



# Information structure and OV word order in Old and Middle English: a phase-based approach

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**Abstract** This article re-examines the evidence for OV and VO variation and the loss of OV order in historical English, and presents a novel and unified analysis of Old and Middle English word order based on a uniform VO grammar, with leftward scrambling of specific types of objects. This analysis provides an insightful framework for a precise analysis of how OV word orders differ from VO word orders. We show in detail that OV with referential objects involves discourse-given objects. We then present a phase-based analysis from a VO base in which objects undergo feature-driven movement to spec,vP triggered by the information structure of the object. We propose that this analysis also yields a syntactic framework for analysing the derivation of preverbal quantified and negated objects, as well as a natural explanation for the stepwise loss of OV word order.

**Keywords** OV/VO variation · Information structure · Historical English · Leftward movement · Feature-driven movement · Phases

## 1 Introduction

This article re-examines the evidence for object-verb (OV) and verb-object (VO) variation in Old English (OE) and (early) Middle English ((e)ME) and the subsequent loss of OV order. We will present a novel and unified analysis of OE word order based on a VO grammar with leftward scrambling of specific types of objects. We claim that this analysis provides a natural and insightful framework for a precise analysis of how OV word orders differ from VO word orders.

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Our approach to the data differs from previous work in that we do not make prior assumptions about underlying word order(s); that is, we do not a priori distinguish between, for instance, an OV and a VO grammar, or between a grammar with a head-initial TP and one with a head-final TP (contra Taylor and Pintzuk 2012a, b). Stripping the data of such structural assumptions yields new insights into the nature of OV/VO variation. We show, following up on Struik and van Kemenade (2020), that discourse-given, lexical objects are optionally OV, but that new objects are near-categorically VO. We treat texts translated from Latin separately and compare them to native OE, demonstrating that translations induce a higher proportion of (new) OV in the OE translation. We also demonstrate that the position and distribution of quantified and negated objects parallels that of referential discourse-given objects, pace Pintzuk and Taylor (2006), who claim that their distribution and frequency is fundamentally different from that of other OV word orders.

To account for these facts, we present a VO-based analysis in which referential given objects are raised to preverbal position as the result of feature checking requirements. We analyse referential objects as ‘big-DPs’ by virtue of articulate morphology on the demonstrative determiner, which makes referentiality visible to the syntax. Movement to spec, $\nu$ P is triggered by an Edge Feature inserted on  $\nu$ P. Evidence for a big DP is lost once the demonstrative determiner is grammaticalized to the invariant definite article (and loses its D-linking function), resulting in strict VO word order. We show that quantified and negated objects move to the same position as referential objects and suggest that their movement is triggered by a [Quant] and [Neg] feature respectively.

The article is organised as follows. Section 2 will discuss in detail the key issues and word order patterns that play a role in the debate on the nature of OV/VO variation. Section 3 lays out our approach, focussing on the position of referential objects as a result of givenness and their distribution in translated as well as untranslated OE texts. We then go on to present and discuss the changes that took place in the transition from OE to ME, and over the ME period. Section 4 presents an analysis in terms of leftward scrambling of constituents, which is cast in terms of a phase-based approach building on Biberauer and Roberts (2005 et seq.). Section 5 concludes the paper by sketching the syntactic changes leading to the loss of OV order.

## 2 Word order variation in Old English in a West-Germanic context

This section will present the key patterns of word order variation in Old English against the backdrop of work on the present-day West-Germanic languages.

OE shows variation between OV and VO word order as well as variation in the order of finite (Vf) and non-finite (Vn) verbs. We first give examples of the five key word order patterns involving finite verbs, main verbs and objects in subclauses in (1). The labels for the patterns are based on the position of the object with respect to the finite and non-finite verbs. This does not preclude other constituents such as adverbs and PPs from also occurring in the pattern. The object is in bold, and the non-finite verb underscored. The examples (1a–c) are Vf-Vn word orders, and (1d–e) are



(1975) and others assumes that modal verbs are restructuring main verbs, which cluster with the topmost finite verb in the course of the derivation (unless the finite verb is fronted because of V2). The distinct order preferences of Dutch and German are maintained when clusters are longer: long verb clusters in Dutch are right-branching (descending order), while German clusters are left branching (ascending order).<sup>1,2</sup> An analysis along these lines is appropriate for present-day Dutch and German, but there is little evidence for clustering in OE (see Koopman 1990) or in any of the other Old West-Germanic languages, where modals are always finite. Coupé and van Kemenade (2009) show that (long) verb clustering, across the West-Germanic languages, is not attested before the late 13th century.

(1b) is a typical word order in West-Flemish, and is analysed in Haegeman and van Riemsdijk (1986) as a variant of verb clustering called Verb Projection Raising (VPR): instead of the non-finite verb, its projection including the object is clustered with the topmost verb, resulting in Vf-O-Vn order.

(3) West-Flemish

da	Valère	nie	en-durft	[niets	<u>zeggen]</u>
			Vf	O	Vn
<i>that Valère not not-dares nothing say</i>					
‘that Valère does not dare not to say anything’					

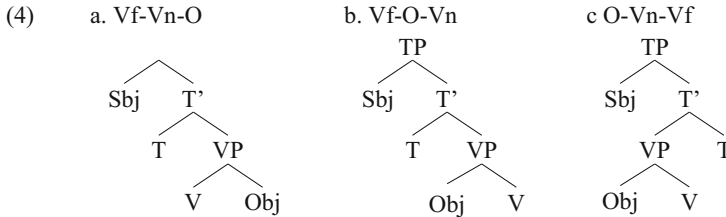
The example in (3) illustrates that VPR creates a scopal island, since it can have a double negation reading only; a negative concord reading is excluded. Haerberli and Haegeman (1999) show that OE Vf-O-Vn order always yields a negative concord reading, which renders a VPR analysis implausible.

The word orders (1a) vs. (1c), and (1d) vs. (1e) show that both Vf-Vn orders and Vn-Vf orders allow OV as well as VO orders, raising the issue of basic word order. Van Kemenade (1987) proposes that OE has an underlying OV order that allows an optional and rather liberal rule of extraposition to postverbal position, including (1b), which would be compatible with VPR in West-Flemish as briefly discussed above.

Pintzuk (1996) argues that what we see in OE is a case of phrase structure competition, not only between a basic OV and a basic VO grammar, but also between what she calls a T-medial (Vf-Vn) and a T-final (Vn-Vf) grammar, resulting in the following three options, on the assumption that Vf must move to T (a step we omit here for ease of exposition):

<sup>1</sup> Note that there is a good deal of variation in the order of verb clusters between varieties of the present-day West-Germanic languages. We refer the reader to, e.g., Schmid (2005), Wurmbrand (2004, 2006), and Zwart (2011) for discussion.

<sup>2</sup> Further variation is presented and discussed in more detail in Bech (1955) and den Besten and Edmondson (1983).



In addition to the basic orders in (4), the object in (4a) may undergo movement from a postverbal position to a scrambling position higher in the structure, resulting in O-Vf-Vn order as in (1a), or the object in (4c) may undergo rightward movement, resulting in the word order Vn-Vf-O in (1e).

The main diagnostics for the choice of basic OV or VO is the position of what Pintzuk calls “light” elements such as personal pronoun objects and verb particles, which are taken to be preverbal in an OV grammar, and postverbal in a VO grammar. A further issue is the status of V-to-T movement in OE. Pintzuk (1999) gives evidence that there is Vf movement to T in the structure (4a), stranding a verb particle, but this is a relatively minor pattern, which gives little indication of the frequency of this phenomenon. Obligatory V-movement to T in a T-final grammar is therefore by assumption.

Pintzuk’s analysis accommodates the attested word order patterns, but it also needs, in each of the competing grammars, the full range of extra operations, including extraposition of objects from an OV base, resulting in VO orders that are also derivable from a VO base structure and vice versa, which leads to massive indeterminacy.

Recent work attempts to explain the word order variation in terms of information structure. The information structural properties of OV/VO are noted by Bech (2001). Taylor and Pintzuk (2011, 2012a, b) (henceforth T&P) take up this account: they categorise the five word order patterns in (1) into two basic ones, V-Aux and Aux-V, which represent T-final and T-initial grammar respectively. Within these two grammars, there is also phrase structure competition between an OV grammar and a VO grammar, as discussed above. T&P go on to identify an effect of information structure in V-Aux-O word orders (1e), as this is the only unambiguously derived order in their account: objects in this pattern are postposed as a result of an interplay between informational newness and weight. OV word orders in V-Aux clauses can only be base-generated as such, as a VO grammar with V-Aux would derive the unattested V-O-Aux order. Hence, they cannot make predictions about the information structure of objects in OV orders. Similarly, since OV and VO can be both base-generated and derived in Aux-V clauses, they cannot make predictions about information structure for these orders either. T&P thus take their analysis of the double base hypothesis as a prior assumption, and then investigate the effect of information structure on a minority pattern, concluding that its only effect is on objects that are extraposed because they are new and/or heavy.

Another line of work motivates antisymmetric analyses of OE word order, assuming a basic VO word order (the universal basic word order in anti-symmetric work (Kayne 1994)). Such work must motivate an analysis in terms of leftward movement of the object. Proposals along these lines can be found in Roberts (1997), van der Wurff (1997), Fischer et al. (2000, chapter 5), Biberauer and Roberts (2005), Wallenberg (2009), and De Bastiani (2019). The various positions of the object are derived by movement to higher positions. We will pursue an analysis along those lines in Sect. 4, based on the results presented in Sect. 3, which show in detail that OV objects are information-structurally given, or are semantically special in the sense that they are quantified or negated. The VPR lookalike pattern discussed above falls out naturally from this approach, and has no separate status.

Before we proceed to such an analysis, we thoroughly reconsider the relevant data, based on a syntactic and information structural analysis of the facts.

### 3 Referential object placement in historical English

This section (re)evaluates direct object placement in historical English from a theory-neutral perspective. We will specifically analyze the trigger for OV placement of referential objects in terms of information structure and will show that new objects are near-categorically VO. Given objects appear productively in VO order, but are OV in the majority of the cases. Our methodology differs from that in the previous literature in a number of respects, and we will address these differences once we have presented our results.

#### 3.1 Information structure

The results presented here build on the data collection in Struik and van Kemenade (2020). We identified the information status (IS) of objects occurring in subclauses with two verbs by compiling a dataset from the YCOE corpus (Taylor et al. 2003), using CorpusStudio (Komen 2011) and annotating it according to a tripartite given-new-inert information structure coding scheme, based on the Pentaset annotation scheme (Komen 2013).<sup>3</sup> We refer the reader to Struik and van Kemenade (2020)

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<sup>3</sup> The Pentaset coding scheme contains five labels: Identity, Inferred, Assumed, New, and Inert. Identity, Inferred, and Assumed were collated into one category Given, as there was not a significant difference between these categories (see also Taylor and Pintzuk 2014). Objects labelled Inert are not included in the analysis, since they are non-referential.

**Table 1** Distribution of given and new objects across word orders in native OE

	Vf-O-Vn	Vf-Vn-O	O-Vf-Vn	O-Vn-Vf	Vn-Vf-O	Total
Given	284 <i>98.3%</i>	125 <i>51.9%</i>	34 <i>100%</i>	122 <i>98.4%</i>	23 <i>67.7%</i>	588 <i>81.4%</i>
New	5 <i>1.7%</i>	116 <i>48.1%</i>		2 <i>1.6%</i>	11 <i>32.4%</i>	134 <i>18.6%</i>
TOTAL	289	241	34	124	34	722

Italics are used to differentiate percentages from raw frequencies

and the appendix for the full details regarding our coding scheme. The overall results are given in Table 1.<sup>4,5</sup>

The results indicate a strong correlation between the IS of the object and the word order pattern. In fact, new objects hardly ever appear in preverbal position. Over 98% of the objects in any of the OV patterns present discourse-given information, and the majority of new objects (127 out of 134) appear in VO word order.<sup>6</sup> Given objects are OV in the majority of the cases (440 out of 588), but appear in VO order at a productive rate. This is in part due to weight: there is an independent effect of the length of the constituent on the surface position. Ever since Behaghel (1909), it has been acknowledged that languages tend to place heavy constituents later in the sentence. The longer (or heavier) the object, the more likely it is to surface in postverbal position. This also makes it more likely for a heavy object to be spelled out in VO position, regardless of its IS. This interaction between givenness and weight lends strong support to an analysis in which VO order is basic and OV order is derived as the result of discourse-givenness. We will come back to this in Sect. 4.

### 3.2 Differences between our approach and T&P

Both the results and the methodology of our approach differ substantially from those in Taylor and Pintzuk (2011, 2012a, b). We will now try to account for these differences as

<sup>4</sup> Table 1 and Struik and van Kemenade's (2020, 14) Table 4 report closely similar results. There are some minor differences between the numbers reported, which is the result of reconsideration of our data and annotation. Note that these changes do not undermine the conclusions in Struik and van Kemenade and do not lead to significant changes in the model. We repeated Struik and van Kemenade's multinomial regression analysis within a Generalized Linear Mixed Model (GLMM) (Baayen 2008; Gries 2015). The dependent variable is word order, and information structure (given vs. new) and weight (object including relative clauses, measured as the log base 2 of the number of letters and centered around the mean) as predictor variables. Text was included as a random effect to control for variation within texts. The model indicates independent significant effects of IS,  $p < .001$ , where given objects are more likely to be OV than VO compared to new objects, and of weight,  $p < .001$ , where longer objects are more likely to be VO compared to shorter objects.

<sup>5</sup> The full dataset is deposited in the DANS repository and is available for review. The dataset can be accessed via: <https://doi.org/10.17026/dans-2z6-67z4>

<sup>6</sup> Space restrictions prevent us from discussing the few preverbal new objects that we find in the main part of this paper. The interested reader is referred to the Appendix, Sect. 4 (see also Struik and van Kemenade 2020, Sect. 6.2).

precisely as we can. Our approach differs in five main respects: (1) we included subclauses with two verbs only, to abstract from finite verb movement; (2) we included the full range of Vf-Vn clauses, including O-Vf-Vn, and did not analyze the variation in Vf-Vn clauses and Vn-Vf clauses separately; (3) we excluded indirect objects from the analysis; (4) we treated original OE texts separately from texts translated from Latin since translations from Latin contain an inflated number of (new) OV sentences as a translation effect (see also Cichosz et al. 2017); (5) we are more restrictive in our annotation of new objects. We will address each of these differences in turn.

### 3.2.1 Exclusion of main clauses

First, we give Table 2 from T&P (2012, 839, their Table 4). It may be noted first of all that Table 2 contains much more data than Table 1. This is in part because T&P's results include texts translated from Latin (which are considered separately here). Another major difference is that T&P include main clauses in their analysis, based on Pintzuk's (1999) approach in terms of the Double Base Hypothesis, and the assumption that finite verb movement in OE is to T in main clauses and subclauses alike. There is, however, consensus in recent work that the position of the finite verb in OE main clauses is in the left periphery, implying an asymmetry between main clauses and subclauses with respect to the position of the finite verb (Haeberli 2000, 2002; Fischer et al. 2000; van Kemenade 2011, 2012; van Kemenade and Westergaard 2012; Walkden 2015, 2017; Haeberli et al. 2020, to name a few). This is based on two observations: first, subject-verb inversion is frequent in main clauses and absent in subclauses except in the complement clauses of bridge verbs and in clauses with an unaccusative verb, where the subject often surfaces in a low position (van Kemenade 1997; Fischer et al. 2000). Second, verb-final order is rare in main clauses and much more frequent in subclauses (Pintzuk 1999). Haeberli and Ihsane (2016, 504) give some independent evidence that the finite verb may move (leftward) to T in subclauses. This, in combination with the consensus that there are at least two subject positions, yields the structure (5), which takes V to T to be available in OE (Haeberli and Ihsane 2016, 505)

$$(5) \text{ XP Vf1 Su1 Vf2 [}_{\text{TP}} \text{ Su2 (...) Vf3]} \\ \text{C Fin T}$$

The conclusion thus is that the finite verb in main clauses targets either C (in questions, negative-initial clauses, and clauses where XP is the temporal adverb *þa*

**Table 2** Frequency of VO order by information status and complexity (from Taylor and Pintzuk 2012a, 839, their Table 4)

Information status	Simple objects		Complex objects		Clausal objects	
	%VO	N	%VO	N	%VO	N
Given	23%	967	60%	125	91%	115
New	35%	454	53%	94	87%	15
Total	27%	1,421	57%	219	91%	130



or *ponne*), or Fin (in main clauses with a different type of non-subject XP). In subclauses, on the other hand, the finite verb may target T (Haerberli and Ihsane 2016). The Double Base Hypothesis, as set out above in (4), thus applies to the T domain only, that is, below the left periphery. This asymmetry is the crucial reason why our focus here is restricted to subclauses with two verbs, allowing us to consider only clauses where the position of the finite verb is below the left periphery and the subject position(s), in relation to that of the object and the nonfinite verb.

### 3.2.2 Inclusion of full range of Vf-Vn clauses

A further difference between T&P's data and ours is that our sample contains the full range of Vf-Vn clauses, including O-Vf-Vn order, as in (1a). T&P exclude these, because in their view the object must have moved out of the VP, which they assume is for reasons other than the ones affecting OV/VO variation. These reasons are not discussed. This pattern is usually regarded as part and parcel of object placement in restructuring contexts in the West-Germanic languages (for references see the previous section). Against this backdrop, this pattern is of special interest to our approach, as we predict that objects appearing in it behave on a par with other OV objects. We see in Table 1 that this prediction is borne out.

The number of Vf-Vn clauses is further reduced in T&P's datasets, because they take one-third of the Vf-Vn orders to balance them numerically with Vn-Vf orders. This is unproblematic in their approach, because they consider Vf-Vn and Vn-Vf orders to be the result of different grammars (T-initial or T-final) and they expect OV/VO variation to work differently in these clauses. Recall that under the Double Base Hypothesis, Vn-Vf order is compatible only with an OV grammar, as the combination with a VO grammar would result in the unattested Vn-O-Vf order, so that Vn-Vf-O must be derived by rightward movement. From the theory-neutral perspective which we take here, it is not a priori necessary to distinguish between Vf-Vn and Vn-Vf clauses, and hence also not necessary to balance these patterns.<sup>7</sup>

### 3.2.3 Exclusion of indirect objects

We only included direct objects in the analysis. Indirect objects were excluded because they differ from direct objects in at least two respects: (1) their base-generated position is assumed to be different. Direct objects are base-generated as the complement of V, whereas indirect objects are base-generated in Spec,V; (2) they tend to be associated with different thematic roles and different functions within the clause, and also within discourse. It is exceedingly difficult to find any regularity in the placement of indirect objects in OE, as shown at length by Koopman (1990). A further pilot data study of indirect objects showed that the placement of indirect objects is not in any way regulated by IS considerations, in the way direct objects are. We will thus leave the abundant variation in the position of the indirect object for future research.

<sup>7</sup> Note that if we divide the data in Table 1 according to the order of the verbs, new objects are more frequently OV in Vn-Vf orders (2 out of 13) than in Vf-Vn orders (7 out of 116). Excluding two-thirds of the Vf-Vn clauses would inflate the overall percentage of new OV objects.

### 3.2.4 Latin influence

The dataset in Table 1 explicitly excludes translated texts to avoid potential influence from Latin. Here, we include a comparison between translated and non-translated texts to further help us gain insight into the mechanisms driving OV/VO variation. We collected a sample of translated texts (which are also included in T&P 2012b's database) and manually matched the first half of the clauses from each text with the corresponding clause in the Latin source, if available. The OE objects were then annotated for information structure.<sup>8</sup>

We hypothesize that Latin influence first of all leads to an increased number of OV clauses: Latin is a synthetic verb-final language, which means that it will in most cases have one verb form in final position, where OE might have two, including a periphrastic form. As the verb in Latin is in final position, the object is, in most cases, preverbal. OE allows both preverbal and postverbal placement of objects, so we expect to find an inflated number of OV word orders in translations, as these do not violate any native OE grammatical options. Second, we expect to find deviations from the native pattern. Even though OV is a grammatical option in OE, we have shown here that it is constrained by information structure. A clear indication of Latin influence would be when a new object is preverbal as the result of preverbal placement in the original. This can be considered a strong direct effect (in the sense of Taylor 2008), because it leads to a deviation from the native IS pattern and to infelicitous use of new objects in preverbal position. The results of the analysis are summarized in Table 3.

Comparing the amount of OV/VO variation in Latin to that in native OE as reported in Table 1, we note that OV in Latin translations is significantly higher.<sup>9</sup> In native OE, there are 447 (61.9%) cases of OV versus 275 (38.1%) cases of VO (see Table 1). In our sample of translated OE, OV occurs 113 (73.4%) times, whereas VO occurs 41 (26.6%) times. The difference between native and translated OE is significant,  $\chi^2=7.235, p=.007$ . We can thus conclude that the number of OV word orders is inflated in translations as the result of Latin influence.

This influence does not lead to ungrammatical patterns. However, the IS pattern is slightly disrupted in the translated sample. Table 3 also summarises the relation between the order in the Latin texts and in the OE translation for both given and new objects. Clearly, translations do not strictly adhere to the Latin order: 31 (out of 115) of the Latin OV orders are rendered as VO orders in OE, while 29 (out of 39) Latin VO orders are rendered as OV in OE. A translator is thus more likely to shift to OV than vice versa. The question is whether, and if so how, this relates to the IS of the object.<sup>10</sup> Since our analysis of a native sample of OE materials suggests that the placement of given information can be either pre- or postverbal, we cannot use the given objects as unambiguous evidence for Latin influence other than to identify a

<sup>8</sup> We refer the reader to the Appendix, Sect. 3, for details regarding the texts, selection procedure and annotation.

<sup>9</sup> The numbers in Table 3 only include clauses which have an identifiable object in the Latin source.

<sup>10</sup> We are referring here to the IS of the OE object within the OE translation. We did not consider the IS of the Latin objects and any possible differences between the original and the text in terms of IS.

**Table 3** OV/VO variation in Latin translations

Latin order	OV		Total	VO		Total
OE order	OV	VO		OV	VO	
Given	77 <i>81.9%</i>	17 <i>18.1%</i>	94	26 <i>86.7%</i>	4 <i>13.3%</i>	30
New	7 <i>33.3%</i>	14 <i>66.7%</i>	21	3 <i>33.3%</i>	6 <i>66.7%</i>	9
	<b>84</b>	<b>31</b>	<b>115</b>	<b>29</b>	<b>10</b>	<b>39</b>

*Italics are used to differentiate percentages from raw frequencies*

**Bold values indicate total**

statistical increase in OV orders. However, when we consider the pattern in which given objects are shifted from OV to VO and vice versa, we note that given objects are shifted from OV to VO in 18.1% of the cases, whereas the reverse happens in 86.7% of the cases. This seems to suggest a degree of awareness on the translators' part of the discourse configurationality of the variation, which further strengthens our hypothesis that OV is strongly associated with discourse-givenness.

When we consider the behaviour of new objects, we do find unambiguous evidence for Latin influence. In the native sample, new objects hardly ever occur in preverbal position, so we do not expect to find preverbal new objects in the translated sample either. This means that Latin OV clauses should be rendered as VO clauses when the object is new. This indeed happens in 66.7% of the cases. However, 7 new OV objects in Latin surface in OV order in the OE translations as well. The objects are genuinely new in the discourse, as is illustrated by (6). The object *þæt gyldne mynet* 'the gold coin' is preceded by a definite determiner, but it is not until the relative clause *þætte þider of Cent cwom* that the specific coin is identified. This particular coin has not been mentioned before, so it is truly new.

- (6) *þæt heo sceolden þæt gyldne mynet mid him geneoman, þætte*  
*that they should that gold coin with them take that*  
*þider of Cent cwom*  
*there of Kent Came*  
 'that they should take the gold coin with them that had come there from Kent'

**ut aureum illud numisma** quod eo de cantia  
 that gold that coin which there from kent  
 venerate secum adsumerent  
 came with.them take

'that they might take with them that golden coin which had come from Kent to that place'

(Bede\_3:6.174.9.1704)

Secondly, we do not expect new objects to be translated from a Latin VO structure to an OV OE structure, as this would violate the IS pattern that we observed in the native sample. However, we do find 3 such cases. These cases are exceptional, however. They can be considered bare or indefinite expressions, which are made specific:

- (7) þæt he sceolde Osweo þæm cyninge **wiif** fetigan Eanflæde  
*that he should Oswin the king wife fetch Eanflæde*  
 Eadwines dohtor þæs cyninges, seo wæs ær þider gelæded  
*Edwin's daughter the king who was earlier there led*  
 ‘... that he should fetch Eanflæde, daughter of king Eadwine, to be wife  
 of king Oswio, who had been brought there’  
 (Bede\_3:13.198.24.2015)

The object *wiif* ‘wife’ in (7) is preverbal, but the apposition identifies a specific woman who is new. The preverbal position of the syntactic object is probably not the result of Latin influence. This is a pattern that we observe in the native sample as well; bare nouns are dominantly preverbal, as we illustrate in the following subsection.

The results from native OE indicate that in general, given objects occur in preverbal position, but not new objects. We can corroborate this finding by comparing it to Latin translations. We find a similar pattern here; translators make an effort to place given information preverbally, as is evidenced by the fact that VO Latin clauses are very often translated as OV OE clauses, but they fail to do this for new objects in some cases. We do find examples of new preverbal objects, and these seem to be the result of direct transfer from the Latin pattern. These observations are in line with the hypotheses that result from an analysis in which OV is positively triggered by the given IS of the object.

### 3.2.5 Annotation of new objects

An anonymous referee points out that even when main clauses, indirect objects, and translations are deducted from the figures in Table 2, the difference in the number of new OV found by T&P as compared to ours is still not entirely accounted for. Comparing T&P’s coding to ours suggests that there is a substantial set of broadly speaking non-definite objects, including bare singulars, bare plurals and plurals modified only by an adjective, which we have regarded as non-referential (excluding them from our set of referential objects), whereas T&P are not altogether consistent and explicit about their coding in their 2011, 2012a, b, and 2014 papers: given (2011); unclear (2012a, b); new (2014). We here set out in more detail our coding choices and the theory underlying them.

This set of objects can be classified into three categories: non-referential bare singulars, non-referential bare plurals, and non-referential bare indefinites, illustrated in (8).

(8) a. Non-referential bare singulars

þæt hi moston for his intingan **deað** þrowian.  
*that they must for his sake death suffer*  
 ‘that they might for his sake suffer death’

(ÆCHom\_II,\_45:344.293.7705)

b. Non-referential bare plurals

þæt he wolde sendan syððan **renscuras**  
*that he would send afterwards rainshowers*  
 ‘that he would send rainshowers afterwards’

(ÆLS\_[Book\_of\_Kings]:72.3702)

c. Referential indefinites

forþon þe heo nolde on Rome onfon **hæpnum were**  
*because that she not wanted in Rome receive heathen man,*  
 ond Cristes geleafan forlætan  
*and Christ’s faith leave*  
 ‘Because she did not want to receive a heathen man in Rome and  
 abandon Christ’s faith’

(Mart\_5\_[Kotzor]:Jy10,B.2.1129)

Objects of the first two types, bare singulars and bare plurals, are non-referential and are coded as Inert in our dataset. Bare singulars tend strongly to be fixed collocations in which the noun forms a tight semantic unit with the verb, as in (8a). In this example, the noun *deað* ‘death’ in combination with the verb *þrowian* ‘suffer’ expresses the (intransitive) meaning ‘to die’. Farkas and de Swart (2003) argue that bare singulars only license an uninstantiated thematic role, but, crucially, do not introduce a discourse referent, which they claim is the result of (semantic) incorporation with the verb. The fact that the majority of the objects in our dataset are preverbal and very dominantly adjacent to the verb also supports an analysis in terms of syntactic incorporation, which can be considered a case of First Merge, where the (bare) N head merges directly with the verb.

Bare plurals are discussed at length in both the semantic and syntactic literature (starting with the seminal work of Carlson 1977; see also Delfitto and Fiorin 2017 for an overview and discussion), but there is no consensus on their status and the interpretation of bare plurals is largely dependent on context. The (few) bare plurals in our database are frequently abstract concepts and do not introduce discourse referents, which is why they are labelled Inert and are excluded from the present analysis.

T&P (2012a, 2012b, 2014) consider the object *gode dagas* ‘good days’ in (9) a short-term referent in the sense of Karttunen (1976) and code it as new.

- (9) *Ʒeah þe hwa wille her on life habban gode dagas, he ne  
 Yet that whoever will here in life have good days, he NEG  
 mæg hi her findan  
 can them here find*  
 ‘Yet whoever will have good days here in life, he cannot find them here.’

Short-term referents only exist within a limited domain, i.e. in hypothetical or conditional contexts, but do not establish a referent beyond this limited domain. Let us note that Karttunen is specifically concerned with (co)referential noun phrases introduced by an indefinite article, and not with bare plurals as in (9). Furthermore, Karttunen’s approach does not treat a short-term referent as new by definition; it can be referred back to, albeit only within that same limited domain (Karttunen 1976, example (25a)):

- (10) You must write a letter to your parents and mail the letter right away.

Our coding scheme does not distinguish between limited or permanent domains, and hence not between permanent or short-term referents. In example (10), *a letter* would be annotated as new, whereas *the letter* is considered given. The crucial difference between the objects in (10) and (9) is that the former is an identifiable/specific referent, whereas the latter is a bare plural that does not refer to specific good days. The pronoun *hi* in (9) is what King and Lewis (2018) call a “problematic anaphor.” The pronoun refers back to *gode dagas*, but the reference of the pronoun cannot be fixed, because the antecedent is not specific. This is a semantic issue (and see King and Lewis (2018) for an overview of proposals), but this is not an issue that directly bears on the syntactic status of these referents. It does indicate, however, that when an object is referred back to by a pronoun, it is not necessarily anaphoric.

Not all bare objects are non-referential. In some cases, objects receive a specific interpretation, as the indefinite article is not obligatory in OE because it has not yet been grammaticalized fully. Crisma (2015) shows that *an* is more frequently used with specific and wide scope nominals than with narrow scope nominals or generics (which never occur with an indefinite article), but there is considerable freedom. Crisma and Pintzuk (2016) show that the M1 period is a continuation of OE, but that the indefinite establishes itself as an obligatory expletive element around the M3 period; bare singulars are unattested from that period on. We coded existential bare objects according to their information status. For example, the object in (8c) *hæþnum were* ‘heathen man’ receives an existential reading; there was a man who she did not want to receive, but we do not know who it is, so in this case the object is new.

### 3.3 Changing patterns from Old English to early Modern English

To see how OV/VO variation works in early Middle English and to make a consistent comparison with OE, we applied the same methodology to a set of texts from the Penn-Helsinki Parsed Corpus of Middle English, second edition (PPCME2, Kroch et al. 2000). We used a sample of texts from 1150 to 1250 and extracted all

**Table 4** Distribution of given and new objects across word orders in eME

	Vf-O-Vn	Vf-Vn-O	O-Vf-Vn	O-Vn-Vf	Vn-Vf-O	Total
Given	96 <i>100%</i>	100 <i>64.9%</i>	9 <i>100%</i>	4 <i>100%</i>	5 <i>62.5%</i>	214 <i>79.0%</i>
New		54 <i>35.1%</i>			3 <i>36.5%</i>	57 <i>21.0%</i>
Total	96	154	9	4	8	271

**Table 5** Diachronic development of OV/VO variation, ca. 850–1570

	Vf-Vn-O	O-Vf-Vn	Vf-O-Vn	O-Vn-Vf	Vn-Vf-O	Total
OE	263 <i>32.1%</i>	38 <i>4.6%</i>	346 <i>42.2%</i>	136 <i>16.6%</i>	37 <i>4.5%</i>	820
M1	205 <i>59.2%</i>	14 <i>4.0%</i>	114 <i>32.9%</i>	5 <i>1.4%</i>	8 <i>2.3%</i>	346
M3	391 <i>93.8%</i>	8 <i>1.9%</i>	18 <i>4.3%</i>			417
M4	756 <i>97.8%</i>	12 <i>1.4%</i>	5 <i>0.7%</i>			773
E1	2019 <i>99.6%</i>	9 <i>0.4%</i>				2028

Italics are used to differentiate percentages from raw frequencies

The periodization follows the periodization in the respective corpora and is as follows: OE (containing O2 and O23): 850–1050, M1: 1150–1250, M3: 1350–1420, M4: 1420–1500, E1: 1500–1569

examples of a subclause with a finite verb, a non-finite verb, and a direct object. This resulted in 271 analyzable sentences.<sup>11</sup>

Table 4 shows that Vn-Vf orders have decreased; the vast majority of the sentences have Vf-Vn order. However, the IS pattern remains consistent. New objects only occur in postverbal position (confirming the data in Elenbaas and van Kemenade 2014), while given objects can also be OV.<sup>12</sup> However, the overall number of OV objects has decreased considerably compared to OE. In OE, 76.4% of the given objects are preverbal, while in ME only 51.2% of the given objects are OV.

<sup>11</sup> The data here only include texts from the M1 period, as this is a very robust sample of original ME texts. While we would expect to find OV/VO variation in M2 as well, the corpus is not representative enough for our purposes; it is not only small, but also consists of translated texts. However, an informal exploration suggests that whatever OV is left in M2 is discourse-given.

<sup>12</sup> This pattern is significant in M1. To test the statistical validity of the data, we fitted a binary logistic regression in a generalized mixed model. Since Vn-Vf has virtually disappeared at this stage, we collated the patterns into a binary OV-VO dependent variable. Information Status (given vs. new) and object length (measured as the log base 2 of the number of letters, centered around the mean) were entered as predictor variables. The results show a significant effect of IS on the surface word order,  $p < .001$ ,  $\text{Exp}(B) = 27.57$ , indicating that a given object is more likely to be OV than VO in comparison to a new object.

Next to data from OE and early ME, we also collected all subclauses with two verbs and a direct object from late ME and early Modern English,<sup>13</sup> using the PPCME2 (Kroch et al. 2000), PPCEME (Kroch et al. 2004) and *PCEEC* (Taylor et al. 2006) corpora. The frequencies in Table 5 demonstrate a step-wise loss of OV word order. First, Vn-Vf order is lost. In OE, Vn-Vf-O is already a minority pattern, whereas O-Vn-Vf is still robust. By M1, this order has decreased significantly to a point of virtually complete loss. OV order remains possible in Vf-Vn clauses. However, the percentage of VO order has increased and increases further towards the M3 period. In M4 and E1, the vast majority of the clauses is VO, even though there are OV relics.

#### 4 A phase-based analysis

The previous section highlighted two key points that our analysis should account for. The first is a clear asymmetry between the position of given and new objects: OV word order near-categorically applies to discourse-given objects. An analysis will thus have to be able to optionally derive preverbal word order for given objects, while restricting this for new objects. Second, our analysis needs to allow a plausible account for the directionality of the change from OE to ME and thus the change from a language which allows word order variation to one with strict SVO word order. The model should thus offer a natural explanation for the loss of Vn-Vf orders and the subsequent loss of OV word order. We will argue that all these facts can be accounted for within a phase-based model in which the various OV word orders are the result of feature checking.

Our analysis builds on that of Biberauer and Roberts (2005, 2006, 2008) (henceforth B&R). B&R follow a Kaynian anti-symmetric approach, i.e. all phrases are head-initial. While Kayne's approach is conceptually grounded, it is important to note that this is not the main motivation driving our approach: the previous section has shown that a VO-based analysis is the more appropriate for the data presented here. In other words, the data show that OE is a VO language, quite apart from the approach in terms of antisymmetry. The various word orders in B&R's approach are derived by leftward movement of the object and the subject, as a result of feature checking requirements on *vP* and *TP*. B&R's analysis is further characterized by movement of 'large XPs'; for example, it allows pied-piping, which means that the Probe's features can be satisfied by either moving the Goal with the relevant features or the larger constituent containing it. This means that object and subject DPs can move by themselves or as part of a larger phrase. Before we go into the derivation of OV objects, we will first discuss our assumptions concerning the status of finite and non-finite verbs in OE.

<sup>13</sup> We did not annotate information structure for M3-M4-E1, as the number of OV is too low to reach significance. To allow for a fair comparison with the data from OE and eME, we included inert objects in the numbers presented here, which is why the numbers for OE and M1 are higher than in Tables 1 and 4. Pronouns and quantified and negated objects are excluded from all datasets. We excluded translated texts from the PPCME2 corpus. The PPCEME and *PCEEC* corpora do not contain information on possible foreign sources for texts, so no distinction was made between translated and non-translated texts.



#### 4.1 The syntax of OE verbs

The issue of word order variation in the VP domain is related to the (syntactic) status of the verbal complex in OE. Three issues are relevant for the present discussion: (1) the status of auxiliaries, (2) the presence or absence of finite V-to-T movement and (3) the status of restructuring in OE.

The status of auxiliaries and V-to-T movement are related issues, as they determine the (surface) position of Vf:  $v$  (after V-to- $v$  movement) or T. It is generally assumed that OE auxiliaries have not yet grammaticalized and should be considered lexical verbs (e.g., Roberts 1985; Warner 1993). These ‘pre-’ auxiliaries can thus be assumed to project a full clausal spine (VP,  $v$ P, and TP) and are base-generated in V. This raises the question if there is (across the board) V-to-T movement of main verbs in OE subclauses, especially since Biberauer and Roberts (2010) propose that this is a ME innovation. We demonstrated earlier that V-to-T movement is at least an option in OE. However, the examples provided by Pintzuk (1999) and Haerberli and Ihsane (2016) are limited, which raises questions as to its frequency. We thus deviate from Biberauer and Roberts (2005, 2006) in that modals do not necessarily surface in T (as a result of base-generation or movement); we take them to be a full V with optional movement to T. We will show below that a head-initial analysis with optional (perhaps diachronically incipient) V-to-T can derive all word order patterns in a uniform way.

The third issue is the status of restructuring in OE, i.e. the extent to which clauses are transparent for syntactic operations which are generally clause-bounded, and especially the syntactic analysis of restructuring complements (cf. Wurmbrand 2001 for an overview of the various proposals in the literature). Biberauer and Roberts (2005) assume in relation to OE that (pre-) auxiliaries trigger restructuring, but argue that the size of the non-finite complement can vary, i.e. in some cases Vf selects a full, but deficient, TP, whereas in other cases Vf selects a  $v$ P complement without the TP layer. This assumption is crucial for B&R to derive all word orders: Vn-Vf orders can only be derived in their account when a  $v$ P complement is selected, Vf-Vn order optionally by the TP complement.

B&R assume that it is a selectional property of the restructuring Vf that attracts V + $v$  to the head of the deficient TP. However, it is unclear what triggers this movement, especially in a feature-driven approach. Another problem is that V + $v$  must move to T in the lower phase, before the restructuring Vf is merged, which violates the strict cycle and creates a look-ahead problem.<sup>14</sup> B&R also argue that movement of the infinitive to T explains the (frequent) absence of *to*, but it is not so clear that there is a correlation between infinitive movement to T and the appearance of *to* (see Wurmbrand 2001 for arguments). We opt here for a more uniform analysis in which all Vfs are considered main verbs and are merged as V (followed by V-to- $v$ , and optionally, V+ $v$  to T). We assume that restructuring verbs always select a defective TP complement (TP<sub>DEF</sub>). We further depart from B&R in postulating that V+ $v$  does not undergo movement to T<sub>DEF</sub>.

<sup>14</sup> We thank an anonymous reviewer for pointing this out to us.

To derive preverbal word order, B&R posit an optional EPP feature on Spec,vP, which can be satisfied by movement of the object alone, or by pied-piping the larger structure containing the object, VP. They argue, however, that such an optional feature is only warranted if it leads to an interpretive effect. The previous section has shown that there is indeed such an effect: preverbal word order is associated with givenness.

In the following section, we refine B&R's proposal and argue that given objects are structurally more complex, and have a 'big-DP' structure; i.e., they have an additional  $\varphi$ -related feature layer (which we dub [Ref]), which makes reference marking grammatically visible. We assume that  $v$  is associated with an Edge Feature (EF) (the current instantiation of Chomsky's (2000) EPP features), which attracts objects carrying this extra feature (or the VP in which it is located) to its edge. This EF only enters the derivation when an object with a 'big-DP' structure and the [Ref] features enters the derivation and, crucially, can attract only these goals (Radford and Vincent (2012) refer to such a feature as a selective EF). The object always leaves behind a copy in its original position, because, as Miyagawa (2007) argues, we must be able to trace movement in order to appreciate the effect on the outcome that is associated with the insertion of an EF. The lower copy can be spelled out in VO order if (possibly syntax-external) processes require it, such as the heaviness effect.

## 4.2 Deriving OV with given DPs

We have shown in Sect. 3 that OV is directly correlated with the information status of an object: an object can only be OV when it is given. We argue that information status is indirectly encoded in the syntax, assuming a relation between IS and the morphosyntactic expression of an argument, based on Gundel et al.'s (1993) givenness hierarchy to signal cognitive statuses:

(11) In	>	Activated	>	Familiar	>	Uniquely	>	Referential	>	Type
focus						identifiable				identifiable
It		this, that, this N		that N		the N		indefinite this N		a N

The terminology used by Gundel et al. differs from ours in that "In focus" means that it is the topic of the current discourse, signifying the most given type of element, i.e. pronouns.<sup>15</sup> "Activated" and "Familiar" correspond to given objects, where definiteness is marked by a demonstrative pronoun/determiner. "Uniquely identifiable" can be either given or new. "Referential" refers to identifiable but new objects, and "Type Identifiable" are objects completely new to the discourse. This hierarchy indicates that determiner choice correlates with cognitive status.

The morphology associated with referentiality and definiteness is relatively rich in OE. As the PdE definite article *the* does not yet exist in OE, OE exploits the full

<sup>15</sup> We do not consider pronouns in this article. We may add, however, that pronouns are near-categorically OV in OE. However, their syntactic status seems to be different from that of nominal objects (see van Kemenade 1987; van Bergen 2003; Pintzuk 2005 and the sources cited there for discussion).

**Table 6** Old English demonstratives

Case	Masculine	Neuter	Feminine	Plural
Nominative	se	þæt	sēo	þā (þe)
Accusative	þone	þæt	þā	
Genitive	þæs	þāra	þære	
Dative	þæm þām	þæm, þām	þære	

paradigm of demonstrative pronouns, which can be used as determiners or as independent pronouns, and are inflected for number, case and gender. The paradigm is given in Table 6.

PDE *the* developed from this rich paradigm of demonstratives. This change from demonstrative-to-article, which took place somewhere in eME (Denison 2006) is often characterized syntactically as a positional change within the DP. The demonstrative pronoun is considered to be in Spec,DP as in (12a), whereas the article is located in the head of D, as in (12b).

- (12) a. [<sub>DP</sub> þæt D<sup>0</sup> [<sub>NP</sub> wif]]  
 b. [<sub>DP</sub> Spec D<sup>0</sup> the [<sub>NP</sub> woman]]

It is not altogether clear whether the absence of invariant *þe* means that there was no definite determiner per se in OE, i.e. an element grammatically analyzed as the head of D, as Watanabe (2009) and Sommerer (2015) argue. It is also possible that there was already a definite article, but that it was homophonous with the demonstrative *se*-forms. This would mean that there is a period of structural ambiguity, before the language developed a single dedicated definite article.

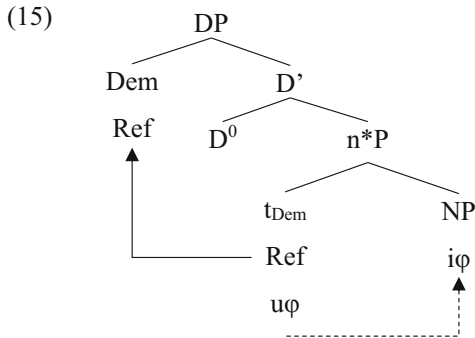
Crisma (2011) suggests that the function of definite article emerged in OE, as all definite nouns appear with an overt determiner in 9th century prose, usually a *se*-form. Allen (2019) explores the ambiguity that arises here: the *se*-form as either a true demonstrative in Spec,DP or a *se*-form as an article in the D head. She studies the insertion of determiners in Ælfric's *Grammar* (dated to the beginning of the eleventh century). This is a grammar of Latin in the vernacular, but the insertion of determiners in the translations of Latin passages proves to be insightful. Latin does not have obligatory determiners, so if the category of article was already obligatory in OE, determiners are expected to be inserted consistently in the translation. Allen (2019) shows that Ælfric indeed inserts articles in almost all of his translations. (13) is an illustration.

- (13) gif ðu befrinst: *quis equitat in ciuitatem?* hwa rit into ðam port?, ðonne cwedð he: *rex et episcopus se* cyninge and se bisceop.  
 'If you ask, *quis equitat in ciuitatem?* Who rides into the town? Then he says *Rex et episcopus* the king and the bishop'  
 (Zupitza 10.10-12)

In this example, three *se* forms are inserted where the Latin *Vorlage* lacks a determiner. In this case, 'king' and 'bishop' represent new, but identifiable,



Phase Featuring<sup>16</sup> allows the demonstrative to move to Spec, DP by insertion of an Edge Feature (EF) on DP (on the assumption that DP is a phase), because [Ref] has not participated in any Agree relation. Raising the demonstrative to Spec,DP makes it visible for higher Probes.



This analysis immediately captures the observation that there is structural ambiguity between a demonstrative merged in Spec,DP and a demonstrative which functions as an article and is merged in  $D^0$ . The definite determiner enters the derivation without the additional  $\phi$ -related [Ref] feature and is directly merged as the head of D, which precludes anaphoric reference on the basis of pronominal inflection. The seeming optionality for given objects to appear in OV order (cf. Sect. 3, Table 1) can be explained by underlying structural ambiguity of the DP: only objects with the additional [Ref] feature layer can move to spec,vP.

The examples in (16) illustrate this difference. In (16a), *bone* is a *se*-form, but does not seem to have deictic force. In this case, we can hypothesize that while the demonstrative is specified for case and gender, it is merged directly in the head of D. The feature layer is lacking and hence the DP is not associated with [Ref], making it unavailable for movement.

<sup>16</sup> Biskup (2007) defines Phase Featuring as in (1):

(15) Phase Featuring

Iff a matching feature F does not have its probe feature  $F_{EPP}$  in its current phase subarray (workspace), add an  $F_{EPP}$ -feature onto the phase head.

He builds on Müller's (2004) notion of Feature Balance (which goes back to Heck and Müller's (2000) notion of Phase Balance), which postulates that for every probe feature F, there must be exactly one matching feature F in the lexical array, where the lexical array refers to the subarray within a phase. If the Goal and Probe are in different phases—and hence in different subarrays—Phase Featuring adds an EPP feature (EF in our analysis) to make the Goal visible, allowing the Goal to escape spell-out as the result of the Phase Impenetrability Condition (cf. Chomsky 2008).

- (16) a. Arrius hatte iu sum healic gedwola, se wolde lytlian **þone**  
*Arrius called then some profound heretic, who wanted lessen that*  
**leofan Hælend**  
*dear Lord*  
 ‘There was a heretic called Arrius, who wanted to lessen the dear Lord.’  
 (ÆHom\_10:159.1489)
- b. forðan þe he ne mihte **þæt mæden** ahreddan  
*because that he NEG might that maiden rescue*  
 wið þa hæðengyldan  
*with those idolators*  
 ‘because he could not rescue that maiden from the idolators’  
 (ÆLS\_[Basil]:364.698)

In (16b), on the other hand, the *se*-demonstrative *þt* does have deictic force; it clearly refers back to one specific maiden who is (unjustly) accused of witchcraft by the idolators. In this case, the demonstrative is merged within an extra feature layer, which makes the referentiality of this DP visible to the syntax, by virtue of the [Ref] feature.

We note that it is difficult to provide conclusive evidence for this analysis because it cannot always be unambiguously determined whether an object has deictic force or is a true definiteness marker, without reference to the word order, rendering the analysis empirically unfalsifiable. One anonymous reviewer, for instance, wonders why the object in (17) is preverbal, even though it is similar to the object in (16a):

- (17) gif he **ðone hælend** him belæwan mihte  
*if he that lord him betray could*  
 ‘if he could betray the Lord to them’  
 (ÆCHom\_II,\_14.1:137.17.3037)

We would have to assume that, in this case, the determiner is raised to Spec,DP, allowing the object to move to a preverbal position. This does not invalidate our argument, however; the object is discourse-given, so an analysis in which the determiner is raised to Spec,DP is never ruled out. The relationship between the status of the definite determiner and the position of objects that we propose here does provide a clear rationale for the variation that we observe. (See Hinterhölzl 2017 for a proposal relating the grammaticalization of the definite determiner to a change in prosodic weight and hence spell-out position). It also provides a plausible trajectory for the loss of OV, as this coincides with the loss of richly inflected demonstrative determiners, concurrent with the grammaticalization of invariant *þe*.

Given objects are no longer ‘big-DPs,’ and lose the feature layer required for movement to Spec,vP.<sup>17</sup>

### 4.3 Excursus: quantified and negated object placement

So far, our analysis has focused on the derivation of preverbal objects as the result of givenness. However, there are two other types of preverbal objects that need to be accounted for in an analysis of historical English word order: quantified and negated objects. We will here briefly consider their distribution and will sketch how our analysis might be able to incorporate these objects.

Quantified and negated objects in our sample of non-translated OE direct objects show an almost equal distribution across OV and VO orders compared to referential objects. Quantified and negated objects appear in respectively 79 out of 113 cases (70.5%) and 23 out of 31 cases (74.2%) in OV order, whereas referential objects do so in 61.9% of the cases.<sup>18</sup> These numbers differ substantially from those presented in Pintzuk and Taylor (2006).<sup>19</sup> They find a much larger number of preverbal negated objects. This is presumably due to the fact that their dataset includes direct as well as indirect objects and Latin translations mixed in with native OE texts, as negated objects strongly prefer OV in late Latin (Gianollo 2016a, b), which might have its effect on the position of negated objects in the translations. In our sample of translated texts, quantified and negated objects appear preverbally in no less than 143 out of 183 (78.1%) and 27 out of 29 (93.1%) of the cases.<sup>20</sup>

The discrepancies between OV with referential objects and OV with quantified and negated objects, as reported by Pintzuk and Taylor, lead them to conclude that these must represent different syntactic phenomena and that quantified and negated objects are syntactically different from non-negated objects. Our data, however, do not suggest that these object types differ significantly. This warrants the conclusion that they operate in the same syntactic framework. We here follow van der Wurff’s (1997) analysis in assuming that referential and quantified and negated objects move to the same syntactic position, which we identified as spec,vP.

<sup>17</sup> An anonymous reviewer wonders if such an analysis is tenable for (historical) German. German became a strict OV language, but also grammaticalized the definite determiner. If it is the grammaticalization process that is responsible for the loss of OV, one might wonder why German did not become VO as well. The crucial difference between English and German articles is that the latter still show case and gender distinctions. In terms of our analysis, this means that they still have an additional feature layer (as this is  $\phi$ -related). The feature that triggers movement is then reanalyzed as a more general feature, which might have resulted in a fixed OV word order.

<sup>18</sup> The difference is not significant for both quantified,  $\chi^2=3.096$ ,  $p=.078$ , and negated,  $\chi^2=1.9114$ ,  $p=.167$  objects.

<sup>19</sup> Note that Pintzuk and Taylor do not include Vn-Vf clauses, as these are lost in eME. They argue that a comparison between the two language stages is therefore impossible for Vn-Vf clauses. For them, this is not problematic, because they assume grammatical competition; i.e., Vf-Vn and Vn-Vf are the result of two different grammars. This does mean, however, that a substantial part of the data is disregarded. We do not assume such grammatical competition, so we included both Vn-Vf and Vf-Vn clauses in the sample.

<sup>20</sup> Even though the number of OV is higher in the translated texts, the difference in the number of preverbal quantified objects is not significant,  $\chi^2=2.159$ ,  $p=.142$ . The difference between negated objects in translated and non-translated texts is significant,  $\chi^2=6.6815$ ,  $p=.001$ .

A detailed analysis of the derivation of quantified and negated objects is beyond the scope of this paper, but our framework of feature-driven movement, which assumes that movement of all object types is similar at an abstract level, allows for a coherent and unified theory of OV word order. We suggest that movement of quantified and negated objects is triggered by an unvalued feature located above  $\nu\text{P}$ . The object thus moves to avoid spell-out before it can agree with this feature, which is when Phase Featuring inserts an EF at the edge of  $\nu\text{P}$ . For quantified objects this might be a [uQuant] feature located on T—as a minimalist interpretation of Quantifier Raising.

The derivation of negated objects receives a natural interpretation if we consider the status of negation in the history of English. Much of the discussion on negation revolves around the status and position of NegP (Klima 1964; Pollock 1989; Haegeman and Zanuttini 1991; Haegeman 1995; Zeijlstra 2004; for historical English, van Kemenade 2000, 2011; Haeberli and Ingham 2007; Ingham 2005, 2007; Wallage 2017). Zeijlstra (2004) argues that a language only projects NegP when it is a negative concord (NC) language, i.e. when its interpretation is dependent on multiple elements within the clause.

Ingham (2007) explores the validity of Zeijlstra's proposal for the periods in English that allowed NC, noting that negated objects have the same syntactic distribution as referential objects and that a syntactic analysis in terms of Neg movement (movement of the negated object to Spec,NegP) is not the most economical. However, he is not specific on how displacement of negated objects proceeds in OE and ME, except that “no special analysis of negated objects is in fact required” (Ingham 2007, 383), suggesting that negated objects at least move to the same position as referential objects: spec, $\nu\text{P}_{\text{emb}}$  in our proposal. Object movement is triggered by a [uNeg] feature located on a NegP in a position higher than  $\nu\text{P}_{\text{emb}}$ . The NegP forces the n-word to spec, $\nu\text{P}$  by insertion of an EF by Phase Featuring to make itself visible<sup>21</sup> (which is consistent with the proposals by van Kemenade 2000, 2011; Haeberli and Ingham 2007).

#### 4.4 Deriving all word orders

In the previous sections, we have brought together the technical steps necessary to derive all OE word orders and our empirical results. We will here summarize the derivations for the word orders in (1).

<sup>21</sup> We do not adopt Zeijlstra's (2004) notion of ‘inverse Agree,’ which means that we consider the n-word as semantically responsible for interpretation of negation, whereas the negation particle is semantically uninterpretable. We suggest that in cases where negation is expressed only by means of a negative particle (with or without reinforcer) the NegP carries the feature [iNeg]. A discussion is beyond the scope of this paper, but see Breitbarth (2013) for an analysis of OE's closest relative Old Low German as a language with [iNeg] n-words and a [uNeg] negative particle and Biberauer and Roberts (2011) for an analysis of negation involving an Agree relation where the Probe is [uF] and c-commands the [iF] Goal. Nothing crucial hinges on this theoretical consideration, however. In a phase-based approach, the Probe and Goal are in different phases regardless of the Agree relation, which means that they cannot Agree without moving the constituent in the VP to the phase edge (as a result of the PIC).



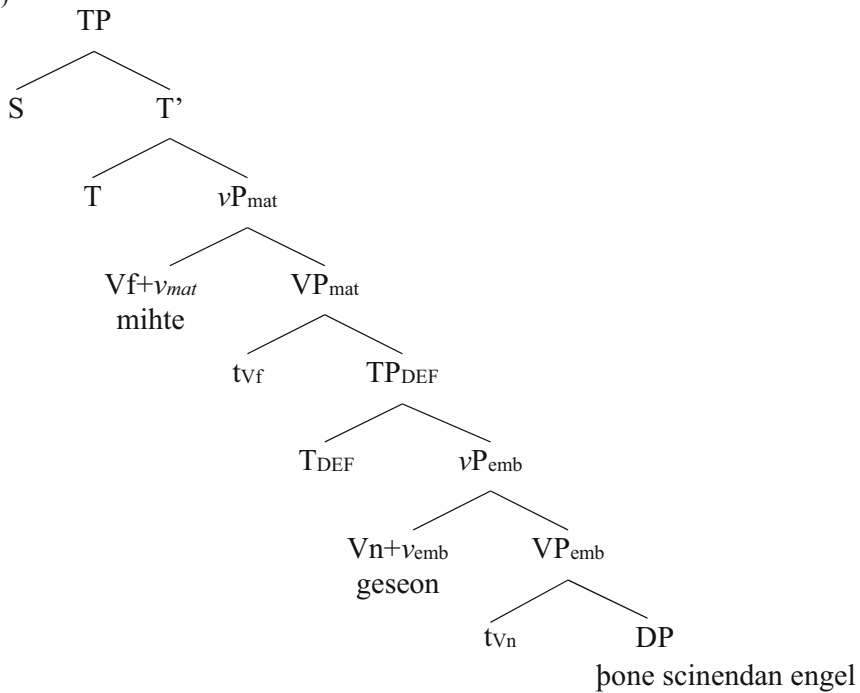
If no IS-driven movement takes place of the type discussed in this article, the word order of a sentence is Vf-Vn-O, as in (1c), repeated as (18). The derivation is included in the tree in (19).

(18) Vf-Vn-O

þæt        ic mihte geseon        þone        scinendan        engel  
*that        I might see        that        shining        angel*  
 ‘that I might see the shining angel’

(ÆLS\_[Cecilia]:46.7137)

(19)



There is no object or  $vP_{emb}$ <sup>22</sup> movement in these clauses. The derivation involves only obligatory movement (i.e., V-to- $v$  and movement of the subject (S) to a higher position, Spec,TP in (19), but see Biberauer and van Kemenade 2011 and van Kemenade and Milicev 2012 for subject placement in OE).<sup>23</sup> Vf does not move higher than  $v_{mat}$ , even though it is theoretically possible for Vf to move to T; this would result in the same surface order.

<sup>22</sup> For ease of exposition we refer to the embedded  $vP$  associated with the non-finite verb as  $vP_{emb}$  and the  $vP$  associated with the restructuring matrix verb as  $vP_{mat}$ .

<sup>23</sup> For ease of exposition we omit intermediate landing sites of the subject,

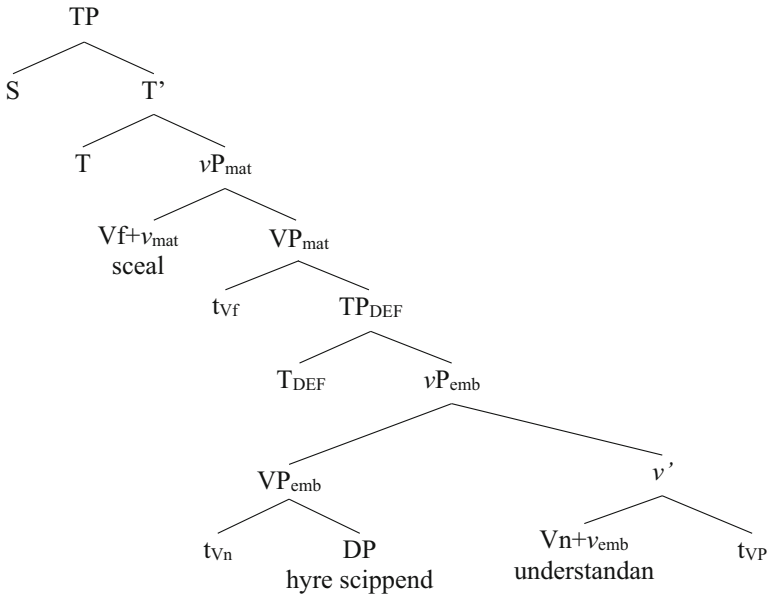
The derivation of Vf-O-Vn orders in (1b), repeated as (20), is illustrated in (21)

## (20) Vf-O-Vn

þurh þa heo sceal **hyre scippend** understandan  
*through which it must its creator understand*  
 ‘through which it must understand its creator’

(ÆLS\_[Christmas]:157.125)

## (21)



These orders are the result of (1) movement of Vn to  $v_{emb}$ , (2) either pied-piping the full  $VP_{emb}$  or by moving only the object DP to  $spec, vP_{emb}$ , (3) movement of Vf to  $v_{mat}$ . In the case of DP-movement,  $VP_{emb}$  remains in its base position and only the DP is moved to  $spec, vP_{emb}$ . Again, (possibly incipient) V-to-T does not affect surface word order.

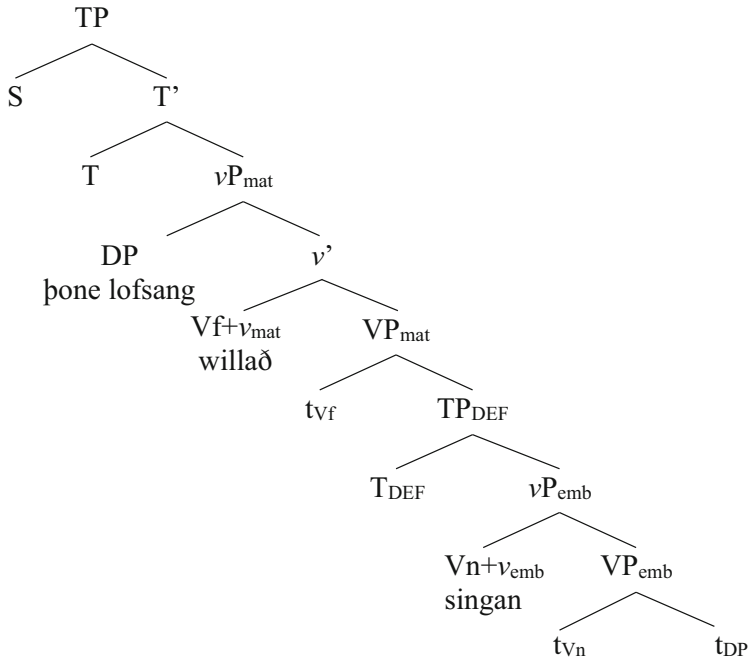
The derivation of O-Vf-Vn orders, (1a), repeated in (22), proceeds according to the same steps as Vf-O-Vn orders, but in this case the object moves to  $spec, vP_{mat}$ . This is illustrated in (23).

## (22) O-Vf-Vn

and gif hi **þone lofsang** willað æt þam wundrum singan  
*and if they that psalm want at those wonders sing*  
 ‘and if they sing that psalm for the miracles...’

(ÆLS\_[Swithun]:237.4375)

(23)



We argue that in these cases the EF is inserted on  $vP_{mat}$ , rather than  $vP_{emb}$ . We consider this an instance of long-distance scrambling, which is a common occurrence in restructuring contexts (Wurmbrand 2001). However, this is not the most economical option; scrambling to  $vP_{mat}$  means skipping another viable target,  $vP_{emb}$ ,<sup>24</sup> which may account for the relative sparsity of O-Vf-V<sub>n</sub> orders. Furthermore, as an anonymous reviewer pointed out, it might lead to a violation of the Minimal Link Condition (Chomsky 1995), since the subject could be attracted to satisfy  $v$ 's EF. As we have argued above, however, the EF on  $v$  is selective; it is specifically concerned with elements with a [Ref] feature layer and cannot be satisfied by a different feature. In theory, a subject with the [Ref] feature layer could also satisfy  $v_{mat}$ 's EF. This leads to the prediction that there are no given subjects, i. e. subjects which could potentially be analyzed as a 'big DP', in O-Vf-V<sub>n</sub> order in our dataset. This is indeed the case. The subject is either a pronoun (which cannot be treated on a par with DP objects), an indefinite subject, or absent altogether. This makes the object the only available constituent for movement to spec, $vP_{mat}$ . Crucially, there is no V-to-T movement in these orders. V-to-T movement with scrambling of objects with the [Ref] feature layer to  $vP_{mat}$  would result in Vf-O-V<sub>n</sub> orders.

<sup>24</sup> The object has to move through the edge of  $vP_{emb}$  to escape spell-out on the lower cycle. Since [Ref] has not entered a Agree relationship once  $vP_{emb}$  is completed, Phase Featuring allows it to move to spec, $vP_{emb}$  so that it remains visible for the higher probe on  $vP_{mat}$ .

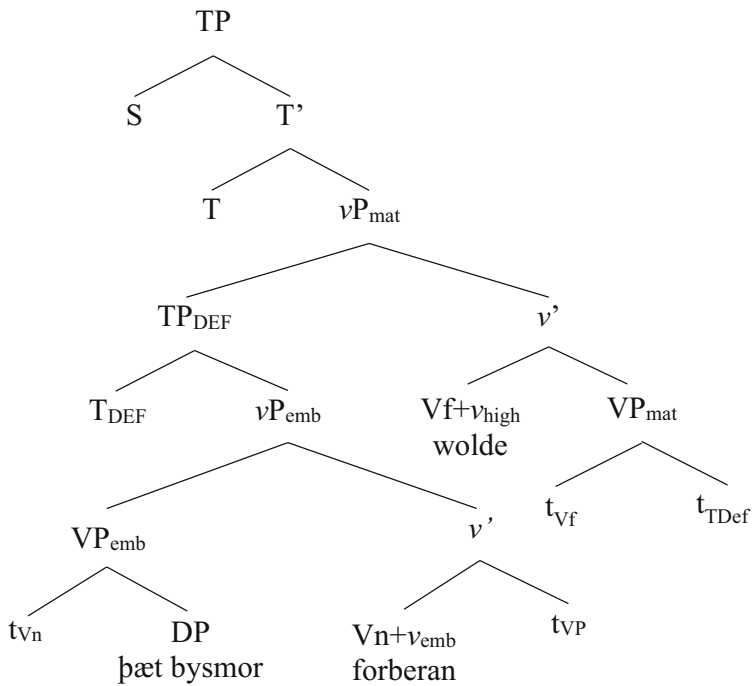
The derivation of O-Vn-Vf (1d), repeated as (24), is illustrated in (25), and involves (1) Vn-to-*v* movement, (2) pied-piping of the VP<sub>emb</sub> or object movement to spec,*v*emb, (3) movement of Vf to *v*<sub>high</sub>, and (4) movement of TP<sub>DEF</sub> to spec,*v*P<sub>mat</sub>.

(24) O-Vn-Vf

gif heo **þæt bysmor forberan** wolde  
*if she that disgrace tolerate would*  
 ‘if she would tolerate that disgrace’

(ÆLS\_[Eugenia]:185.305)

(25)



Contra B&R, we argue that it is not optional pied-piping of the subject that yields Vn-Vf orders, reducing Vn-Vf orders to a side-effect of T’s EF satisfaction. There are some indications that Vn-Vf orders are independently motivated. A detailed analysis is beyond the scope of this paper, but initial observations suggest that this is because the information in the entire clause is backgrounded (Struik and de Bastiani 2018; see also Milicev 2016). We therefore argue that the entire TP<sub>DEF</sub> is moved to spec,*v*P<sub>mat</sub>. Movement to spec,*v*P<sub>mat</sub> creates a desirable parallel with movement to spec,*v*P<sub>emb</sub>: both are instances of movement with an information-structural motivation, which fits into the line of research postulating that *v* is the domain where information structure is encoded (López 2009 and sources cited there). It also

provides a natural explanation for the rarity of Vn-Vf-O orders, as it implies a clash in information structure: a backgrounded  $vP_{emb}$  is not likely to occur with a new object. The assumption that it is  $TP_{DEF}$  that raises to  $spec, vP_{mat}$  also allows us to rule out Vn-O-Vf orders. Objects that are not raised to  $spec, vP_{emb}$  are sent to spell-out before  $TP_{DEF}$  is raised to  $spec, vP_{emb}$ . Finally, Vf must be located in  $v_{high}$  in these clauses; the assumption of across-the-board V-to-T movement in OE, would not allow us to derive Vn-Vf orders. Vn-Vf orders are lost after the early Middle English period, which is also when V-to-T becomes an option.

The derivation of Vn-Vf-O orders, (1d), repeated as (26), proceeds similarly to that of O-Vn-Vf orders, except for step 2: the object is not raised to  $spec, vP_{emb}$ , because it lacks the [Ref] layer, and remains in the complement of  $VP_{emb}$ .  $VP_{emb}$  is sent to Spell-out once  $vP_{emb}$  is complete, owing to the Phase Impenetrability Condition (cf. Chomsky 2000). This condition states that the complement of a phase ( $vP_{emb}$ ) is inaccessible for further syntactic operations once it has been completed. As a consequence, the complement of the phase is sent to Spell-out and transferred to the interfaces. As the object has not left  $VP_{emb}$  in the derivation in (27), it is effectively frozen in place once  $vP_{emb}$  is completed and sent to PF before Vn is; obligatory movement to  $v_{emb}$  evacuated it from the Spell-out domain of the  $vP_{emb}$  phase. As a result, the object surfaces in postverbal position. This is indicated by the transparency of the VP in the derivation in (27).

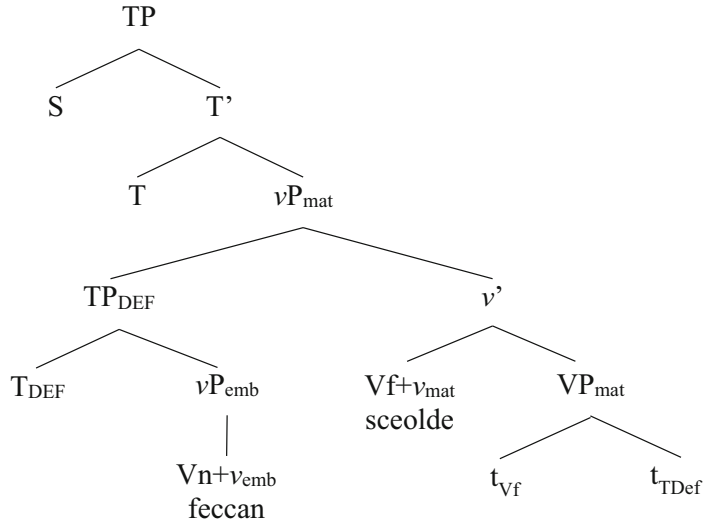
(26) Vn-Vf-O

<i>þæt</i>	<i>he</i>	<i>feccan</i>	<i>sceolde</i>	<i>þæt</i>	<i>feoh</i>	<i>mid</i>	<i>reaflace</i>
<i>that</i>	<i>he</i>	<i>fetch</i>	<i>should</i>	<i>the</i>	<i>goods</i>	<i>with</i>	<i>robbery</i>

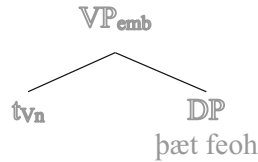
‘that he should steal the goods’

(ÆLS\_[Maccabees]:760.5327)

(27)



**Already sent to Spell-out:**



The analysis that we developed in this section can derive all word orders in (1) in a uniform way. The various patterns are the result of a combination of three different movement options: (1) movement of given/quantified/negated objects to spec,vP, (2) optional pied-piping (DP or VP movement), (3) movement of TP<sub>DEF</sub>. In the following section, we will evaluate the diachronic feasibility of this analysis.

### 5 Towards a strict VO language

This article has presented a novel analysis of word order in OE. After reconsidering the relevant empirical data, we arrived at two key observations that an analysis of OE word order variation has to account for: (1) objects in OV order are given, but VO is pragmatically mixed, (2) quantified and negated objects are not syntactically distinct; their distribution and frequencies do not support a special syntactic status. We argued that these objects move from VO order to spec,vP under the influence of a feature related to either their information structure or object type. We might add a third requirement for this analysis: it has to give a plausible account for the stepwise disappearance of word order patterns in the diachronic development from OE to eME. This is what we will show by way of conclusion.

The first change that we observed is the loss of Vn-Vf orders. In our account, the option to move the entire infinitival complement to the specifier of  $vP_{\text{mat}}$  is lost first. If our account in terms of foregrounding and backgrounding is correct, we might find an explanation in the multilingual landscape that characterized the transition from OE to ME. The acquisition of information structure in L2 contexts is often considered “the final hurdle” (Verheijen et al. 2013); while L2 learners can acquire the lexicon, syntax, morphology and phonology of a foreign language readily, the information structure of that language proves more difficult. The pragmatic distinction between Vn-Vf and Vf-Vn orders is subtle, and this trigger for movement of the infinitival complement might not have been recognized by L2 learners, resulting in a reduced number of Vn-Vf clauses. Secondly, Vn-Vf is only possible when Vf remains in  $VP_{\text{emb}}$ , i.e. when there is no V-to-T movement. Once V-to-T movement becomes a more robust option, Vn-Vf becomes impossible as well.

The next step is the loss of the pied-piping option to check  $v$ 's EF requirements. Biberauer and Roberts (2008) suggest that particles play a role here, as one unambiguous case of pied-piping is O-Particle-Vn orders. These must involve pied-piping, as in these cases the particle must be fronted with the VP to surface preverbally. Biberauer and Roberts (2008, 89–90) note that verb-particle combinations become “vanishingly rare in the 12th and 13th century”, possibly due to French influence. Particles are, however, by no means lost (see Los et al. 2012 for quantitative data). The verb-particle constructions that are observed in eME do show a strongly increased preference for Vn-Part order, and strict Vn-Part order by the end of ME (Los et al. 2012). The loss of O-Particle-Vn orders suggests a reanalysis of OV order as object movement. Consequently, if pied-piping is no longer an option, we do not expect VP internal material left of the verb.

The option of moving only the DP to satisfy  $v$ 's EF requirement is lost as well, resulting in the loss of OV orders with referential objects. This is the result of grammaticalization of demonstratives from Spec, DP elements to D-heads. This grammaticalization step leads to the loss of the additional feature layer, which marks the object as [Ref], and hence of the syntactic possibility to scramble referential objects. It is generally accepted that OV with quantified and negated objects remains a possibility until the 16th Century when OV with referential objects had already been lost. This also falls out in our account, since movement is triggered by a different feature. The loss of NC entails the loss of a NegP and hence the need for Agree.

The framework presented here thus not only incorporates synchronic variation in OE, but also allows for a natural explanation for the changes throughout the history of English, which is characterized by a step-wise reduction in movement possibilities.

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**Data availability** The data are stored at the DANS (Data Archiving and Networked Services) and are freely available for reference under a CC-BY license.

**Code availability** The software that is used for this study can be downloaded free of charge from <http://erwinkomen.ruhosting.nl/software/>. The queries to obtain the data are stored at DANS (Data Archiving and Networked Services) together with the data.

## Declarations

**Conflict of interest** The authors declare that they have no conflict of interest.

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