter.

Roberts, Ian & Anna Roussou. 2003. *Syntactic change: A minimalist approach to grammaticalization*. Cambridge: Cambridge University Press.
Taylor, Ann, Arja Nurmi, Anthony Warner, Susan Pintzuk & Terttu Nevalainen. 2006. *The parsed corpus of early English correspondence*. University of York and University of Helsinki. Distributed through the Oxford Text Archive. https://www-users.york.ac.uk/~lang22/PCEEC-manual/index.htm (19 June, 2020).
Warner, Anthony. 1993. *English auxiliaries: Structure and history*. Cambridge: Cambridge University Press.