

# The relation between information structure, object type and word order

A variationist approach to verb-object variation in the history of English

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**Abstract**

Word order variation is attested in the Germanic languages and this has first of all raised the question of how to account for this in structural terms. More recently, however, research has become interested in the mechanisms that govern the change. This has led to the now well-established consensus that information structure plays an important part. (Taylor & Pintzuk 2012; Elenbaas & van Kemenade 2014; Walkden 2014). This thesis will be mainly interested in verb-object order variation in the history of English. The seemingly simple hypothesis that objects are post-verbal iff they are new and pre-verbal iff they are given has been shown to be too simple. (Taylor & Pintzuk 2012) and also the given/new distinction has proven to be too crude (Taylor & Pintzuk 2014). Furthermore, object type seems to affect object position as well (Taylor & Pintzuk 2006, Elenbaas & van Kemenade 2014). The present work will combine the findings so far in a fine-grained analysis and will focus specifically on the type of objects that occur in OV-VO orders. It will show that information structure played an important role well into the Middle English period and shows that closer scrutiny of object type might lead to more answers to the question what governs variation and drives change.

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## 1. Introduction

Both Old and Middle English are known to display a large amount of word order variation in the domain of the VP, as is illustrated in (1) for OE and (2) for ME:

(1) a. OV order in OE

we nu willaþ *ure saula smerian* mid mildheortnesse ele

we now wish our souls anoint with mercy oil

‘We now wish to anoint our souls with oil of mercy’

(coblick: HomS\_21\_[BIHom\_6]:73.136.927)<sup>1</sup>

b. VO order in OE

... se wolde **ofslean** þone cyning Daurid

... who wanted kill that king David

‘... who wanted to kill that king David’

(coaelhom: +AHom\_23:39.3722)

(2) a. OV order in ME

he wolde his word wiðteon

he wanted his word withdraw

‘He wanted to withdraw his word’

(cmtrinit: 1391897)

b. VO order in ME

he may seen the ascendant

he may seen the ascendant

‘He may have seen the ascendant’

(cmcastro: 671.C1.272)

There is widespread consensus that word order variation occurs as a result of pragmatic influence. It is a well-established fact that given information is placed before new information – the so-called Given-Before-New Principle (cf. Behagel 1909, Haliday 1967, Gundel 1988). Translating this to verb-object order in the history of English, this means that, in general, given information is expected to appear preverbally and new information postverbally (cf. Taylor & Pintzuk 2012). Taylor & Pintzuk’s findings are based on a very simple distinction between given (i.e. information that is familiar to the hearer) and new (i.e. information that is unfamiliar to the hearer). However, Taylor & Pintzuk (2014) show by annotating their data with different annotation schemes for information structure that subtle differences can lead to

<sup>1</sup> All examples come from the YCOE or PPCME corpora unless otherwise noted.



major differences in their analysis. This leads to the question what differences can be observed in the different patterns when a more subtle distinction is used than merely given and new.

Another unanswered question is to what extent the grammaticalisation of the definite determiner (or rather the weak demonstrative pronoun) is involved in word order placement. Hinterhölzl and van Kemenade (2012) point out the relevance of this change, as the definite determiner occurs first in contexts in which it has a pragmatically definite interpretation in Old High German. In Old English the grammaticalisation of the definite article developed differently, losing its ability to mark specificity during the Middle English period. In Old English, the demonstrative pronoun was used as an independent definite demonstrative, relative pronoun and as definite determiner, increasing their versatility as discourse referents (van Kemenade 2009). This versatility was reduced and the demonstrative survived as the definite article in PdE.

Elenbaas & van Kemenade (2014) show that scrambling of DP objects in M1 is discourse sensitive. Their findings show that indefinite objects always occur post-verbally, but that the position of definite objects varies according to their information status, where OV orders only occur with specific objects referring back to the preceding discourse in M1. The question is how this pattern develops in a diachronic perspective to see to what extent specificity is relevant in OV-VO variation. The evidence so far seems to suggest that the preverbal position became more and more restricted. However, more evidence is needed to confirm this. The pattern that we expect to see is that definite marked objects are used more frequently in post-verbal position, but that this decline is gradual. In other words, it is expected that non-specific definite object appear more frequently post-verbally, while specific definite objects remain preverbal, correlating with the use of the demonstrative. The (relic) demonstrative is used with specific objects the longest, while non-specific objects are marked with the definite determiner. The effect of specificity has also been noted by Taylor & Pintzuk (2014). This would mean that IS distinctions do not surface in the syntax anymore, but come to be marked morphologically.

Pintzuk and Taylor (2006) demonstrate that quantified and negative objects behave differently from positive objects in terms of preposing and postposing. They argue that this difference is the result of different underlying word orders and different processes that affect the change from OV to VO. They have excluded quantified and negated object in their subsequent research (cf. Taylor & Pintzuk 2012), exactly for this reason. However, the fact that OV orders with these object types decrease at a different pace throughout the history of

English compared to positive objects does not necessarily mean that they are not subject to information structure constraints.

The present study will combine these various strands of research and will look at how the different object types behave in different word orders. Data will be drawn from the York-Toronto-Helsinki Parsed Corpus of Old English Prose for OE data and the Penn-Helsinki Parsed Corpus of Middle English for ME data. The objects will also be annotated for specificity and definiteness and the information status of the objects will be annotated according to the Pentaset (Los & Komen 2012, Komen et al. 2014), which divides the data into five categories: identity, inferred, assumed, inert and new. This will lead to a comprehensive overview that can tell us more about the distribution of objects across the different word order, as well as their interaction with information structure.

This type of research will not only lead to a description of the factors governing the variation. It might also help settle the debate on how to interpret the structural ambiguity that possibly arises from this type of variation. Finally, it addresses the more general issue of how pragmatics should be incorporated in the language system and how and to what extent pragmatics and syntax interact.

This thesis is structured as follows. Chapter two will discuss the history of Old English in terms of OV/VO variation. It will put forward the leading theories as well as pose research questions that will be answered by the analysis conducted. Chapter three will introduce the present research and describe the methodology used, while Chapter four presents the results. Chapter five will involve a critical analysis of the results and will show which of the hypotheses bore out. Finally, Chapter six will conclude this thesis.

## 2. OV/VO Variation in the history of English

One of the striking features of the history of the Germanic languages is that almost all members display some variation in the ordering of the verb with regard to the object. This variation has puzzled many researchers and has yielded various, often competing, proposals of how to account for this variation, especially for Old English (van der Wurff 1997, Pintzuk 2005, Biberauer & Roberts 2005, among others), but also other languages, such as Old High German (Hinterhölzl 2009, Petrova 2009, 2012), Middle Dutch (Blom 2002) and Old Saxon (Walkden 2014). The present chapter will discuss word order variation in Old English and will introduce the two leading theories with regard to underlying word order; the double base hypothesis proposed by (Pintzuk 2005) and the Kayne-style analysis proposed by Biberauer & Roberts (2005). It will also discuss a more recent strand of research, focussing on performance, which tries to capture the mechanisms of the variation. The chapter will be concluded by the research questions that will be addressed in this thesis.

### 2.1. OV/VO Variation in Old English

A well-known feature of Old and Middle English is that there is variation in the right periphery of the sentence. Present-day English has strict VO order, as in (1a). It is not possible to reverse the verb and the object, as this would result in an ungrammatical sentence, as is illustrated in (1b-c).

- (1) a. John has bought flowers for Mar  
 b. \*John has flowers bought for Mary.  
 c. \*John flowers has bought for Mary.

This was not always the case, however. Old English allows constituents of all types to appear either before or after the main verb (Pintzuk 2005). Old English is also a V2 language, which means that this verb-object order variation is mostly visible in sentences that have both an auxiliary and a lexical verb. Given that Old English also allows variation in order of the finite and non-finite verb, various word orders are produced and attested, as illustrated in (2) (examples from Taylor & Pintzuk 2012)<sup>2</sup>:

- (2) a. OVAux  
 gif heo þæt bysmor forberan wolde  
 is she that disgrace tolerate would  
 ‘if she would tolerate that disgrace’

(coelive: +ALS\_[Eugenia]:185.305)

<sup>2</sup> VOAux clauses are not attested and are considered ungrammatical in Old English (cf. Biberauer et al. 2008).

## b. AuxOV

þurh þa heo *sceal* hyre scippend **understandan**

through which it must its creator understand

‘through which it must understand its creator’

(coelive: +ALS\_[Christmas]:157.125)

## c. VAuxO

þæt he **friðian** *wolde* þa leasan wudewan

that he make-peace-with would the false widow

‘that he would make peace with the false widow’

(coelive: +ALS\_[Eugenia]:209.315)

## d. AuxVO

swa þæt heo *bið* **forloren** þam ecan life

so that it is lost the eternal life

‘so that it is lost to the eternal life’

(coelive: +ALS\_[Christmas]:144.117)

## e. OAuxV

þæt hi mine þeawas magon him secgan

that they my customs may him tell

‘that they might tell him my customs’

(coelive: +ALS[Agnes]:313.1932)

The question is how all these different word orders can be captured within one structural model, because, as Pintzuk (2005:119) notes, “[a]ny viable analysis of Old English must be able to account for all of this variation in the order of the verbs and their objects.” This has been a hotly debated issue and research is divided into two camps. On the one hand, there is a group of researchers who believe that OE and ME have two underlying word orders: OV and VO. This means that minimal structure and movement is required to account for all the attested variation. On the other hand, there are the researchers who suggest that OE and ME are underlyingly VO and argue for an Kayne-style analysis of OE, which posits an articulate grammar that allows variation within one grammar. Each of these two positions will be discussed below.

## 2.2. Structural analyses of OV-VO variation

### 2.1.2. The double base hypothesis

The grammatical competition analysis for Old English was first proposed by Pintzuk (1999). Previous accounts of OV/VO variation assumed an underlying OV order for OE (e.g. van Kemenade 1987, Pintzuk & Kroch 1989), but Pintzuk showed that the position of particles and personal pronouns is different in sentences with both a finite and non-finite verb and sentences with only a finite verb. These elements occurred frequently to the right of the finite verb in one-verb sentences, but rarely did so with the non-finite verb in clauses with two verbs. Explaining this by means of extraposition was not an attractive solution, because it is hard to envisage a reason why a particle would not extrapose in sentences with both a finite and non-finite verb. This led Pintzuk to conclude that there is verb movement in subordinate clauses to INFL. Combined with the additional evidence for a final position for INFL, she concluded that there must be competing phrase structures.

(3) He wolde adræfan ut anne æþeling

He wanted drive out a prince

‘He wanted to drive out a prince.’

(ChronB (82.18–19 (755))); (Pintzuk, 1999: 116)

This means that sentences such as (3) are problematic when underlying OV order is assumed, as personal pronouns and particles do not generally extrapose. This must mean that it is a case of underlying VO order. Since there were only a few examples of this order in her dataset, she regards VO order as an innovative order.

She further supports this idea by studying the behaviour of FullNP objects. These objects can occur to the right of the non-finite verb, regardless of the order of the finite and non-finite verb, even though postverbal NPs are much more frequent in non-finite – finite verb clusters in subclauses (Koopman 1992). Pronouns and particles can occur before or after the verb in AuxV sentences, but they have to be preverbal in VAux sentences. Pintzuk (2005) argues that this is because West Germanic languages do not permit the rightward movement of prosodically light elements in head-final sentences. This clearly suggests that there is a difference between VAux and AuxV clauses and that this has consequences for the distribution of objects. Koopman (2005) further shows that there are even more VO phrase structures than Pintzuk (1999) demonstrates, which he proposes as an argument for the strengthening of the double base hypothesis.

Following Kroch’s (1989) theory of synchronic variation, Pintzuk (1999) argues that also during ME OV and VO grammars must have been in competition. The initial majority

pattern becomes a minority pattern, while the initial minority pattern becomes a majority pattern. Pintzuk (2005) discusses this in more theoretical terms. The double base hypothesis assumes that clauses can vary in headedness within IP and VP. This means that they can be either head-initial or head-final. Combining these two possibilities, then, the word orders can be derived as follows (Pintzuk 2005: 119):

(4) head-initial IP, head-final VP1 and VP2, deriving AuxOV

[<sub>IP</sub> Aux+I [<sub>VP1</sub> [<sub>VP2</sub> O V] t<sub>Aux</sub>]]

b. head-initial IP, head-initial VP1 and VP2, deriving AuxVO

[<sub>IP</sub> Aux+I [<sub>VP1</sub> t<sub>Aux</sub> [<sub>VP2</sub> V O]]]

c. head-final IP, head-final VP1 and VP2, deriving OVAux

[<sub>IP</sub> [<sub>VP1</sub> [<sub>VP2</sub> O V] t<sub>Aux</sub>] Aux+I]

d. head-final IP, head-initial VP1 and VP2, deriving \*VOAux

\*[<sub>IP</sub> [<sub>VP1</sub> t<sub>Aux</sub> [<sub>VP2</sub> VO]] Aux+I]

Pintzuk's analysis derives four possible word orders, but only three occur in the history of English. VOAux word order rarely appears and is considered ungrammatical, for reasons that are poorly understood (cf. Biberauer et al. 2008). Pintzuk is well aware that her analysis requires a stipulation to account for the ungrammaticality of VOAux orders. Furthermore, she needs to add the possibility of optional rightward movement in order to derive VAuxO orders, which she argues is mostly as a result of heaviness of the object.

The double base hypothesis has not been without criticism. Fisher et al. (2000) mention that Pintzuk's analysis is mostly based on minority patterns. Many examples cited as evidence for VO order can also be derived from an OV base. Assuming a double base also makes the analysis vulnerable to circularity. An OV order that cannot be derived from a VO order can be said to be underlyingly VO, while a VO order that cannot be derived from an OV order can be said to be underlyingly OV. This is of course a very attractive solution to derive all word orders, but it does need a full set of rules to derive only a few patterns. Additionally, many of the word orders can be derived from both underlying word orders, meaning that it is ambiguous which of the two grammars is the underlying one.

### 2.1.3. Uniform head-initial structure

The double-base hypothesis has always been in competition with analyses that posit one base order from which all other orders have been derived. These analyses often adopt a Kaynian approach. Kayne (1994) argued that Spec-head-complement is the universal order for any projection, which means that different word orders have to be derived by means of leftward

movement. Roberts (1997) first adopts this framework as an extension to Zwart's (1993) analysis of Dutch, a proposal that was supported by Nunes (2002). Van der Wurff (1997, 1999) argues in a similar fashion that OV orders in ME must have been derived by leftward movement, rather than base-generated. The most recent and most widely adopted proposal, however, is by Biberauer & Roberts (2005) and will be discussed in more detail here.

Biberauer & Roberts (2005) propose an analysis of Old and Middle English word order in terms of movement of 'large XPs.' They claim that OE both allowed VP movement to SpecvP and vP movement to SpecTP. This means that objects were pied piped along, as part of the VP, to a higher position in the sentence. Both these movements were lost; VP movement was analysed as object movement and vP movement replaced by the stipulation that only subject DPs and subject-related expletives were allowed in SpecTP. In later ME object movement became restricted and was lost completely.

The analysis of pied piping is introduced in Biberauer (2003) and is based on the assumption within the theory of movement and checking/agreement of features proposed by Chomsky (2000, 2001, 2004) that a given head may be a Probe on the one hand and is associated with an EPP feature on the other. The EPP feature stipulates that a clause must contain an NP or DP in the subject position. The Probe is an uninterpretable/undervalued feature which needs an appropriate Goal bearing an interpretable/valued counterpart, since the elimination of the Probe is necessary for well-formedness. This feature elimination is called Agree. It is important to note that Agree relations can be successfully achieved without any movement of constituents. The Agree-based theory that Biberauer & Roberts adopt does not rule out the possibility that Agree and movement coincide. The crucial notion for their analysis is that nothing prevents a Goal to be embedded in a category that is moved to satisfy the Probe's EPP features. Piep-piping can then be schematised as follows (Biberauer & Roberts 2005: 8):

$$(5) \dots X_{\text{PROBE}} \dots [Y_{\text{P}} \dots Z_{\text{GOAL}} \dots ] \dots$$

X in this case may be T, YP may be vP, and Z an element with D feature, since T probe for a D-bearing Goal, which satisfies the uninterpretable formal feature of T. vP movement may thus take place when the Goal contains a D element. Raising the vP satisfied T's EPP feature.

Richards & Biberauer (2005) argue that there are four possibilities in which languages can satisfy T's EPP and D features, based on the source of the D feature (on Vf or in outer SpecvP) and the size of the category containing the D feature (only the Goal or the constituent containing the goal). Biberauer & Roberts show that Old English is a *spec-pied-piping* language, which means that D features are located in SpecvP and that the size of the category

containing the D feature is the maximal category containing the goal. This means that Old English allows satisfaction of T's featural requirements by either movement of the DP to Spec $\nu$ P (which means movement of the DP) or by  $\nu$ P movement. Biberauer & Roberts extend this analysis to the satisfaction of  $\nu$ 's features as well. In terms of the schema in (5), this means that X is  $\nu$ , YP is VP and Z contains the D element.  $\nu$ 's features can be satisfied in a similar way as T's features: by  $\nu$ P raising or DP raising.

This optional pied-piping within the  $\nu$ P domain can explain most of the word order variation attested in the history of English, in structural terms. The derivation of an OVAux sentence such as (6) can be derived in the following way:

(6) gif heo þæt bysmor **forberan** wolde

is she that disgrace tolerate would

'if she would tolerate that disgrace'

V to  $\nu$ , VP to inner Spec, $\nu$ P,  $\nu$ P to Spec,TP, deriving O V Aux:

[<sub>TP</sub> [ <sub>$\nu$ P</sub> S [<sub>VP</sub> t<sub>V</sub> O] V+ $\nu$  t<sub>VP</sub>] Aux t <sub>$\nu$ P</sub>]

The analysis of OE proposed by Biberauer & Roberts (2005) is built on a similar analysis of Modern German by Biberauer (2003), in which subordinate clause word order is typically V-final. Old English, however, displays a wider range of word orders and B&R argue that their analysis extends here as well.

They first consider the verb raising word order, which has OAuxV surface order and in which the finite verb and non-finite verb have permuted. Biberauer and Roberts consider these structures to be biclausal, since the verbs associated with these orders are generally assumed to be lexical verb selecting infinitival TP complements (cf. Roberts & Roussou 2003). It is assumed that T attracts  $\nu$  and hence V, as the derivation of verb raising orders occurs after V is moved to  $\nu$  and VP is moved to Spec $\nu$ P. The derivation of OAuxV orders can hence be illustrated as follows:

(7) þæt hi mine þeawas *magon* him **secgan**

that they my customs may him tell

'that they might tell him about my habits'

(coelive: +ALS[Agnes]:313.1932)

V to  $\nu$ , VP to inner Spec $\nu$ P,  $\nu$ -to-t,  $\nu$ P to SpecTP, V<sub>R</sub> merges with TP

[<sub>TP</sub>[ <sub>$\nu$ P</sub>S [<sub>VP</sub>t<sub>V</sub>O] t<sub>V+ $\nu$</sub> t<sub>VP</sub>] T V<sub>R</sub> [<sub>TP</sub>t<sub>VP</sub>V +  $\nu$  + T t<sub>VP</sub>]]

Verb-projection raising leads to AuxOV word orders and can be derived in a similar way as verb raising orders. The difference is that T's EPP feature is not satisfied by the pied-



piping of the subject from infinitival SpecTP, but by the non-pied-piping option and hence moving the subject alone, rather than the  $vP$  containing the subject:

(8) þurh þa heo *sceal* hyre scippend **understandan**

through which it must its creator understand

‘through which it must understand its creator’

(coelive: +ALS\_[Christmas]:157.125.3591)

V to  $v$ , VP to inner Spec $vP$ ,  $v$ -to-T, S to SpecTP,  $V_R$  merges with TP

[<sub>TP</sub> S T  $V_R$  [<sub>TP</sub> [ <sub>$vP$</sub>   $t_S$  [<sub>VP</sub>  $t_V$  O]  $t_{V+v}$   $t_{VP}$ ] V +  $v$  + T  $t_{VP}$ ]]

AuxVO word orders where V and O are not adjacent and where O can be light, as in (9) below, are treated similar to verb-projection raising. The only difference is that the *lower* T’s EPP feature is satisfied.

(9) þæt he mot ehtan godra manna

that he might persecute good men

‘that he might persecute good men’

(*Wulfstan’s Homilies* 130.37-8; Pintzuk 2002: 282)

[<sub>TP</sub> S T  $V_R$  [<sub>TP</sub>  $t_S$  V+ $v$ +T [ <sub>$vP$</sub>   $t_S$   $t_{v+v}$  [<sub>VP</sub>  $t_V$  O]]]]]

VAuxO orders can be derived by moving V to  $v$ , but the VP is not moved to inner Spec $vP$ , because  $v$  in these cases does not bear an EPP feature.

d. V to  $v$ ,  $vP$  to Spec,TP, deriving V Aux O:

[<sub>TP</sub> [ <sub>$vP$</sub>  S V+ $v$ ] Aux  $t_{vP}$  [<sub>VP</sub>  $t_V$  O]]

The question that Biberauer & Roberts try to answer is why  $v$  has an optional EPP feature. They speculate that this is because postverbal position is where focussed elements are placed. It is generally assumed that leftward movement is defocusing movement, and so Biberauer & Roberts argue that  $v$ ’s EPP feature was optional, only triggering defocusing movement if the feature was present. If it was not present, objects could remain in focus position.

The changes in ME that led to the fixation of word order can be characterised by two major reanalyses. The first in the satisfaction of  $v$ ’s EPP feature and the second in the way in which T’s EPP feature is satisfied.

The first change constituted the reanalysis from VP movement as object movement. This means that  $v$ ’s EPP features could no longer be satisfied by means of pied piping, but only by object movement, which illustrated schematically below:

(10)  $[_{VP} [_{VP} t_V O] V + v t_{VP}] > [_{VP} t_V t_O]$

B&R propose that this is because unambiguous evidence for pied piping decreased, which might be (in part) due to the decline of verb-particle constructions. *Object-Particle-Verb* order crucially reflect pied piping, while *Object-Verb* order does not indicate whether the object is pied piped along or has moved on its own. Whatever the reason, the change leads to the prediction that “all VP-internal material other than direct objects is predicted to follow all auxiliaries and the main verb after it has taken place” (B&R: 21), which indeed bears out., cf. for instance example (11).

(11) þe þæt swuch fulðe speteð ut in any encre eare

who that such filth spews out in any anchoress's ear

‘who spews out such filth in any anchoress's ear’

(*Ancrene Riwe* I.35.29; Fisher et al., 2000:203)

The second change, following the loss of VP movement, is the loss of vP movement, which can be schematised as follows:

(12)  $[_{TP} [_{vP} S O V + v] T t_{vP} [_{VP} t_V t_O]] > [_{TP} S T [_{vP} t_S O V + v [_{VP} t_V t_O]]]$

This change has two main consequences. The first is that Vaux orders are lost. The second is irrelevant for the present discussion, and entails a change in the distribution of the pure expletive *there*.

To summarise, the account proposed by B&R is based on the assumption that T and v's EPP and D features in Old English could be satisfied by DP movement or by moving ‘large XPs’ (vP or VP), containing the DP or, in other words, pied piping. This makes OE a *spec-pied-piping* languages. The option to pied piping disappeared first satisfying T's EPP feature and later for v's EPP feature, which results in a reduction of word order patterns. VAux is lost entirely, while movement of the object is only possible in restricted cases in AuxV clauses

### 2.3. OV order and information structure

Now that we have discussed the structural implications of the word order variation in Old English, we will turn to a discussion of the possible mechanisms that govern this change. As pointed out by Taylor & Pintzuk (2012), research on word order variation tends to focus specifically on the question how this variation can be captured within a structural model or how it changes over time, but there is much less interest in why the one word order is used and not the other in a particular context. However, with the rise of electronically available

material the interest in OV-VO variation in the Germanic language, and more specifically what governs it, has been revived. It is focussing specifically on the role information structure plays in the ordering of the constituents.

Information structure can be seen as a grammatical component which governs “the relationship between speaker assumptions and the formal sentence structure” by means of “rules and conventions of sentence grammar” (Lambrecht 1994: xv). Lambrecht notes that

[i]n the information structure component of language, propositions as conceptual representations of states of affairs undergo pragmatic structuring according to the utterance contexts in which these states of affairs are to be communicated. Such pragmatically structured propositions are then expressed as formal objects with morphosyntactic and prosodic structure. (Lambrecht 1994: xiii)

This means that it is not only syntax, morphology and/or prosody that determines what an utterance looks like, but also the pragmatic principles that are at play. Information structure can thus be defined as the way in which information in a sentence is encoded to arrive at the most beneficial utterance for both speaker and hearer.

IS is a pragmatic notion, but can surface in other dimensions of a language, such as morphology, phonology and syntax. English marks IS by means of (morpho)syntax, so in light of the present discussion it is therefore relevant to briefly discuss the influence of IS on syntax. Hinterhölzl and van Kemenade (2012) consider word order to be part of sentence grammar, while IS is a part of pragmatics. The syntax determines the way a sentence could possibly be formed, while pragmatics determines whether a particular form is appropriate in a given context. Formalist literature assumes that pragmatics, syntax and phonology are three separate linguistic entities that do not interact, which follows from Chomsky’s notion (1981) within the Government and Binding theory that sentence grammar is purely based on syntactic notions. These notions define a set of abstract grammatical objects that assign a semantic interpretation (Logical Form, LF) and a phonological interpretation (Phonological Form, PF) to a given string of words, illustrated in Figure 2.1 below. This model is often referred to as the T-model. It is assumed in this model that the syntax produces clauses independently of context. It is only in the pragmatic module that the utterance takes the desired form depending on the context of its use.

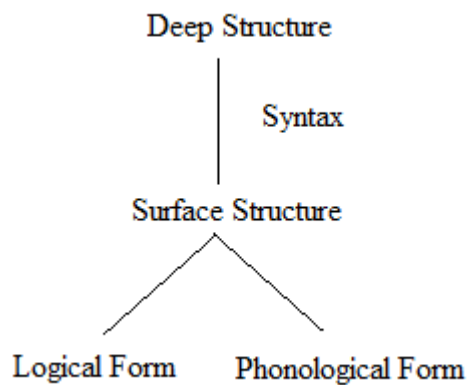


Figure 2.1. The T-model of grammar

This perspective does not suggest that pragmatic notions such as information status are encoded in the syntax. The question is how these notions are represented in the grammar if they are not part of the syntax. Hinterhölzl and van Kemenade introduce two approaches that try to solve this problem. The first is the stress-based approach (Reinhart 1995; Neeleman and Reinhart 1998), which stipulates that the focus of an utterance always receives intonational stress. It is assumed here that the prosody determines what elements are in focus, rather than these notions being encoded in the syntax. In other words, LF and PF interact, but there is no interaction between syntax and IS. An alternative approach is introduced by Rizzi (1997) who argues that pragmatic notions are incorporated in the syntax by means of a specified functional projection. If a language has an active Focus head, the focussed element has to move to SpecFP for feature checking and is hence marked as the focus of the utterance.

Comparing these two approaches, Hinterhölzl and van Kemenade point out that the stress-based approach is too narrow, as it predicts that IS factors are encoded in prosody only, which is clearly not the case as many languages mark IS by means of morphology. The syntactic trigger approach is too strict, as it is not able to accommodate languages that mark focus exclusively by means of morphology or intonation. Instead, Hinterhölzl and van Kemenade (2012: 12) argue that “syntax, IS, and prosody all three influence the choice for a particular word order pattern,” which shows that “IS interacts with the entire grammatical system, rather than with just one component.” This will be illustrated in more detail by considering the influence of IS on word order.

From very early onwards, traditional grammarians have been aware of the IS properties that govern variation. Behaghel (1909), for instance, notes that given information precedes new information in various Germanic languages. Recently this line of thought has been picked up again and this hypothesis has been tested for various Germanic languages (cf.

Hinterhölzl (2009) and Petrova (2009) on Old High German, Blom (2002) on Dutch and Hróarsdóttir 2000 on Old Icelandic).

Taylor & Pintzuk (2012a, 2012b) have sought to quantify the influence of information structure on verb-object order in Old English. They conducted a corpus study, taking the YCOE corpus as data source. Their analysis focussed specifically on referential lexical objects, but they also consider pronouns and objects containing a clause. They only included clauses with both an auxiliary and a main verb, in order to circumvent V2 constraints. They only analysed AuxOV, AuxVO, OVaux and VAuxO order, as they believe OAuxV clauses are the result of processes other than information structure.

They investigate information structure in terms of a binary distinction between given and new. This distinction is commonly used in information structure analyses (cf. Gries 2003) and is in this case based on insights from Birner (2006). This means that they not only take into account discourse mention, but also the context in which the utterance occurred. New objects are objects that are discourse new or what are called ‘bridging inferables,’ which means that the referent can be inferred from the context, but it is not available without its anchor. Given objects are objects that have been previously mentioned, objects that constitute world or encyclopaedic knowledge, situationally evoked entities and elaborating inferables. The object is new, but can be inferred from the preceding discourse. The referent in this case is available without its anchor.

Taylor & Pintzuk also operationalise weight and complexity in their analysis, as they are considered to be important predictors of word order variation (Szmrecsanyi 2004). Weight and complexity are both added, because there is an independent effect of complement and weight (cf. Gries 2003).

The results of their study show that there is indeed an effect of all three factors. OV order is preferred with pronominals and lexical objects, while clausal objects tend to be postverbal. The lexical objects also display an complexity effect, with simple items occurring more frequently in preverbal position and more complex item occurring postverbally. The effect of weight is also significant, but only in simple objects; VO orders in this case increase as the number of nodes increase. There is also a significant effect of information structure. New information tends to occur postverbally, while given information is favoured in preverbal position. This effect is, again, only visible in simple objects and does not have an effect on complex or clausal objects.

OV word orders gradually disappeared in the Middle English period and the question is to what extent information structure still plays a role here. While the discourse sensitive

nature of word order variation in Old English has been thoroughly established, at least for simple objects, less attention has been paid to Middle English. Van der Wurff & Forster (1997: 151) show that in late Middle English, at least, information structure is still important and that “late ME uses OV order almost exclusively for objects that represent given entities in the discourse (in the sense of assumed familiarity),” but their data suggest that these are mostly pronouns. Similarly, Elenbaas & van Kemenade (2014) show that in early ME there is a sharp contrast between definite and indefinite objects. Indefinite objects never occur in preverbal position, while definite objects can occur before the verb. Furthermore, they also show that the preverbal definite objects are always discourse given and that they always refer back to a specific referent. For example, *ðe dieule* in example (13) refers back to *dieule* two lines up in the context.

(13) All swa he hafð ineðered niðer into helle grunde alle ðe modi ðe hier on lieu **ðe dieule**

Just as he has cast down into hell’s ground all the proud who here in life the devil

Fol3eden, alswa he haueð ihei3ed alle ðo ðe Cristes eadmodnesse habbeð 3elued and followed so he has raised all those who Christ’s meekness have loved and

Ihelden, into heuene riches merhðe

Kept into heaven’s kingdom’s joy

‘Just as he has cast down into the ground of hell all the proud who in this life followed the devil, so he has raised all those who loved Christ’s meekness and kept it, into the joy of the kingdom of heaven.

(cmvices1,57.4; Elenbaas & van Kemenade 2014: 162)

## 2.4. OV order and object type

It has long been noted that the position of pronouns and quantified objects differs from that of other objects, as they tend to occur in preverbal position much more frequently. The following section will discuss the influence of object type on word order.

Pintzuk (2005) and Pintzuk & Taylor (2012) clearly show that in Old English, pronouns almost exclusively appear in preverbal position, especially in VAux clauses. Pronouns in Old English have been argued to be clitics (Pintzuk 1996, Kroch & Taylor 1997) or weak pronouns (Hulk & van Kemenade 1997). However, regardless of their definition, it is clear that they are treated differently from nominal objects when it comes to object placement.

Quantified objects were excluded for two reasons in Taylor & Pintzuk (2012)’s study. The first is that the information of quantified objects is hard to determine and the second is

that quantified objects seem to display “special syntactic behaviour.” In earlier work, (Pintzuk & Taylor 2006) illustrate that quantified (and negative) objects appear both preverbally and postverbally:

(14) A. hu heo ana mihte ealle þa gewitan awægan mid aðe

How she alone could all the sages deceive with oath

‘how she alone could deceive all the sages with an oath’

(coalive: +ALS\_[Eugenia]:223.342; Pintzuk & Taylor 2006:258)

B. þe hæfde geinnod ealle þas halgan

Who had lodged all the saints

‘who had lodged all the saints’

(coalive: +ALS\_[Sebastian]:383.1442; Pintzuk & Taylor 2006:258)

They note that while the rate of OV quantified objects is decreasing over time, it is always higher than that of nominal objects and, similarly, it is higher for negatives than for quantified objects. Furthermore, preverbal quantified and negative objects still occur preverbally, while frequencies for positive objects have dropped to zero. This leads Pintzuk & Taylor to conclude (following van der Wurff 1999 on late Middle English) that preverbal position is derived differently for nominal, quantified and negative objects.

In early Middle English, preverbal objects seemed to be associated with definite, specific objects only. Elenbaas & van Kemenade (2014) also note that these objects mostly contained a strong demonstrative pronoun, which suggests that there is a difference between the different kinds of nominal objects as well. This raises the question to what extent the object type of positive objects is a predictor of word order and how it can be used to make predictions about the change from OV to VO.

## 2.5. Research questions and hypotheses

The section above has discussed several issues pertaining to OV-VO variation in the history of English. I have discussed two different perspectives on the structural representation of the variation. The first is the idea that speakers of OE and ME had command over two grammars; one with OV basic word order and another with VO order. The second proposal argued that OE is underlyingly VO and that all OV orders are the results of movement of the DP or the VP containing the DP. Furthermore, in both OE and ME, word order variation seems, at least partly, to be result of discourse sensitive scrambling. Finally, there seem to be differences in object types with regard to word order variation. The remainder of this thesis will try to

combine these different observations into one unified analysis in order to arrive at a comprehensive diachronic overview of the influence of information status on object position for different object types. The research questions that will be addressed answered and their corresponding hypotheses will be discussed below.

The thesis will first try to find a more detailed answer to the question *how does information structure influence word order choice?* We have seen that given information tends to be placed before new information, but also that a more finegrained analysis is called for and might lead to more conclusive answers. The present study will code information structure according to the Pentaset (Los & Komen 2012), which has five possible categories, varying in their degree of givenness. Objects can either be classified as Identity, Inferred, Assumed, New and Inert objects. This classification is based on the discourse referentiality of the object. Identity refers to objects that have been mentioned previously, while Inferred refers to inferable objects. Objects that are assumed can be considered part of a human's general knowledge, while Inert objects do not participate in the discourse structure. New objects have not been mentioned before. It is expected that Identity objects will be most OV, as they are unambiguously given. Inferred and Assumed objects are expected to pattern alike with Identity objects. New and Inert objects are expected to remain in AuxVO word order.

The second set of question relates to the different object types and can be summarised under the question *how does object type influence word order choice?* We expect that quantified and negated objects are not sensitive to discourse sensitive scrambling and hence that information structure will not play a role here, because previous research has shown that they consistently appear in positions different from nominal objects. Nominal objects are expected to display discourse sensitive scrambling, but it is expected that they will not do so similarly. This is related to the question whether definiteness plays a role and whether specificity plays a role. It is expected that definite, specific object types such as NPs with a demonstrative determiner or a possessive pronoun to occur more frequently in preverbal order, while indefinite, non-specific objects occur in postverbal position.

Finally, the proposed predictors will be combined in one regression analysis, to answer the question how much variation these predictors can explain and to what extent they correlate. The methodology of this research will be introduced in the following chapter.



### **3. Methodology**

The data for this study will be drawn from both the OE and ME period and will comprise a time span from 850 to 1500, so as to be able to sketch a diachronic picture of the influence of information structure and object type on word order. The following section will elaborate on the materials used and on the methods that were employed to gather and annotate the data.

#### **3.1. Materials**

Data will be drawn from two time periods: Old English and Middle English. To keep the dataset comprehensive, it was decided that only texts from the O23, O3, M1, M3 and M4 period would be included and that these were original English texts and not translations. The Middle English data were divided into two parts, so that both the early Middle English and late Middle English texts could be compared. A list of texts that are included can be found in Appendix A.

##### **3.1.1. Old English**

The Old English material was gathered from the York-Helsinki-Toronto Corpus of Old English Prose (henceforth YCOE) (Taylor et al. 2003). The corpus contains around 1.5 million words of OE prose. It is completely parsed and tagged and lemmas were added at the Radboud University. All texts from the O23 and O3 period were included, with the exception of law texts. These were excluded from the analysis, as they are often written in formulaic and repetitive language.

##### **3.1.2. Middle English**

The Middle English material was gathered from the Penn-Helsinki Parsed Corpus of Middle English (henceforth PPCME2) (Kroch & Taylor. 2000), which is the sister corpus to YCOE. The texts in this corpus are based on the Middle English section of the Diachronic Part of the Helsinki Corpus of English Texts, but the sample sizes are much larger. The corpus contains approximately 1.2 million words. All text files are tagged and parsed. One text was excluded from the analysis, *The Ormulum*, as this text is written in metrical verse, which can influence the choice of word order.

## 3.2. Methods

### 3.2.1. Gathering data

The data were gathered by means of Cesax (Komen 2015) and CorpusStudio (Komen 2015). These two programs, developed by Erwin Komen at Radboud University, allow the user to gather data from XML versions of the corpora and turn them into a database with predefined and custom features. Cesax can be used to automatically generate a query based on an example sentence chosen by the user, which can then be transported into CorpusStudio. CorpusStudio is a user-friendly interface between the query language Xquery<sup>3</sup> and the user. It allows the user to create a new query from scratch, or import and edit a predefined query from Cesax. The base query used in this thesis is generated from an example that included both an auxiliary, a non-finite verb and an object in a subclause. The query was manually expanded to label each order and object type and to make sure that all relevant elements of the token were added as features in the database. Once CorpusStudio has gathered the data, the results are transformed into a database, which can be opened and edited in Cesax. Cesax will automatically fill in the pre-defined features, but they can be changed at any time by the user. The features that cannot be retrieved by the program are left black, and can be assigned by the user. Finally, Cesax in its turn allows the user to prepare the data for statistics in SPSS or to convert it to an Excel file.

The current project only included subclauses in order to keep the dataset manageable. This has the additional benefit that there are no restrictions on word order as the result of V2 constraints. In order to completely eliminate this effect, only sentences with both a finite and a non-finite verb were extracted.

Once the relevant sentences have been identified, the tokens are added to a database. This database is annotated for several features. Some of these features are predefined and are assigned automatically to the tokens, as a result of the elaborate annotation within the corpora themselves. The predefined features include features that aid in the understanding of the example and facilitate further annotation. These are the target sentence, the two verbs and their labels, the object and its case. These features will not be analysed, but including them in the database as separate features significantly facilitates the analysis of the example. The two other predefined features are relevant for the analysis. These are object type and word order. Both the YCOE and the PPCME have labelled their objects and these predefined labels will serve as the basis for the analysis. I will elaborate more on the different object types in the

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<sup>3</sup> CorpusStudio is also compatible with CorpusSearch.

section on the predictors below. Word order is assigned automatically to each target sentence as well. This study will include 5 different word orders: AuxOV, AuxVO, OVAux, OAuxV and VAuxO, since these orders frequently appear in the history of English. OVAux orders has so far been disregarded in previous studies, as the object is expected to front for stylistic reasons (Taylor & Pintzuk 2012). VOAux orders are not included, as they are considered to be ungrammatical.

There were two examples of ungrammatical VOAux, which are given in (15):

- (15) a. & smat up aȝein þeo þe igarket hit hefden. [cmjulia 123.484]  
 b. Ah þa de sunnen luued and for-leten heom nulled ne nane bileafe under-fo; heo beoð unbecumelic eorðe to þe sede of godes weorde. [cmlambx1 135.1366]

These examples were also reported by Pintzuk (2005) and are considered to be either ungrammatical (Biberauer et al. 2008) or under the influence from stylistic constraints. They were removed from the database and excluded from the analysis. There were also three examples in which the object was preverbal, but was modified by a postverbal relative clause. These were also excluded, as it is hard to determine whether it is the object that has moved or the relative clause.

There are three features that need to be manually assigned to each token: information status, definiteness and specificity. These are, together with object type, the predictors in the present study. They will be elaborated on in more depth in the following section.

### **3.2.2. Predictors**

#### ***3.2.2.1. Information Structure***

Los, López-Couso, Meurman-Solin (2012) note that the study of IS is still relatively young, and that this has consequences for the definition and labelling for the relevant terms in the field (i.e. given and new, topic and comment, background and focus). Furthermore, Taylor & Pintzuk (2014) have shown that the framework that is adopted has a significant impact on the outcome of the study of word order in the history of English, which makes it necessary to clearly define a IS annotation scheme.

The framework that is adopted here is the Pentaset (Los & Komen 2012). This framework adopts a minimal set of information structure categories and is compatible with all types of annotation to derive the information structure of a sentence. It posits 5 categories, identity, inferred, assumed, new and inert, which are illustrated in Figure 3.1.

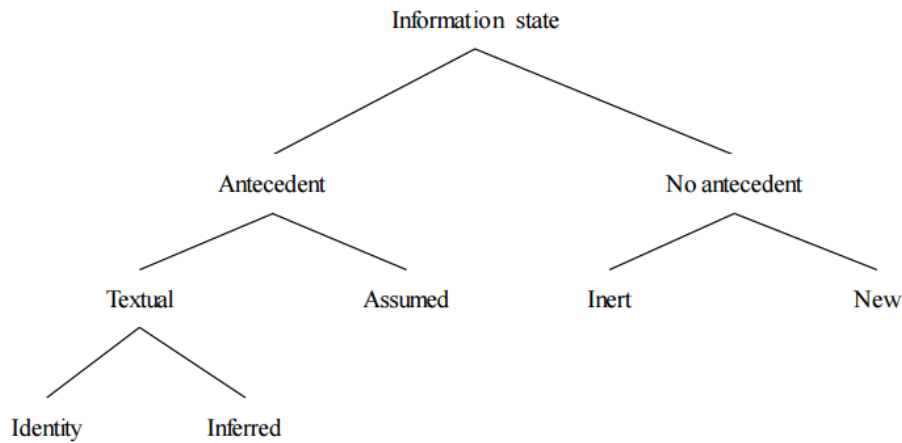


Figure 3.1 The Pentaset

The framework differentiates between items with and without an antecedent. If there is an antecedent, it does not have to be textual. In this case, the object is considered to be assumed. It is new to the discourse, but it is not new to the hearer. This often constitutes encyclopaedic or world knowledge as in (16).

- (16) *thei schulden serue God*  
 they should serve God  
 ‘they should serve God’

(cmpurvey: I,21.1002)

If the object does have a textual antecedent, the object can either be in an identity or inferred relation. If the referent in the object is identical to its antecedent, it is in an identity relationship, as in (17).

- (17) *Ac us is to smeagenne þæt Drihten on þære costunge nolde his þa myclan miht*  
 But us is to consider that lord on that temptation not wanted his that great might  
*gecyþan,se þe mihte þone costigend instepes on hellegrund besencean gif he wolde*  
 proclaim who then might that temptor at once on hell sink if he wanted  
 ‘We must consider that the lord in his temptation did not desire to manifest his great  
 power. He could have caused the temptor to sink straight into hell’s abyss, if he wanted  
 to’

(coblick: HomS\_10\_[BIHom\_3]:33.119.442)

If the antecedent is not identical, but the referent can be inferred from the antecedent, it is considered to be inferred, as is illustrated in (18). Note that this only includes elaborating inferables.

- (18) heo sculen leden heore lif  
 they should live their lives  
 ‘they should live their lives’

(cmlambx: 19.76)

When there is no antecedent objects can either be new or inert. They are new when they can be referred back to in the following discourse, as in (19) below, but they are inert when they cannot participate within the discourse structure, as in (20).

- (19) for I vndyrstond in my sowle, þow þei woldyn geve a buschel of nobelys, þei xuld not  
 for I understood in my soul, though they wanted give a measure of nobles, they should not  
 haue it.  
 have it  
 ‘I understand in my soul that, though they should give a bushel of nobles, they should not  
 have it’

(cmkempe: 59.1337)

- (20) Se Godes þeowa ne mæg mid woruldmannum feohtan, gif he on þam gastlican gefeohte  
 That God’s servant not may with men fight, if he on that on that spiritual fight  
 forðgang habban sceall.  
 progress have shall  
 ‘The servant of God cannot fight with men, if he wants to make progress in the spiritual  
 fight.’

(coaelive: +ALS\_[Maccabees]:855.5382)

### 3.2.2.2. *Object Type*

All objects in the YCOE and PPCME corpora have been annotated for object type. The annotation manual of neither corpus specifies exactly when an object is labelled as such, but generalisations can be drawn easily. For some objects the corpus was not able to define object type, so these were determined manually. Since there are quite a few categories and only a limited number of examples, it was decided to merge some of the categories, because the frequencies in some of the categories was low, which would have influenced the statistical analysis. The object types included in the corpus and how they are included in this study is illustrated in Table 3.1.

<b>Present study</b>	<b>Annotated in corpus</b>	<b>Description</b>
AnchoredNP	AnchoredNP	NPs premodified by a possessive pronoun
Indefinite	FullNP	Modified NPs
	Bare	Bare nouns without an article, demonstrative or adjective
	Bare with PP IndefNP	Bare nouns followed by a PP NPs modified by an indefinite article
DefNP (ME only)	DefNP	NPs modified by the definite article <i>the</i>
Pro	Pro	Pronouns
	PossPro	Possessive pronouns
	ProNP	Pronoun followed by an adjective
Proper	Proper	Proper nouns
QuantNP	QuantNP	NPs modified by a quantifier
DemNP	Dem	Demonstratives
	DemNPs	NPs premodified by a demonstrative determiner
	FullNP	NPs modified by an adjective

Table 3.1. Object labels as used in the YCOE and PPCME corpora and the present study with their descriptions

It should be noted that the category FullNP included examples of nouns modified by an adjective only, as in (21) but also examples of modified nouns with a demonstrative, as in (22):

- (21) he his Scyppendes beboda gehyran nelle  
 he his Lord's commands obey not want  
 'He refused to obey his Lord's commands'

(coaelhom: +AHom\_20:27.2928)

- (22) þet he scolde beieton him þone mynstre of Burch  
 that he should acquire him.DAT that monastery of Burch  
 'that he should acquire for himself the monastery of Burch.'

(cmpeterb: 53.363)

These examples were collapsed into one category *DemNP* together with the demonstratives and NPs with a demonstrative determiner.

The remainder of the FullNPs were merged together with bare objects and indefinite objects into the category *IndefNP*, as the prototypical examples indicate indefinite referents.

### 3.2.2.3. *Definiteness*

The third predictor is definiteness, which can be a difficult notion to define. Abbott (2003) gives an extensive overview of the prevailing ideas on distinguishing the interpretation of definite and indefinites. Russell (1905), for instance, argued that the property distinguishing definite from indefinite NPs is *uniqueness*. In other words, a definite NP refers to one and only one particular referent. An indefinite NP on the other hand can refer to any referent matching the description of the NP. Strawson (1950) argued that definite descriptions do not serve to assert the existence of a particular entity, but that they are referential NPs, which presupposes existence and uniqueness. Another problem with the uniqueness proposal is that not all definite descriptions pick out one exclusive entity as referent.

Christoffersen (1939) proposed the notion of familiarity to distinguish definite from indefinite NPs. Under this view definite NPs refer to entities that are assumed to be familiar to the addressee, while indefinite NPs are considered to be unfamiliar to the addressee. This idea is revived by Heim (1982:231), who argues that definiteness marking served to “narrow down the range of things that can felicitously be referred to.” She stipulates that definites can only be used when the referent has been established previously in the discourse. Indefinites, on the other hand, introduce discourse new referents. However, this is not able to account for all uses of definites and indefinites. Examples like (23) in which the referent is mentioned for the first time (adapted from Abbott 2013) can be explained by the idea of accommodation (Lewis 1979), which states that an addressee is willing to interpret a new definite description if they are able to figure out the referent.

- (23) The case of a Nazi sympathizer who entered a famed Swedish medical school in 2007, seven years after being convicted of a hate murder, throws a rarely discussed question into sharp focus....

More recently, Löbner (2011) and Abbott (2013) have revived the uniqueness interpretation of definiteness and consider this the strongest contender for defining definiteness. However, as Abbott (2013) also notes, the situation is much more complex than that. The strategy for determining definiteness that is adopted here is also based on the uniqueness property of definite NPs. If the NP referred to or introduced is identifiable, it is considered to be definite. If it does not refer to an identifiable referent, it is considered to be indefinite. This is illustrated in (24):

(24) Moyses ne mihte lencg habban his handa astrehte

Moses not might long have his hands extended

‘Moses might not have extended his hands for long’

(coelive: +ALS[Pr\_Moses]:16.2878)

(25) Kyng Conan, ne none of his knyȝtes, ne none of his oþere peple, wolde nouȝt take

King Conan, not none of his knights, not none of his other people, would not take

wifes of þe nacion of Fraunce

women of that nation of France

‘King Conan, nor one of his knight or other people would take a woman from the nation of France.’

(cmbrut3: 431305)

While *his handa* in (24) can clearly be identified within the context of the discourse, *wifes* in (25) cannot.

Finally, it should be noted that the distinction between definiteness and indefiniteness is not based on the grammatical marking of definiteness, but rather on the semantic interpretation of the noun. It has often been noted that a –grammatically – definite object receives an indefinite interpretation or vice versa. The definite and indefinite object categories in the YCOE, PPCME and this study are based on the grammatical marking of definiteness, which means that it is possible that semantically definite objects are classified as grammatically indefinite and the other way around. Generic nouns with a definite or demonstrative determiner were also considered definiteness, as they were preceded by a definiteness marker.

#### 3.2.2.4. *Specificity*

The final predictor is specificity, which is considered to be distinct from definiteness. In the seminal paper by Enç (1991:9) it was proposed that specificity and definiteness are necessarily correlated. She posits an analysis that “ensures that all definiteness are specific”, which predicts “that there will be no non-specific definite NPs”. However, as Ihsane & Puskás (2001) note, this generalisation seems to be too strong. Consider the following examples from present-day English:

(26) a. I missed the bus.

b. I took the train.

The definite DPs *the bus* and *the train* can get a specific interpretation, but do not necessarily need to. The referents of the respective DPs are not specified in the discourse and hence can



be interpreted as the events of “missing a bus” or “taking a train.” The bus and train can be any, non-specified, train. Specificity is hence defined by Ihsane & Puskás as referring “to pre-established elements in the discourse” (40).

Ihsane & Puskás thus propose four different combinations, summarised in Table 3.2, which can be illustrated by the examples in (27) from French.

	[+definite]	[-definite]
[+specific]	[+def, +spec]	[-def, +spec]
[non-specific]	[+def, non-spec]	[-def, non-spec]

Table 3.2. Definiteness and specificity combinations

- (27) a. L'étudiant est venu voir la professeur  
 'The student came to see the professor'  
 b. Jean a rate le train.  
 'John has missed the train.'  
 c. Un étudiant est venu voir la professeur.  
 'A student came to see the professor.'  
 d. L'étudiant a acheté un livre.  
 'the student has bought a book.'

The same discrepancy between specificity and definiteness is also observed in the history of English:

- (28) a. [+def, +spec]  
 ...leste he wið speche schulde his cleane lif for fulen  
 ... in case he with speech should his pure life soil  
 '... in case he should soil his pure life with speech'

(cmancriw-1: II.124.1592)

- b. [+def, non-spec]  
 who þat brekith pes betwix ony princes, he schuld lese his hed  
 who that breaks peace between any princes, he should lose his head'  
 'the one who breaks the peace between princes should lose his head'

(cmcapchr: 971984)

c. [-def, +spec]

heo nateshwon ne mot middaneard ofergan

she by no means not must world occupy

‘She by no means should occupy the earth’

(coaelhom: +AHom\_18:216.2602)

d. [-def, -spec]

... that a frer schuld sey in a sermown in a lityl village a lityl owt of hir wey

... that a friar should say a sermon in a little village, a little out of

‘... that a friar was going to say a sermon in a little village not far from there’

(cmkempe: 2273701)

Interpreting specificity in this sense means that there is a direct correlation between specificity and discourse status. In other words, we expect to find specific reference with given objects only, while new objects cannot be considered specific.

### 3.2.2.5. *Object Length*

The final predictor in the present study will be object length. Taylor & Pintzuk (2012) showed that the relation between information structure is overruled by the influence of weight, with longer objects occurring in postverbal position more often than shorter objects. Methods of determining the weight of a constituent have often been discussed (e.g. Wasow 1997, Gries 2003, Szmrecsanyi 2004), but as Szmrecsanyi (2004) notes, all numerical measures of weight are highly correlated. Since the influence of object length has clearly been shown in previous studies and only serves to control the influence of the other predictors, the simplest solution of operationalising weight has been chosen by counting each separate word in the object.

### 3.2.3. *Statistical analysis*

The statistical analysis of the data will comprise two parts. First, the effect of each predictor on word order will be determined by means of chi-square analyses for each period. The chi-square analyses will be able to show whether the predictor has a significant effect on word order, but it does not take into account variation that can be explained by other predictors, which is why the chi-square analyses will be followed by a regression analysis which will be able to tell how much variation can be explained by the predictors and whether they correlate.

It was decided to conduct separate chi-square and regression analyses, because of the complexity of the predictors. In order for regression analysis to produce robust results enough data needs to be available for each cell. The regression needs to be multinomial, because there are five possible word orders. Furthermore, there are four predictor variables of which two

have more than two possible outcomes. This leads to a very large number of possible combinations of predictor values, which will not all be attested. This in itself is not a problem, but the model becomes unreliable once there are many empty cells and the data is clustered in only a few different cells. For this reason it was decided to simplify the predictors in the regression analysis.

First of all, the number of predictors is reduced to three. Only givenness, object type and object length were included, since these are the most important predictors for the present study. Furthermore, givenness was reduced to a binary variable, with *given* and *new* as values. Identity, inferred and assumed objects were considered *given*, while new and inert objects were counted as *new*. Combining the data this way still allows us to draw conclusions about the influence of the predictor of each separate word order, without the model becoming unreliable.

Separate regression analyses for each period do not say anything about the diachronic development of the influence of predictor. The final regression analysis will include the predictors as well as the predictor *period*, which represents the three different time periods. The interaction with the other variables will show whether the influence of the predictor changes significantly over time.

## 4. Results

The present chapter will present the results of the analyses. Its aim will be two-fold. First, it will determine for each period whether the proposed predictors are significantly related to word order. In the second part of the chapter, some adjustments will be made to the sample in order to be able to add the predictors to a multinomial regression analysis, to see to what extent the predictors explain variation and how this variation changes overtime.

The sample contained a total of 3589 cases, divided across three different periods; OE, ME1 and ME3-4. The distribution of tokens is illustrated in table 4.1

### *OV word order across periods*

	OE	ME1	ME3-4
AuxOV	543	214	89
AuxVO	304	309	1471
OAuxV	111	96	21
OVAux	355	19	0
VAuxO	46	11	0
Total	1359	649	1581

Table 4.1 The distribution of word orders in Old English, Early Middle English and late Middle English

The data in table 4.1 and the graph in figure 4.1 clearly show a diachronic trend. While all five word orders were relatively common in Old English, the frequencies of VAuxO and OVAux word orders have reduced significantly by early Middle English and entirely disappeared by late Middle English. We also note that there is a steady decline of preverbal object order in general. In Old English there were more preverbal than postverbal objects. By early Middle English AuxVO orders are the most common, but there is still a great deal of OV-VO variation. The number of preverbal objects has dropped even further in late Middle English, but there are still examples of preverbal object order. This suggests that the turning point of the change is after the end of the Old English period and that it has reached completion in late Middle English.

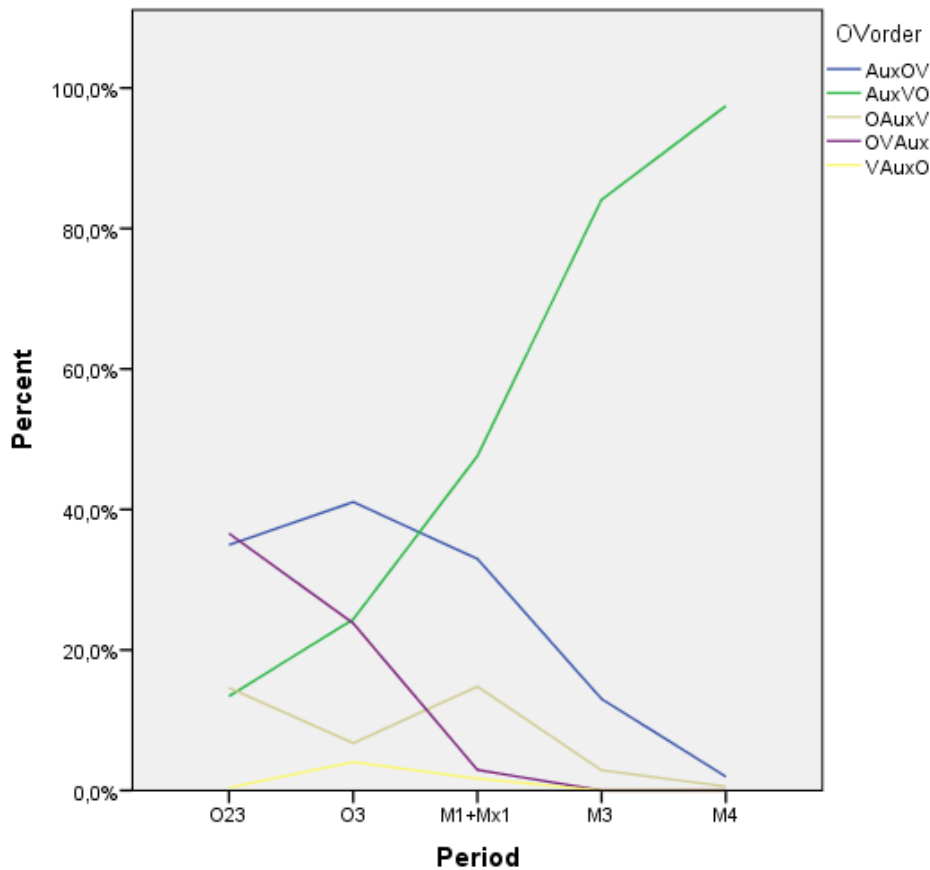


Figure 4.1 Diachronic development of OV word order in the history of English.

The main question that is addressed in this thesis is what factors are responsible for the variation and how their influence change over time. The influence of information structure, object type, definiteness and specificity will be discussed for each period.

## 4.1 Predictors in Old English

### 4.1.1. Referential status

	identity	inferred	assumed	new	inert	Total
AuxOV	272	143	36	87	5	543
AuxVO	67	55	28	147	7	304
OAuxV	73	23	7	6	2	111
OVAux	226	82	13	26	8	355
VAuxO	13	9	6	16	2	46
Total	651	312	90	282	24	1359

Table 4.2. The distribution of referential status across word order in Old English.

Fisher's Exact test shows that referential status is a significant predictor of word order,  $p < .001$ . The results are summarised in Table 4.2, which shows that identity and inferred relations occur more often in preverbal position, while new and inert objects occur less often in preverbal position. It is the other way around for postverbal position; new objects occur more often in postverbal position than identity or inferred objects. Assumed objects seem to prefer preverbal position, but this preference is not as strong as for identity or inferred objects.

#### 4.1.2. Object Type

	Anchored NP	IndefNP	Pro	Proper	Quantified NP	DemNP	Total
AuxOV	93	97	124	21	62	146	543
AuxVO	65	63	5	8	35	128	304
OAuxV	14	9	55	4	9	20	111
OVAux	17	32	167	11	30	98	355
VAuxO	6	10	1	0	5	24	46
Total	195	211	352	44	141	416	1359

Table 4.3. The distribution of object type across word order in Old English.

A two-sided Fisher's exact test shows that there is a significant correlation between object type and word order,  $p < .001$ . The distribution is summarised in Table 4.3. It indicates that indefinite objects occur both in postverbal and preverbal position. Definite objects are used less often than expected in AuxOV order and occur more often than expected in postverbal position. This goes against the hypothesis that definite objects will appear more often in preverbal position. Pronouns are disfavoured in postverbal word order and occur most frequently in preverbal, AuxOV position.

#### 4.1.3. Definiteness

	definite	indefinite	Total
AuxOV	401	142	543
AuxVO	232	72	304
OAuxV	95	16	111
OVAux	308	47	355
VAuxO	33	13	46
Total	1069	290	1359

Table 4.4. The distribution of definite and indefinite objects across word order in Old English.

Table 4.4 summarises the results for definiteness. The  $\chi^2$  analysis suggests that there is a significant relation between definiteness and word order,  $\chi^2(4) = 26.845$ ,  $p < .001$ . Definite objects appear more often in preverbal position than indefinite objects.

#### 4.1.4. Specificity

	specific	nonspecific	Total
AuxOV	394	149	543
AuxVO	210	94	304
OAuxV	92	19	111
OVAux	304	51	355
VAuxO	32	14	46
Total	1032	327	1359

Table 4.5. The distribution of specific and non-specific objects across word order in Old English

Table 4.5. summarises the results for specificity. The  $\chi^2$  shows that there is a significant relation between specificity and word order,  $\chi^2(4) = 33.436$ ,  $p < .001$ . Specific objects occur more frequently in preverbal position, while non-specific objects prefer postverbal position.

#### 4.1.5. Summary

The chi-square analyses have shown that all predictors significantly predict word order. It confirms the results of previous studies in that given objects are predominantly preverbal, while new objects appear in postverbal position. Object type also significantly predicts word order. Pronouns are (almost) always preverbal and also quantified objects appear predominantly in preverbal position. There does not seem to be a strong preference for indefinite objects to be postverbal and definite objects to be preverbal. Definiteness and specificity are both significant predictors. Definite and specific objects occur significantly more often in preverbal position.

## 4.2. Predictors in early Middle English

### 4.2.1. Referential status

	identity	inferred	assumed	new	inert	Total
AuxOV	101	85	11	16	1	214
AuxVO	110	70	10	118	1	309
OAuxV	72	17	3	4	0	96
OVAux	13	4	0	2	0	19
VAuxO	3	2	0	5	1	11
Total	299	178	24	145	3	649

Table 4.6. The distribution of information status across word order in early Middle English.

Unfortunately, the significance values for referential status could not be calculated, because SPSS gave an insufficient memory error, so the results were approached by means of a Monte Carlo approximation. The results from Fisher's Exact test indicate a significant relationship between OV order and referential status,  $p < .001$ . We note that especially identity and inferred relations occur more often in AuxOV orders, while they occur less than expected in AuxVO orders. Identity relations occur more freely in OAuxV order, while inferred relations are disfavoured in this position. Assumed objects tend to occur more in AuxOV orders, but they can also occur in other orders. Similarly, new relations are disfavoured in preverbal position and occur more freely in AuxVO order. They rarely occur in any other position. There are only a few inert objects and drawing conclusions on the basis of their distribution will not be reliable.

### 4.2.2. Object type

	Anchored NP	IndefNP	DefNP	Pro	Proper	QuantNP	DemNP	Total
AuxOV	59	25	11	67	8	25	19	214
AuxVO	64	76	18	72	17	36	26	309
OAuxV	2	6	3	76	0	5	4	96
OVAux	2	1	0	12	1	1	2	19
VAuxO	2	0	2	1	2	2	2	11
Total	129	108	34	228	28	69	53	649

Table 4.7. The distribution of object types across word order in early Middle English.



Unfortunately, the significance values for object type could not be calculated, because SPSS gave an insufficient memory error, so the results were approached by means of a Monte Carlo approximation. The outcome of Fisher's Exact tests suggests that object type is a significant predictor of word order,  $p < .001$ . The general observation is that there are more VO word orders compared to Old English. The crosstabulation in Table 4.7. indicates that IndefNPs occur most frequently in AuxVO position and are disfavoured in all other positions. The distribution of DemNPs is as expected and is disfavoured in OAuxV, OVAux and VAuxO word order. Pronouns still occur most in preverbal position, but no longer exclusively. Proper nouns tend to occur more in AuxVO order and rarely occur in any other order except AuxOV and AuxVO. Quantified objects occur most in AuxOV and AuxVO order and are disfavoured in other orders. Finally, demonstratives and nouns with a demonstrative appear as expected in AuxOV and AuxVO orders, but are also disfavoured in other orders.

#### 4.2.3. Definiteness

	definite	indefinite	Total
AuxOV	164	50	214
AuxVO	199	110	309
OAuxV	87	9	96
OVAux	17	2	19
VAuxO	7	4	11
Total	474	175	649

Table 4.8. The distribution of definite and indefinite objects across word order in early Middle English.

Table 4.8. summarises the results for definiteness. Definiteness has a significant effect on word order, Fisher's Exact  $p < .001$ , with definite objects occurring in preverbal position more often than indefinite objects.

#### 4.2.3. Specificity

	specific	nonspecific	Total
AuxOV	164	50	214
AuxVO	197	112	309
OAuxV	89	7	96
OVAux	16	3	19
VAuxO	7	4	11
Total	473	176	649

Table 4.9. The distribution of specific and non-specific objects in early Middle English.

Table 4.9. summarises the results for specificity. Specificity is also a significant predictor of word order, Fisher's Exact  $p < .001$ . Specific objects tend to occur more often in preverbal position than non-specific objects.

#### 4.2.5. Summary

The analysis shows that all predictors are still significant in early Middle English. There are clear signs of change, however. Comparing the results with the Old English data, it is clear that AuxVO order is gaining ground and that OVAux and VAuxO are in decline. However, the same trends are continued, albeit to a lesser extent. When an object is given, it is more likely to appear in preverbal position than when the object is new. Indefinite objects appear increasingly less often in preverbal position, while definite objects can still freely occur in AuxOV order. However, the category of indefinites needs refining, as we will see below. There is still a large number of preverbal pronouns, but they start to appear in postverbal position as well.

### 4.3. Predictors in late Middle English

#### 4.3.1. Referential Status

		identity	inferred	assumed	new	inert	
	AuxOV	64	11	5	8	1	89
OVorder	AuxVO	686	374	32	367	12	1471
	OAuxV	9	5	1	6	0	21
Total		759	390	38	381	13	1581

Table 4.10. Distribution of information status across word order in late Middle English

There is still a significant relationship between word order and referential status in late Middle English,  $p < .001$  (2-sided Fisher's Exact). Identity relations occur more often than expected in preverbal position. All other reference types occur less than expected in preverbal position. The frequencies in OAuxV orders occur are as expected, which suggests that reference status does not have an influence on this word order type.

### 4.3.2. Object type

	Anchored NP	IndefNP	DefNP	Pro	Proper	QuantNP	Dem NP	Total
AuxOV	6	8	1	53	5	15	1	89
AuxVO	230	282	214	485	66	128	66	1471
OAuxV	3	3	1	6	1	4	3	21
Total	239	293	216	544	72	147	70	1581

Table 4.11. Distribution of object type across word order in late Middle English.

The exact values of Fisher's Exact could not be calculated, because SPSS gave an insufficient memory error, so instead the results are based on a Monte Carlo approximation. The results, however, indicate that there is a significant relation between object type and word order,  $p < .001$ . It is clear that pronouns are still used most frequently in preverbal position. Quantified objects still occur more often than expected in AuxOV position, while anchored NPs indefinite and definite nouns and demonstratives or nouns with a demonstrative are clearly disfavoured in AuxOV order.

### 4.3.3. Definiteness

	definite	indefinite	Total
AuxOV	66	23	89
AuxVO	1056	415	1471
OAuxV	13	8	21
Total	1135	446	1581

Table 4.12. Distribution of definite and indefinite objects across word order in late Middle English.

The results for definiteness are summarised in Table 4.12 above. They represent a non-significant relation between definiteness and word order,  $\chi^2(2) = 1.260$ ,  $p = .520$ , which suggests that the position of word order is no longer influenced by the definiteness of the object.

#### 4.3.4. Specificity

	specific	nonspecific	Total
AuxOV	69	20	89
AuxVO	1065	406	1471
OAuxV	13	8	21
Total	1147	434	1581

Table 4.13. Distribution of specific and non-specific objects across word order in late Middle English.

Finally, Table 4.13 represents the results for the relationship between word order and specificity, which turned out to be non-significant,  $\chi^2(2) = 2.319$ ,  $p = .317$ . This means that word order is not influenced by the specificity of the object.

#### 4.3.5. Summary

The results above show that referential status is still a significant predictor of word order, but that only identity relations occur more often than expected in preverbal position. Surprisingly, there appears to be a difference between identity and inferred relations. While identity relations still occur more than expected in AuxOV word order, inferred relations occur less than expected in AuxOV order. Identity and inferred objects have often been assumed to behave similarly when it comes to word order variation. However, the data suggest that there is a diachronic difference. This will be explored in more depth in chapter 5. Object type is still a significant a predictor, but only pronouns and quantified objects appear in preverbal position, with a few exceptions. Specificity and definiteness are no longer predictors of word order, meaning that the position of the object is no longer dependent on its definiteness or specificity.

## 4.2. Regression analysis

The previous section has shown that all factors, to varying degrees, account for the variation observed in the history of the English language. The remainder of this chapter will discuss the results of several regression analyses to show how much variation can be explained and how the model fits the different periods. It will also try to show at which point important changes occurred.

The regression analysis will not include the predictors as they were introduced in the previous section, because the dataset is too limited. For each predictor that is being added

more data is necessary, which is unfortunately unavailable at the moment. The reference status is simplified to a binary distinction. Identity and inferred relations were treated as given, while assumed, new and inert relations were treated as new. This does lead to loss of detail, but together with the results presented above, it will still provide us with an idea of how the change from OV to VO developed. For the same reason definiteness and specificity were not included. The model with only reference status and object type as predictor for 5 word orders leads to 70 different options, adding definiteness and specificity will increase this number to 280, which will inevitably lead to empty cells, as there will be no indefinite objects that are given, specific and definite in VAuxO word order, for instance. This results in too many empty cells and the model cannot handle this. The model does include object length as a covariate, in order to control for heaviness effects.

The analysis will be run for each period separately. In order to find diachronic trends, the same analysis will be run on the entire sample with period as a predictor. Modelling the interaction effects of period with the other predictors will show whether the predictor operates differently in each period. Note that for reasons of space the output tables are not included in this chapter. The interested reader is referred to Appendix B for the complete tables.

## 4.2.1. OLD ENGLISH

### 4.2.1.1. *Regression model for Old English*

The results from the multinomial regression reveal that referential status,  $\chi^2(4) = 73.890, p < .001$ , object type,  $\chi^2(20) = 138.725, p < .001$  and object length,  $\chi^2(4) = 83.415, p < .001$  all significantly predict word order. The model is a significant improvement on a model without the two predictors,  $\chi^2(28) = 497.157, p < .001$ . In other words, the model is a good fit.  $R^2$  statistics indicate that the model explains around 30% of the variation (.306 Cox & Snell, .327 Nagelkerke), which indicates a medium effect.

A closer look at the model will tell us what the effect of each predictor is on verb-object order. Recall that AuxVO was chosen as the reference category, meaning that the effect of referential status or object type of each word order is compared to AuxVO word order. Three predictors were included in the model: referential status, object type, and object length, each of which will be discussed separately below for each word order. SPSS automatically chooses the last category of a predictor variable as the reference category. It was deliberately chosen to code the DemNP as the final category, which means that all object types will be compared to this category with the variable.

#### 4.2.1.2. Parameter estimates

##### AuxOV

###### a. Referential status

Referential status turned out to be a significant predictor of AuxOV word order compared to AuxVO order,  $b = 1,288$ , Wald  $\chi^2(1) = 51,979$ ,  $p < .001$ . The odds ratio suggests that when an object is given that the chance of an object appearing in AuxVO order when it is new is much higher than it appearing in AuxOV order.

###### b. Object type

The position of an object can be significantly predicted when the object is a pronoun,  $b = 1,988$ , Wald  $\chi^2(1) = 16.603$ ,  $p < .001$ , or QuantNP,  $b = .693$ , Wald  $\chi^2(1) = 6.597$ ,  $p = .010$ . The odds ratio for pronouns suggests that these objects were more likely to appear in AuxOV orders when the object type changes. Finally, the odds ratio of 2,381 of Quantified NPs suggests that when a QuantNP changes to another object type, the odds of it appearing in AuxOV become higher, which is an interesting outcome, as QuantNPs are known to appear in preverbal position well into the 16<sup>th</sup> century, when preverbal other had become ungrammatical for other object types.

###### c. Object length

Object length is a significant predictor of word order,  $b = -.381$ , Wald  $\chi^2(1) = 36.557$ ,  $p < .001$ . The odds ratio is below 1, which suggests that as the length of the object increases by one unit, the odds of it appearing in AuxVO order also increase.

##### OAuxV

###### a. Referential status

Referential status is a significant predictor of OAuxV order compared to the reference category,  $b = 1.844$ , Wald  $\chi^2(1) = 19.956$ ,  $p < 001$ . The odds of a given object appearing in OAuxV order compared to AuxVO order are significantly higher when the object is given.

###### b. Object type

Only the position of Pronouns ( $b = 3.079$ , Wald  $\chi^2(1) = 29.373$ ,  $p < .001$ ) and QuantNPs ( $b = .925$ , Wald  $\chi^2(1) = 3.865$ ,  $p = .049$ ) could be significantly predicted for OAuxV word orders. The odds ratio suggests that when an object is not a pronoun, the

odds of it appearing in OAuxV order are significantly higher. Similarly, the odds that an object is not a QuantNP, the odds of it appearing in OAuxV order are significantly higher.

The position of AnchoredNPs ( $b = .396$ , Wald  $\chi^2(1) = 1.042$ ,  $p = .307$ ), IndefNPs ( $b = .208$ , Wald  $\chi^2(1) = .224$ ,  $p = .636$ ) and Proper nouns ( $b = .801$ , Wald  $\chi^2(1) = 1.45$ ,  $p = .229$ ) was not significantly predicted.

c. Object length

Object length is a significant predictor of OAuxV word order, compared to AuxVO word orders,  $b = -.437$ , Wald  $\chi^2(1) = 8.065$ ,  $p = .005$ . The odds ratio below 1 suggests that as the length of the object increases, AuxVO orders become more likely.

## OVAux

a. Referential status

OVAux orders are also significantly predicted by referential status, with given objects being more likely to be in this order than in AuxVO,  $b = 1.483$ , Wald  $\chi^2(1) = 38.368$ ,  $p < .001$ . The odds ratio suggests that when an object is new instead of given, it is more likely to be in the reference category.

b. Object type

AnchoredNPs ( $b = -1.313$ , Wald  $\chi^2(1) = 17.322$ ,  $p < .001$ ) and Pronouns ( $b = 2.528$ , Wald  $\chi^2(1) = 25.918$ ,  $p < .001$ ) significantly predicted word order. The odds ratios show that a change in object type leads the word order to be more likely to be AuxVO when the object type changes to a DemNP. The odds ratio for pronouns suggests that a change in object type makes it more likely that the word order becomes OVAux.

Word order was not significantly predicted by IndefNPs,  $b = -.143$ , Wald  $\chi^2(1) = .286$ ,  $p = .593$ , by Proper nouns,  $b = .250$ , Wald  $\chi^2(1) = .258$ ,  $p = .611$ , or by QuantNPs,  $b = .431$ , Wald  $\chi^2(1) = 1.904$ ,  $p = .168$ .

c. Object length

Object length is a significant predictor of OVAux or AuxVO word order,  $b = -.507$ , Wald  $\chi^2(1) = 28.913$ ,  $p < .001$ . The odds ratio is below 1, which indicates that as the object length increases, the odds of it appearing in AuxVO order increase as well.

## VAuxO

## a. Referential status

VAuxO is the only word order for which referential status is not significant,  $b = .502$ , Wald  $\chi^2(1) = 2.268$ ,  $p = .132$ .

## b. Object type

None of the different object types was a significant predictor of word order. There were no Proper nouns in VAuxO order, which explains why there is no significance value for Proper nouns.

## c. Object length

Object length did not significantly predict VAuxO word orders when compared to AuxVO orders,  $b = -0.20$ , Wald  $\chi^2(1) = .155$ ,  $p = .694$ .

**4.2.2. MIDDLE ENGLISH M1****4.2.2.1. Regression model for early Middle English**

The results from the regression analysis for early Middle English shows the same trend as for OE. All three predictors are significant: object length,  $\chi^2(4) = 21.819$ ,  $p < .001$ , referential status,  $\chi^2(4) = 54.906$ ,  $p < .001$ , and object type,  $\chi^2(24) = 80.376$ ,  $p < .001$ . The model is a significant improvement of a model with no predictors,  $\chi^2 = 216,344$ ,  $p < .001$ . The included predictors explain around 30% of the variance (Cox and Snell .308, Nagelkerke .340).

The following section will discuss the influence of each separate predictor on word order. AuxVO was chosen as the referent category for word order and DemNP as reference category for object type.

**4.2.2.2. Parameter estimates**

## AuxOV

## a. Referential status

Referential status was a significant predictor of word order,  $b = 1.849$ , Wald  $\chi^2(1) = 37.554$ ,  $p < .001$ . The odds ratio is 6.352, which indicates that a change in referential status to new is more likely to result in AuxVO order.



## b. Object Type

Indefinite nouns are significant predictors of word order,  $b = -.991$ , Wald  $\chi^2(1) = 5.236$ ,  $p = .022$ . The odds ratio is .371, indicating that a change in object type leads to an increase in the odds of it appearing in AuxOV. Proper nouns were also a significant predictor of word order,  $b = -1.160$ , Wald  $\chi^2(1) = 4.249$ ,  $p = .039$ . The odds ratio indicates that a change in object type increases the odds of it appearing in AuxOV.

## c. Object Length

Object length is a significant predictor of word order,  $b = -.291$ , Wald  $\chi^2(1) = 7.675$ ,  $p = .006$ . The odds ratio is .745, which suggests that as the length of the object increases, AuxVO orders become more likely.

## OAuxV

## a. Referential status

Referential status is a significant predictor of word order,  $b = 1.519$ , Wald  $\chi^2(1) = 6.729$ ,  $p = .009$ . The odds ratio is 4.569, higher than 1, which indicates that a new object is more likely to be in the AuxVO category.

## b. Object type

None of the object types significantly predicted word order outcomes. It should be noted that there were no proper nouns in OAuxV order, which is why the standard error of proper nouns is inflated.

## c. Object Length

Object length is a significant predictor of word order,  $b = -.810$ , Wald  $\chi^2(1) = 5.739$ ,  $p = .017$ . The odds ratio is .445, suggesting that as the length of the object increases, AuxVO order becomes more likely.

## OVAux

## a. Referential status

Referential status is not a significant predictor in OVAux word orders,  $b = .434$ , Wald  $\chi^2(1) = 1.051$ ,  $p = .305$ .

## b. Object types

None of the object types was a significant predictor of word order. Note that there were no definite objects in OVAux orders, which is why no significance value could be calculated.

## c. Object Length

Object length is not a significant predictor of OVAux word order,  $b = -.434$ , Wald  $\chi^2(1) = 1.051$ ,  $p = .305$ .

## VAuxO

## a. Referential status

Referential status was not a significant predictor for word order AuxVO versus VAuxO word orders,  $b = -1.097$ , Wald  $\chi^2(1) = 2.158$ ,  $p = .142$ .

## b. Object type

None of the object type significantly predicted word order. It should be noted that there was very little data on VAuxO object types, which has resulted in inflated standard errors, making it hard to draw conclusions.

## c. Object Length

Object length is not a significant predictor for VAuxO versus AuxVO word order,  $b = -.384$ , Wald  $\chi^2(1) = 1.878$ ,  $p = .171$ .

**4.2.3. MIDDLE ENGLISH M3/M4****4.2.3.1. Regression model.**

The data on late Middle English clearly show a difference with the previous two time periods. The model is still a significant fit,  $\chi^2(20) = 89,486$ ,  $p < .001$ , compared to a model with no predictors, but the pseudo  $R^2$  clearly show that the model explains much less variation (Cox and Snell, 055, Nagelkerke, .129).

Considering the individual predictors, then, we note that referential status is not a significant predictor anymore,  $\chi^2(2) = 5.437$ ,  $p = .066$ . Object Type is still a significant predictor,  $\chi^2(12) = 41.369$ ,  $p < .000$ , as well as the length of the object,  $\chi^2(2) = 24,060$ ,  $p <$

.001. Each predictor for each word order will be discussed in more detail below. Note that by this time OVAux and VAuxO orders had disappeared and hence are not part of the analysis.

#### 4.2.3.2. *Parameter estimates*

##### AuxOV

###### a. Referential Status

Referential status is a significant predictor of AuxOV order compared to AuxVO order,  $b = .913$ , Wald  $\chi^2(1) = 4.614$ ,  $p = .032$ . The odds ratio is above 1, indicating that as the referential status of the object changes from given to new, there will be more AuxVO orders.

###### b. Object Type

Only quantified objects were a significant predictor of word order,  $b = 2.901$ , Wald  $\chi^2(1) = 7.339$ ,  $p = .007$ . The odds ratio is 18.195, above 1, which suggests that a change from quantified to demonstrative will lead to more AuxOV word orders. None of the other object types were significant predictors of word order.

###### c. Object Length

Object length is still a significant predictor of word order AuxVO or AuxOV word order,  $b = -.913$ , Wald  $\chi^2(1) = 10.121$ ,  $p = .001$ . The directionality of the odds ratio suggests that when one the object length increases by one unit, the changes of the object appearing in AuxVO order increase.

##### OAuxV

###### a. Referential Status

Referential status is not a significant predictor of OAuxV word order,  $b = -.319$ , Wald  $\chi^2(1) = .277$ ,  $p = .727$ .

###### b. Object Type

The position of pronouns was significantly predicted,  $b = .750$ , Wald  $\chi^2(1) = 4.312$ ,  $p = .038$ . The odds ratio is .211, which suggests that a change in object type leads to more AuxVO word orders.

c. Object Length

Object length was not a significant predictor of word order,  $b = -.215$ , Wald  $\chi^2(1) = 1.309$ ,  $p = .253$ .

#### 4.2.4. Summary

The results above clearly show a diachronic trend. The amount of variance explained by the model reduces, suggesting that referential status has a decreasing influence on word order. Object type still has a significant influence on word order in late Middle English, which is in line with previous research. We note that referential status is a significant predictor in Old English and early Middle English, but is not significant in late Middle English. The remainder of this chapter will be devoted to a separate multinomial analysis with period as an additional predictor. The interaction with the predictors introduced in the section above will show whether there is a significant difference between the periods.

### 4.3. Diachronic perspective

The main effects of the predictors are not relevant for this analysis, as these were discussed in detail in the previous section. The interaction effects will tell us whether the influence of the predictor remains constant over time or whether it changes. The analysis shows that there is a significant interaction between referential status and period,  $\chi^2(8) = 18.561$ ,  $p = .017$ . This means that the influence of information structure on word order differs significantly across different time periods. The interaction between object type and period is also significant,  $\chi^2(48) = 98.271$ ,  $p < .001$ , showing that object type plays a different role in predicting word order across the different time periods. There is no significant interaction of period with object length,  $\chi^2(8) = 11.177$ ,  $p = .192$ , which means that the length of the object does not predict word order differently in different time periods.

The analysis above only shows that there is a significant difference between all periods, but it does not show in which period the exact change took place. Two separate analyses were conducted to see whether there is a significant difference between the three periods.

#### 4.3.1. OE vs. early ME

In the case of the change from Old English to early Middle English we note that there is a marginally significant interaction between referential status and period,  $\chi^2(4) = 9.125$ ,  $p =$

.058. This indicates that there is no significant difference between the influence of information structure in Old English and early Middle English, but the low  $p$ -value suggests that change is underway. The interaction between period and object type is significant,  $\chi^2(24) = 60.391$ ,  $p < .001$ , which means that there is a significant difference between the influence of object type on word order in OE and early ME. There is no significant difference in the influence of object type in both periods,  $\chi^2(4) = 4.593$ ,  $p = .332$ .

#### 4.3.2. ME1 vs. ME2

The second regression analysis suggests that there is no significant interaction between referential status and period,  $\chi^2(4) = 7.510$ ,  $p = .111$ , suggesting that the influence of information structure on word order does not differ significantly in both periods. There is a significant interaction between object type and period,  $\chi^2(24) = 39.892$ ,  $p = .022$ , which means that the influence from object type on word order is different in both periods. The influence of object length does not differ significantly in both periods,  $\chi^2(4) = 8.163$ ,  $p = .086$ .

#### 4.4. Summary

This chapter has investigated the influence of information status, object type and object length on word order variation. It has shown by means of a regression analysis that information status and object type are significant for OE and early ME and that object length plays a role in all periods. It has also pointed out the differences between the different object types and has shown that the position of quantified objects and pronouns can be significantly predicted. There were other significant effects of object type as well, especially in OE and early ME, which suggests that a closer examination of the different object types is called for.

The analysis has not been able to capture the moment of change by means of a significant  $p$ -value. It is possible to speculate that the change must have taken place between OE and ME two periods, as the difference in word orders is largest between these two periods. The statistical analysis, however, has failed to show this and did not result in a significant outcome. The  $p$ -value did approach significance, so the insignificant value could be an effect of sampling. A larger sample might lead to more accurate and conclusive results.

## 5. Analysis

The current chapter will analyse the results in more detail. It will first of all discuss the interaction between referential status, object type and word order from a diachronic perspective and it will try to flesh out the results from the statistical tests in the previous chapter in more detail. It will focus specifically on the difference between inferred and identity relations, the behaviour of bare nouns and the development of the definite determiner and its influence on word order variation and change.

### 5.1. Analysis of object type and reference status

The following section will discuss the relation between object type, reference status and word order in more detail. It will study the outcomes of the regression analysis in a more fine grained manner and will study the behaviour of objects in each word according to the five Pentaset categories, rather than a binary given/new distinction.

#### 5.1.1. Identity

		Anchored NP	IndefNP	DefNP	Pro	Proper	Quant NP	DemNP	Total
O23	AuxOV	2	5	0	12	2	1	22	44
	AuxVO	1	0	0	0	0	0	2	3
	OAuxV	0	0	0	23	0	0	7	30
	OVAux	2	1	0	35	2	2	13	55
O3	AuxOV	14	16	0	109	19	2	68	228
	AuxVO	6	7	0	4	4	1	42	64
	OAuxV	3	1	0	32	2	0	5	43
	OVAux	3	9	0	124	9	0	26	171
	VAuxO	2	1	0	1	0	0	9	13
M1	AuxOV	10	3	3	64	8	2	11	101
	AuxVO	11	11	7	65	12	0	4	110
	OAuxV	0	1	1	66	0	1	3	72
	OVAux	0	1	0	10	1	0	1	13
	VAuxO	0	0	0	1	1	0	1	3
M3	AuxOV	2	2	1	44	2	1	1	53
	AuxVO	6	9	36	92	24	2	9	178
	OAuxV	0	0	0	5	0	1	2	8
M4	AuxOV	1	0	0	9	1	0	0	11
	AuxVO	36	7	58	361	18	1	27	508
	OAuxV	0	0	0	1	0	0	0	1

Table 5.1. Distribution of Identity object type across word order and period.

Table 5.1. shows that in O23 identity objects almost exclusively appear in preverbal position, with the exception of three postverbal examples, surprisingly all with definite and specific objects:

- (28) Ic do á þine gife , min Druhten, & ic þe bidde for þinum naman þæt þu  
 I do always your favour, my Lord, and I you beg for your name that you  
 gehwyrfe on me ealle eaþmodnesse þinra beboda,  
 turn on me all humility your commands-GEN  
 forþon þe ic mæg don **þine gife**  
 in order that I may do your favour  
 ‘my Lord, I ever dispense thy favour, and I beseech thee for thy name that thou devolve  
 upon me submission to thy commands so that I may dispense thy favour’  
 (coblick: LS\_20\_[AssumptMor[BiHom\_13]]:147.159.1810)
- (29) he ne mæg na sceðþan þisse fæmnan  
 he not may not hurt this woman  
 ‘He may not hurt this woman.’  
 (comart: Mart\_5\_[Kotzor]:Se16,A.15.1763)
- (30) hie woldan ofslean þa apostolas  
 they would kill those apostles  
 ‘They wanted to kill the apostles.’  
 (coblick: LS\_20\_[AssumptMor[BiHom\_13]]:149.223.1864)
- The fact that the post-verbal examples are definite and specific is surprising, as the hypothesis predicts that identity objects are discourse given and will hence appear in preverbal position. It is possible that these objects are positioned preverbally for stylistic reasons.
- In the O3 period objects start to appear in postverbal position more often. Pronouns stay almost exclusively in preverbal position, but all other objects occur increasingly in AuxVO order, even though we also note the first postverbal pronouns. Objects with a demonstrative still appear mostly in preverbal position, especially AuxOV order, but they occur relatively frequently in AuxVO order, as in (31) and (32), compared to other object types.
- (31) hi scoldon ða drymen toslitan  
 they should that magicians tear in pieces  
 ‘They should destroy the magicians’  
 (cocathom1: +ACHom\_II,\_38:283.123.6390)

- (32) Petrus wolde befrinan þam hælende  
 Petrus would ask that lord  
 ‘Peter would ask the lord’

(cocathom1: +ACHom\_I,\_34:470.158.6803)

Studying the postverbal DemNPs, we note that none of the examples are long, so the number cannot be due to effects of length of the object, nor are any of the examples non-specific. This suggests that in Old English being given, definite and specific is not enough to appear to the left of the non-finite verb, which could be an early indication that marking IS properties by means of morphology is overruling the need mark IS by means of word order variation. The demonstrative pronoun has become a marker of givenness, so marking givenness by means of word order is no longer necessary.

By early Middle English pronouns start to appear in AuxVO orders in larger numbers, which is a clear indication that OV order is in decline. Furthermore, indefinite objects are now clearly disfavoured in preverbal position. There are examples of indefinites in AuxOV order:

- (33) mon scule childre fulhten  
 men should children baptise  
 ‘Men should baptise children’

(cmlamb1: 73.31)

- (34) ha ne mei soð icnawen  
 she not may truth know  
 ‘She may not know truth’

(cmancriw-1: II.96.1150)

- (35) me sal children fuluhtnie  
 men shall children baptise  
 ‘Men should baptise children’

(cmtrinit: 17.189)

All three examples are bare objects denoting a generic object. These objects are all evoked previously in the context, but they are not specific. The one example of a preverbal indefinite in OAuxV order is also a bare noun:

- (36) ...þullich mote drehen  
 such must suffer  
 ‘(they) must suffer such’

(cmhali: 156.412)



This is an example of *such*. Again, it could be argued that *such* lacks specificity and that while it refers back to an image that is evoked previously, it does not have that specific image in mind, but one similar to it. However, this would suggest that non-specific bare objects are allowed to scramble to preverbal position, which is unexpected given the hypothesis that the preverbal position is reserved for specific objects. It is also possible that *bullich* is a contraction *þe ilce*, which would mean that *bullich* should not be classified as a bare noun, but rather as a DemNP or DefNP. This would allow the natural interpretation that it is a noun with a definiteness marker, in which case the preverbal position is not unexpected.

There is one example of OVAux order, which is given in (37). This is again an example of a bare noun, indicating a similar generic referent.

- (37) on þisse liue god bizinnen nalde  
 on this life good do not want  
 ‘(He) did not want to do good on this life.’

(cmlambx1: 11.102)

The remaining 11 examples in AuxVO order include 10 bare nouns and 1 full NP and except for the examples below, all are generic objects, similar to the ones occurring in preverbal order.

- (38) hi hæfden cosen ærcebiscop æror in here capitele æfter rihte  
 they have chosen archbishop before in their chapter after law  
 ‘They have chosen an archbishop before in their chapter according to the law’

( cmpeterb: 43.66)

- (39) ... þt ach to leaden hard lif  
 ... that have lived hard lif  
 ‘that have to live a hard live’

(cmancriw-1: II.103.1257)

This suggests that bare objects do not have a preference for pre- or postverbal word order when they are in identity relations.

In late Middle English there are only two examples of indefinite objects in preverbal position and they both occur in M3. They are both indefinite NPs and both include the modifier *such*:

- (40) we may suilke cunsal take, þat we may do þi wille  
 we may such council take, that we may do you will  
 ‘We may take such council, that we will abide by your will’

(cmbenrul: 8.239)

- (41) we may suilke vrisun make, þat it be to þi wil  
 we may such request make, that it be to your will  
 ‘We make such a request, that it is as you wish’

(cmbenrul: 19.672)

These examples seem to be different from the preverbal examples in earlier stages of the language, as the structure is the same in both utterances, suggesting that this is a case of formulaic and perhaps archaic language use. In Middle English all indefinite objects appear in postverbal position.

By M3 and M4, all objects appear in postverbal position, with a few exceptions, two of which were introduced above. The preverbal pronouns and quantified objects are not unexpected, as it is well known that they could scramble to preverbal position well into the late Middle English period, for reasons that are as yet not well understood. All other examples are specific and definite objects.

Considering the diachronic development of objects in an identity relation we can conclude that while indefinite objects are disfavoured in preverbal position from early Middle English onwards, objects with a demonstrative start appearing in postverbal position more frequently. Once objects with a definite determiner appear, they tend to be placed in postverbal position, as in (42), even though this is a clear example of a definite and specific object.

- (42) hu ha schulen luuien þe liuiende lauerd  
 how they should love that living lord  
 ‘How they should love the living lord’

(cmmarga: 55.12)

This is in contrast with DemNPs, which appear mostly in preverbal position until M1. There are only a few examples of objects with a definite determiner, but if this pattern holds up in a larger sample, this might have implications for the momentum of the change from OV to VO. This will be discussed in more detail below.

### 5.1.2. Inferred

The distribution of inferred object across word order, period and object type is illustrated in Table 5.2. Inferred relations display a similar pattern as identity relations: objects occur mostly in preverbal position, but appear increasingly often in postverbal position towards ME. Note that indefinite objects appear in postverbal position in larger quantities in M1 than definite objects. While objects with a definite determiner appeared mostly in postverbal

position in M1 in identity relations, they appear mostly in preverbal position in inferred relations, which means they pattern more alike with objects with a demonstrative pronoun.

		Anchored NP	IndefNP	DefNP	Pro	Proper	Quant NP	DemNP	Total
O23	AuxOV	5	8	0	0	0	3	6	22
	AuxVO	2	3	0	0	0	2	2	9
	OAuxV	1	1	0	0	0	1	3	6
	OVAux	4	4	0	1	0	4	13	26
	VAuxO	0	1	0	0	0	0	0	1
O3	AuxOV	55	21	0	2	0	19	24	121
	AuxVO	18	3	0	0	1	6	18	46
	OAuxV	7	1	0	0	0	4	5	17
	OVAux	4	7	0	5	0	7	33	56
	VAuxO	2	3	0	0	0	0	3	8
M1	AuxOV	43	9	4	2	0	19	8	85
	AuxVO	29	16	2	2	3	12	6	70
	OAuxV	1	2	1	8	0	4	1	17
	OVAux	1	0	0	2	0	0	1	4
	VAuxO	2	0	0	0	0	0	0	2
M3	AuxOV	3	2	0	0	0	4	0	9
	AuxVO	32	23	15	6	3	18	7	104
	OAuxV	0	2	0	0	0	2	0	4
M4	AuxOV	0	0	0	0	0	2	0	2
	AuxVO	115	50	32	20	1	35	17	270
	OAuxV	0	0	0	0	0	0	1	1

Table 5.2. Distribution of inferred object types across word order and period.

The distribution of preverbal indefinite objects in M3 is unexpected:

(43) þei schul in a good feyre a good hors chese

they should in a good gathering a horse choose

‘They should choose a good horse during a good fair’

(cmhorses: 85.3)

(44) þat schal an hors bye

who shall a horse buy

‘who shall buy a horse’

(cmhorses: 85.4)

Both examples involve true indefinite objects, with an indefinite article. It is not expected that at this point in time indefinite and nonspecific objects appear in preverbal position, even though their information status licences it. The two examples are from the same text, so it is possible that this is an effect of text.

We note a similar distribution of inferred indefinite objects in early Middle English as observed with identity relations. Again, indefinite objects occur relatively frequently in preverbal position, as in (45).

- (45) nule on his ermðe edmodnesse halden  
 not will on his poverty humility keep  
 ‘and will not hold humility in his poverty’

(cmlambx1: 1131100)

### 5.1.3. Assumed

		Anchored NP	Indef NP	DefNP	Pro	Proper	Quant NP	DemNP	Total
O23	AuxOV	0	5	0	0	0	2	0	7
	AuxVO	2	3	0	0	0	2	0	7
	OVAux	0	1	0	0	0	1	1	3
O3	AuxOV	1	17	0	1	0	9	1	29
	AuxVO	4	7	1	0	1	3	5	21
	OAuxV	2	2	0	0	2	1	0	7
	OVAux	0	3	0	0	0	4	3	10
	VAuxO	0	1	0	0	0	1	4	6
M1	AuxOV	0	9	1	1	0	0	0	11
	AuxVO	0	3	2	2	0	0	3	10
	OAuxV	0	1	0	2	0	0	0	3
M3	AuxOV	0	2	0	0	2	1	0	5
	AuxVO	0	8	1	0	1	1	0	11
M4	AuxVO	0	7	10	0	1	3	0	21
	OAuxV	0	0	0	0	1	0	0	1

Table 5.3. Distribution of assumed object types across different word order and period.

Table 5.3 summarises the distribution of assumed objects. We note that in the O3 period most indefinites are in preverbal position, while the objects with a demonstrative are mostly in postverbal position:

- (46) Ða ðe wolden woruldwisdom gecneordlice leornian  
 Those who wanted science diligently learn  
 ‘Those who wished to diligently learn about science’

(cocathom1: +ACHom\_I,\_4:208.49.677)

- (47) man mihte þysne middaneard gebigan fram þam hæþenscipe þe hy on afedde  
 men might this earth bend from that paganism that they on fed  
 wæron to þam soðan geleafan þæs lyfigendan Godes  
 were to that true belief of that loving god

‘Men might convert this earth from the paganism they were accustomed to to the true faith of that loving God’

(coaelhom: +AHom\_19:347.2854 2854)

Most of the assumed objects are indefinite and most are bare objects, as in (46) and (47), indicating generic reference similar to the bare objects in preverbal order that we have seen in the identity category.

The distribution of assumed objects also indicate that they can be considered given: most of the objects occur in preverbal position in earlier stages of English. It is not until late Middle English that assumed objects disappear from preverbal positions entirely.

#### 5.1.4. New

		Anchored NP	IndefNP	DefNP	Pro	Proper	Quant NP	DemNP	Total
O23	AuxOV	1	5	0	0	0	3	2	11
	AuxVO	2	5	0	0	0	2	5	14
	OVAux	1	2	0	0	0	1	1	5
O3	AuxOV	15	20	0	0	0	18	23	76
	AuxVO	29	35	0	1	2	13	53	133
	OAuxV	1	4	0	0	0	1	0	6
	OVAux	3	4	0	2	0	4	8	21
	VAuxO	2	4	0	0	0	2	8	16
M1	AuxOV	6	3	3	0	0	3	1	16
	AuxVO	24	45	7	3	2	24	13	118
	OAuxV	1	2	1	0	0	0	0	4
	OVAux	1	0	0	0	0	1	0	2
	VAuxO	0	0	2	0	1	1	1	5
M3	AuxVO	21	59	27	0	10	20	4	141
	OAuxV	1	1	1	0	0	0	0	3
M4	AuxOV	0	1	0	0	0	6	0	7
	AuxVO	20	111	34	6	8	45	2	226
	OAuxV	2	0	0	0	0	1	0	3

Table 5.4. Distribution of new object types across word order and period.

The distribution of new objects is different, as is illustrated in Table 5.4. While most new objects appear in postverbal position, there are also preverbal objects, especially in Old English.

We find 5 examples of new preverbal indefinites in the O23 period. There are 3 bare nouns and 2 full NPs. Two of the bare nouns are generic, as is illustrated in (48).

- (48) he hæfde martyrdom geðrowad for Gode  
 he has martyrdom suffered for God  
 ‘He has suffered martyrdom for God’

(comart3: Mart\_5\_[Kotzor]:Ma4,A.12.274)

- (49) he wolde deofol gelapian to campe wiþ hine  
 he wanted devil invite to contest with him  
 ‘He wanted to challenge the devil for a duel’

(coblick: HomS\_10\_[BIHom\_3]:29.48.390)

The third bare noun (49) is a case of a definite noun that fails to receive marking. This is not entirely uncommon in OE (Sommerer 2015), but its preverbal position is unexpected considering that the devil is newly introduced into the discourse.

The two examples of full NPs are classified as new, but it is possible that they were considered to be part of world knowledge assumed by the author of the work and hence appear in preverbal position:

- (50) we sceolan god weorc wyricean  
 we should good work work  
 ‘We should do good work’

(coblick: HomS\_21\_[BIHom\_6]:75.160.939)

In O3 there is still a fair number of preverbal objects with all object types, pronouns and proper nouns:

- (51) hi moston his halige lic. mid heora þenungum behwyrfan  
 they must his holy body with their service attend to  
 ‘They had to attend to his holy body with their service’

(cocathom1: +ACHom\_I,\_37:500.96.7389)

- (52) hi sceolon heofonan rices eðel symle gewilnian  
 they should heavenly kingdom’s realm always want  
 ‘They should always desire the kingdom of heaven’

(cocathom2: +ACHom\_II,\_13:130.82.2846)

- (53) þe ne mæg ðone untruman gehælan  
 that not may that ill cure  
 ‘that cannot cure the ill.’

(cocathom1: +ACHom\_I,\_4:208.56.680)

- (54) hu hi mihton ænigne mete þicgan betwux þam ofslagenum  
 how they might any food take between those killed  
 ‘How they can take any food between the dead’

(coelive: +ALS\_[Maurice]:92.5736)

Taylor & Pintzuk (2014) divide their new objects into specific and non-specific. A specific object is a real world object that can be identified from a set of referents. A non-specific object cannot be identified and can be any one of the referent. They find that specific objects are highly VO, while non-specific objects are less VO than non-new information and this also bears out for the present sample (cf. Table 5.5), even though the difference is only marginally significant,  $\chi^2(1) = 3.803$ ,  $p = 0.0512$ .

	specific	non-specific
OV	53 51,5%	50 48,5%
VO	95 63,8%	54 36,2%

Table 5.5. Specific and non-specific new objects divided by word order.

The M3 period does not contain preverbal new objects, but there are 8 in the M4 period, one of which an indefinite, which refers to a specific entity.

- (55) in þe ilde of Scicile he had gret tresoure hid  
 in that island Sicily he had great treasure hid  
 ‘He had hid a great treasure on that island Sicily’

(mcapchr: 941.904)

The other seven examples of preverbal objects in Middle English are quantified objects, which can appear in preverbal position until late Middle English.

### 5.1.5. Inert

The corpus included only 40 inert objects, making it hard to draw conclusions about their distribution, which is why they will not be examined further here.

### 5.1.6. Summary

The analysis of object type above has shown that indefinite objects are disfavoured in preverbal position from early Middle English onwards, but that generic objects occur more

freely in preverbal position than other indefinites. Objects with a demonstrative are preverbal when they are given, but postverbal when they are new. It has also shown that there is a difference between objects with a demonstrative and objects with a definite determiner. While demonstrative objects freely, but not obligatorily, occur in preverbal position in early ME, definite objects appear pre- and postverbally regardless of their information status. Finally, it showed that while given information almost exclusively appeared preverbally in Old English, inferred objects appeared more freely in postverbal word orders. The implications of these findings will be discussed in more detail below.

## 5.2. Identity and inferred

The results of this study indicate a trend that inferred objects appear in postverbal position more throughout the history of English than identity relation. The following section will explore this fact further. Table shows the distribution of identity and inferred objects OV and VO word orders.

	O23		O3		M1		M3		M4	
	%OV	N	%OV	N	%OV	N	%OV	N	%OV	N
Identity	97.7	129	85.2	442	58.9	176	25.2	60	2.3	12
Inferred	84.3	54	78.3	194	59.6	106	11.1	13	1.1	3

Table 5.6. The distribution of identity and inferred objects across word order and period.

Table 5.6 clearly shows that identity objects are disfavoured in VO orders in the O23 period; only 2,3% of all objects appear in this order. In contrast, 15,7% of the inferred objects are in VO order. The difference is smaller in O3 and it disappears in M1, but after M1 identity and inferred objects diverge again. There are more identity relations in M3 and M4 in OV order than there are inferred relations, while there are more inferred relations in VO order. The proportion of inferred objects in preverbal position compared to the proportion of identity objects in preverbal position is the same in O23 and O3: a difference of approximately 7% and a reduction of 14% of preverbal objects. In M1 this changes: inferred objects are now just as often preverbal as identity objects, which means that there is a stronger reduction of preverbally appearing identity objects than inferred objects. After M1 identity objects occur more often in preverbal position than inferred objects. The picture seems to suggest that information structure has a lesser influence on inferred relations than on identity relations.



This leads to two questions. First, why is it that this influence is less strong and second, what role does it play in the change from OV to VO?

To answer the first question, insight into the processing of inferred compared to identity relations might suggest why this is the case. Burkhardt (2006) tests the hypothesis that inferred elements share properties of both given and new elements. The results indicate that this is indeed the case. Inferred DPs are just as easily resolved as given DPs, but Burkhardt's results also clearly indicate that there is an effect similar to the interpretation of new DPs, which she argues is the result of needing to establish a new discourse referent. This suggests that while inferred objects are given in the sense that a link to the previous discourse can be easily established, they are new in the sense that a new entity needs to be added to the discourse.

Schumacher & Hung (2012) test the effect of position in relation to givenness, comparing given and inferred relations. They show that in present-day German given and inferred objects are processed differently depending on their position in the sentence. When the object occurred sentence-medially, participants displayed more processing difficulty with inferred objects than given object, probably because a new discourse referent had to be established. This in contrast to objects appearing sentence-initially. Participants processed given and inferred objects in the same way when they were used sentence-initially. The authors argue that this is because, in German, the sentence initial position is reserved to indicate aboutness, which is why there is no difference between processing of given and inferred objects, as both are capable of doing so.

While these two studies are aimed at present-day German and investigate language specific phenomena, they do suggest that identity and inferred relations are not entirely the same. An inferred object always has a sense of newness, which might be the reason why it does not appear in preverbal position as frequently as identity objects.

Furthermore, Taylor & Pintzuk (2014) point out that inferrables are often divided into two different kinds in information status literature. Prince (1981) divides them into containing inferables, in which the inference is contained within the NP itself and non-containing inferables, where the information comes from the discourse itself, while Birner (2006) distinguishes bridging and elaborating inferrables. Elaborating inferences are inferences in which the inference is made when the first constituent appears in the discourse, as in (56).

- (56) When he was 16, he and his brother headed for Las Vegas, where his real education began. Booked into the lounge at the Fremont Hotel, Wayne and Larry did **six shows** a night, six nights a week for five years. It was an education that has “lasted up to this day.” In the audience were hecklers and brawlers. Beer bottles were pitched at them. (Birner 2006: 4)

It is assumed here that an audience is an intrinsic part of a show and that therefore the relation with the referent can be immediately established. A bridging inferable has its inference later in the constituent, at the moment when it appears in the discourse, as in (57).

- (57) Mary took **the picnic supplies** out of the tank. The beer was warm. (Birner 2006:9)  
The beer is not an intrinsic part of the picnic supplies – you can have a picnic without beer – and hence the inference is made when *the beer* is introduced in the discourse.

Birner demonstrates that the distribution of these two types of inferables is different in Modern English. Elaborating inferables are treated as discourse old and hearer old, which would be inferred in the framework that is adopted here. Elaborating inferables pattern with discourse old and hearer new entities, which would be the new category. Pintzuk & Taylor (2014) applied this distinction to their OE data and found that it leads to different OV orders: elaborating inferables are much less VO than bridging inferables. They subsequently compared the two types of inferables to given and new objects and found that elaborating inferables do not differ significantly from given objects and that bridging inferables do not differ significantly in distribution from new objects, even though new objects are more VO. The question is how this holds up diachronically and whether it can explain the resistance of inferred objects to appear in OV order in late Middle English.

The fact that inferred objects always carry a sense of newness might not only be the reason why they are less OV than identity objects, it might also be reason why they change to VO orders more quickly. When we assume an intensive language contact situation it is possible that second language learners did not fully grasp the cue for OV orders with inferred objects. The similar percentages in M1 could then be the result of mere chance: in around 50% of the cases OV is used, without being aware of the exact reason why. The awareness of prosodic constraints remains activated longest in identity relations, as this is more transparent than inferred relations. It is also possible that speakers are aware that the language is changing and try to retain the pattern for some time, before letting it go altogether. However, this would require a reason why we do not see this for identity objects; the decline observed here is very steady and does not seem to indicate a period in which OV orders are being held on to.

A more thorough analysis is beyond the scope of this paper, but the data presented here seem to point to a crucial distinction between identity and inferred objects, which supports the claim that a binary given/new distinction is too crude.

### 5.3. Bare nouns

The analysis in 5.1. found unexpected occurrences of bare objects in preverbal position. This section will try to explore possible reasons why this may be the case. It could be either due to the ambiguous nature of bare nouns, the fact that definiteness marking is not obligatory in OE and the fact that bare nouns often occur in collocations with particular verbs.

Before going into an explanation how bare nouns can occur in preverbal position, I will briefly discuss the way in which definiteness markers developed in the history of English and how this relates to the use of bare nouns in OE. It is well known that in OE nouns could occur freely without an (indefinite) article and are, in other words, bare, especially when the referent is unidentifiable. More specifically, *an* was only used as a presentative marker (Hopper & Martin 1987). It was only used for referents that are being introduced into the discourse and will play an important role, as is illustrated in (58) (adapted from Breban (2012):

(58) Ða læg þær an micel ea up in on þæt land.

Then lay there a great river up in on that land

[Þa cirdon hie up in on ða ea, for Þæm hie ne dorston forþ bi ðære ea siglan for unfriþe, for Þæm ðæt land wæs eall gebun on oþre healfe Þære eas.

“There lay a *great river* up in that land; [they turned up into that river, because they did not dare sail past the river, because of the hostility, for the country on the other side of the river was inhabited].

These referent are discourse new and are, under the current hypothesis, not expected to occur in preverbal position in OE. Furthermore, the indefinite article is only used to introduce specific (in the sense that they are identifiable) referents that will play an important part in the following discourse. Unidentifiable objects tend to remain determinerless (Breban 2012).

Sommerer (2015) quantitatively shows that there are indeed bare nouns denoting definite referents, that do not have a determiner. She uses this to argue that a special determiner slot is developing, but that the speaker has failed to fill it in in these particular cases. Example (49), repeated as (59) below, includes a bare noun that can be said to be definite, without a definiteness marker:

- (59) he wolde deofol gelapian to campe wiþ hine  
 he wanted devil invite to contest with him  
 ‘He wanted to challenge the devil for a duel’

(coblick: HomS\_10\_[BIHom\_3]:29.48.390)

It should be noted here that *the devil* is often referred to without a definite article, but recall example (13), repeated as (60) below.

- (60) All swa he hafð ineðered niðer into helle grunde alle ðe modi ðe hier on liue **ðe dieule**  
 Just as he has cast down into hell’s ground all the proud who here in life the devil  
 Fol3eden, alswa he hauedð ihei3ed alle ðo ðe Cristes eadmodnesse habbedð 3elued and  
 followed so he has raised all those who Christ’s meekness have loved and  
 Ihelden, into heuene riches merhðe  
 Kept into heaven’s kingdom’s joy  
 ‘Just as he has cast down into the ground of hell all the proud who in this life followed  
 the devil, so he has raised all those who loved Christ’s meekness and kept it, into the  
 joy of the kingdom of heaven.’

(cmvices1,57.4; Elenbaas & van Kemenade 2014: 162)

While there are examples of definite bare nouns in the sample, this theory cannot fully explain the occurrence of preverbal bare nouns. Most preverbal examples in the present study do not refer to a specific referent, but are instead cases of generic reference. The same is true for almost any other bare noun appearing in preverbal position. Under the analysis that given material occurs preverbally, this is not unexpected, but if we study new objects we will note that these are not always postverbal in OE. There 5 examples in total which comprise two bare NPs, two full NPs and 1 indefinite NP. The bare NPs are given below:

- (61) ... se sceolde fixas fedan  
 ... who should fish fish  
 ‘Who should feed the fish’

(comart3: Mart\_5\_[Kotzor]:Ma20,A.2.369)

- (62) he nolde deofulgild weorðian  
 he not want idolatry set a value upon  
 ‘He did not want to set a value upon idolatry.’

(comart3: Mart\_5\_[Kotzor]:Oc24,A.1.2048)

The *fish* in the first example are new, but are not specific. The *idolatry* in the second example is also not specific. Again, the nouns do not seem to refer to a specific referent, but rather to a more generic kind. The question that arises is whether bare nouns can indeed be considered

indefinite in the same sense as a noun with an indefinite article or whether bare nouns are more like quantifiers and are hence allowed in a position before the verb.

Bare nouns can appear in kind referring context (with reference to an entity related to a certain species), characterising contexts (representing generalizations about sets of entities or situations) and non-generic contexts (Krifka 2004):

(63) Kind referring:

Potatoes were first cultivated in South America.

Characterising statement:

Potatoes contain vitamin C

Non-generic:

Potatoes rolled out of the bag.

Krifka (2004) discusses two contrasting views regarding the interpretation of bare nouns. The first is proposed by Carlson (1977) who claims that bare nouns exclusively refer to kinds. The non-generic interpretation can be explained by a general property of episodic predicates. Existential quantification will introduce a specimen of that kind, so that c can be interpreted as “there is a specimen of kind x and it rolled out of the bag”.

The second analysis is put forward by Wilkinson (1991) and Gerstner-Link & Krifka (1993) and holds that bare NPs are ambiguous. They can either be kind-referring or they are the plural counterpart of indefinite singular NPs. A, then, receives the predicted kind-referring analysis, but b and c are interpreted as their singular counterparts.

Krifka (2004) puts forward several arguments against a kind-referring analysis and proposes instead that bare NPs are not kind-referring, nor are they indefinites. First of all, bare NPs are never interpreted as plural versions of indefinites. If they were, they would allow wide scope reading, which they do not, as is illustrated in (64) (adapted from Krifka 2004:4-5).

(64) a. Minnie wants to talk to a psychiatrist (non-specific or specific)

b. Minnie wants to talk to psychiatrists (non-specific only)

It is also not possible for non-bare nouns to be the antecedent of reflexives or pronouns, as is illustrated in, while bare nouns can be the antecedent (65).

(65) a. At the meeting, Martians presented themselves as almost extinct.

b. \*At the meeting, a Martian presented themselves/itself as almost extinct.

c. \*At the meetng, some Martians presented themselves as almost extinct.

Secondly, the theory of Carlson (1977) that bare NPs always refer to kinds cannot hold, as under this analysis both *potato* and *the potato* should refer to kinds in the same

sentences, as it is the predicate that determines their reading, but this does not bear out in episodic sentences:

- (64) a. The potato rolled out of the bag  
b. Potatoes rolled out of the bag

(Krifka 2004: 5)

Carlson (1989) points out another problem with his theory; in order to arrive at reading (b) below, *hurricanes* has to be assumed to be indefinite.

- (65) Hurricanes arise in this part of the Pacific  
a. ‘For hurricanes in general it holds: they arise in this part of the Pacific’  
b. ‘For this part of the Pacific it holds: there are hurricanes that arise here’

This shows that bare NPs are not exactly like plural indefinite nouns, nor can they be considered exclusively kind-referring. Instead, Krifka argues via a type shift framework that bare NPs are properties, which makes them neither kind-referring, nor indefinite. They can be either the one, the other or none based on the linguistic context. Under this assumption, it is not entirely unexpected that bare nouns behave differently from other indefinite NPs, since they cannot be considered the same. However, it cannot explain why this behaviour differs. Krifka does not think that the interpretation of bare noun subjects depends on its information status in languages with pragmatically defined word order; in these languages, bare nouns are interpreted as kind-referring when preverbal, but as existential when postverbal. It would be interesting to see whether a difference in interpretation can be discovered in pre- and post-verbal objects, but this is beyond the scope of this paper.

It could also be argued that generic and bare nouns contain a form of implicit quantification (e.g. Clark 1973). However this analysis faces the problem that there seems to be a clear interpretive difference between quantified and generic reference. Consider for instance the sentences below:

- (66) a. Dogs have four legs  
b. All dogs have four legs

The difference between (a) and (b) is that while (b) can easily be falsified; there are many dogs with only three legs. However, (a) is still acceptable, even when one knows about three-legged dogs. This might lead to the suggestion that (a) can be paraphrased as *most dogs have four legs*, but this does not hold in all situations. Cimpian, Gelman and Brandone (2010: 274) showed that “generic meaning cannot be reduced to quantification or probability” and showed that ‘most’-quantified sentences were interpreted significantly differently than

sentences with a bare plural. Carlson (2010) also notes that generic statements are not the same as quantified statements and suggests that generics refer to a kind.

The nature of bare nouns is hotly debated and while there is no consensus on their exact interpretation and semantic representation it seems that there is a difference between indefinites, bare nouns and quantified nouns. The question that remains is how this applies to the data presented here. It is clear that generic bare nouns are not subject to the same information structural constraints as other indefinite objects, as is evidenced by their appearance as new discourse referents in preverbal word order in early OE already and their relatively frequent occurrence in preverbal position in ME. These bare nouns have one thing in common with quantified nouns and that is that it is very difficult to determine their information status, since they do not refer to one specific referent. It is therefore not entirely unexpected that they do not adhere to the given before new principle that structures the position of objects in the history of English.

To see whether there is a difference between the behaviour of generic and non-generic bare nouns, I have divided bare nouns into a generic or non-generic category. The difference between kind-referring and characterising statements will not be explored, as this is very hard to determine for objects. It is different for subjects, as the characterising or kind-referring interpretation is constructed in close relation with the predicate (Carlson 1977). Consider (65a-b) below. (67a) is a characterising statement, while (67b) is a kind-referring (Krifka 2004:1).

(67) a. A gentleman opens door for ladies.

‘For all/typical  $x$ : If  $x$  is a gentleman, he opens door for ladies.’

b. The potato was first cultivated in South America

‘The kind *tuber tuberosum* was first cultivated in South America.’

The predicate of a sentence usually has more scope over the subject than the object, which is why it is easier to determine for the subject whether it indicates a kind or a character than it is for the object.

The difference between generic and non-generic uses is fairly straightforward to distinguish. Generic objects do not refer to a specific entity or group of entities, while non-generic objects do. Consider, however, examples (68), where *truth* in (a) has a generic reading and in (b) has a non-generic reading.

(68) a. ha ne mei soð icnawen

she not may truth know

‘She may not know truth’

(cmancriv-1: II.96.1150)

b. yow haste tolde me treuþe  
 you have told me truth  
 ‘You have told me the truth.’

(cmbrut3: 1043131 75985)

Period		VO	OV
O23	generic	1 (12,5%)	7 (87,5%)
	non-generic	0 (0%)	2 (100%)
O3	generic	13 (20,6%)	50 (79,4%)
	non-generic	6 (42,9%)	8 (57,1%)
M1+Mx1	generic	27 (61,4%)	17 (38,6%)
	non-generic	14 (70%)	6 (30%)
M3	generic	45 (93,8%)	3 (6,3%)
	non-generic	11 (100%)	0 (0%)
M4	generic	51 (100%)	
	non-generic	9 (100%)	

Table 5.7 Distribution of generic and non-generic objects across VO and OV order and period.

Table 5.7 Above shows the distribution of generic and non-generic bare objects across OV and VO word orders in the history of English. There is no consistent distribution and there does not seem to emerge a clear pattern. Generic objects in O3 and O23 seem to be distributed more evenly across OV and VO orders, while generic objects typically occur in preverbal position. This suggests that generic object can indeed appear more freely in preverbal position, similar to quantified objects, but none of the differences are significant. More thorough research is necessary to establish a clearer picture.

Another possibility to consider is the creation of collocations or so-called cases of incorporation or pseudo-incorporation (cf. Dayal 2015). Full incorporation means that nouns are combined with verbs into verbal compounds (Carlson 2006). Pseudo-incorporations are cases in which the noun and the verb cannot be considered complete compounds, but are lexical units with phrasal status. Noun incorporation rarely occurs in English (but consider for instance *to babysit*), but it occurs frequently in Dutch (Booij 2009):

(69) a. adem halen  
 breath take  
 ‘to breathe’



b. les geven

lesson give

‘to teach’

c. piano spelen

piano play

‘to play the piano’

Booij (2009: 9) notes that these nouns invoke a generic interpretation and that the combination of noun and verb refers to “conventional, that is, nameworthy activities.”

Studying the preverbal bare objects in the history of English, we note that *deað* very often appears in preverbal position (10 times as opposed to 2 postverbal occurrences). This is often in combination with the verb *þrowian*, as in (70):

- (70) he wolde for us deað þrowian  
 he would for us death suffer  
 ‘He would suffer death for us’

(cocathom1: +ACHom\_I,\_1:188.270.285)

This suggests that the position of *deað* is fixed when it is used in combination with the verb *þrowian*, constituting a fixed expression. This is further supported by the fact that there are no intervening constituents between object and verb. Other frequent combinations are *yelde resun* and *ilete blod* where the object exclusively appears in postverbal position:

- (71) he sall yelde resun of þaim  
 he shal yield reason of them  
 ‘He shall yield to their reason.’

(cmbenrul: 7209)

- (72) he wes þtus ilete blod  
 he was thus let blood  
 ‘He was thus let blood’

(cmancriw-1: II.90.1083)

Again, we find no intervening elements between the verb and the objects. Furthermore, the use of the passive in (72) clearly suggests that this is a lexicalised idiom. In the current sample there are only three clear cases of idiomatic expression, but there will undoubtedly be more. The following list of examples (which is not exhaustive) seems to present likely candidates for cases of collocations or noun-incorporations, but they occur only once in the corpus.

- (73) As þe knihtes wolden warpen honden on hire. Ha bigon to clepien & callen to criste  
 As those knights wanted throw hands on her, she began to cry & call to christ  
 ‘As those knights wanted to lay hands on her, she started to cry and call out to Christ’

(cmmarga: 56.29)

- (74) he schulde 3eue hem leue safely for-to wende out of þe londe  
 he should give him leave safely to go out of that land  
 ‘He should give him leave to safely leave the country’

(cmbrut3: 7152)

- (75) ... have leyde sege unto the castell Wandesborow  
 ... have laid siege unto the castle Wandesborow  
 ‘... have laid siege to the castle of Wandesborough’

(cmmalory: 321002)

The question whether these combinations are full incorporations or pseudo-incorporations or collocations is beyond the scope of this thesis. However, what the examples clearly illustrate is that bare nouns and verbs can form tight units. Furthermore, the (admittedly limited) examples suggest that these incorporations have clear preferences for word order. This means that in these cases the objects are not subject to information structural constraints. More research is necessary to uncover the cases of (pseudo)-incorporations and how they affect word order.

The section above has shown that bare objects are problematic when it comes to predicting word order in the history of English. First of all, bare objects in especially Old English are always not the same as bare objects in present-day English, as they are not always marked for definiteness. Furthermore, there is a difference between generic and non-generic uses of bare nouns. Even though the present study did not find significant differences, it nevertheless shows that the distribution of generic and non-generic objects is not equal and further research might reveal whether this difference holds up. Finally, there seems to be evidence that (pseudo)-incorporation or collocations play a significant part in word order choice, as the verb and object are tightly connected in these cases.

The fact that bare nouns behave differently than expected based on the hypothesis does not immediately invalidate it, however. It merely shows that it is not applicable to bare objects and that their distribution is determined by something other than information structure. The present section has proposed several solutions to the problem. The first relates to the way in which definiteness is marked in the history of English, the second discussed the

nature of bare objects and the final explored the influence of incorporation and collocations. None of these proposals is able to fully account for the variation that is observed, however.

#### **5.4. Position of objects with a definite determiner**

The final issue that will be discussed here is the position of objects with a definite determiner. The transition from OE to ME is characterised by the decline of the *se* paradigm and the development of the article system as we know it nowadays. The present-day definite determiner is a marker of identifiability (Breban 2012). It developed out of the demonstrative pronoun, which is characterised by its multifunctionality. Breban (2012) identifies the possible uses of the demonstrative determiner in English and proposes that just as with the indefinite article, the use of *se* contrasts with zero, especially in earlier English (cf. Epstein 2011). By using *se*, attention is drawn to the referent and the coreferential relation. It often marks topic shift, as the marking indicates a disruption of the default situation. This becomes different when *se/the* becomes the default option. It loses the ability to mark special referents and relations and only expresses mere identifiability.

I will argue here that the loss of these discourse-pragmatic uses is also reflected in word order. What we now consider the definite determiner appears first in eME and its distribution across word orders is remarkable. Information structure is still a significant predictor in eME and the distribution of objects with a demonstrative clearly reflect this. It is expected that given objects will still be able to appear in preverbal position, while new objects will appear in postverbal position only. This means that it is also expected that given objects with a definite determiner prefer preverbal position. However, they appear more frequently in AuxVO order than in AuxOV order (3 as opposed to 7 examples) in identity relations. These numbers are in contrast with objects with a demonstrative, which appear in preverbal position more frequently than postverbal position. This seems to suggest that speakers fail to recognise the discourse sensitive nature of word order variation. Mere identifiability – or definiteness – is not enough to place the object in a position higher up in the sentence. The confusion of speakers of when to move is further illustrated by the occurrence of preverbal definite objects in new contexts, which in contrast to objects with a demonstrative determiner. These objects occur exclusively in postverbal position.

Earlier literature on the change from of OV to VO argued that it was the result of language contact and grammar competition (Pintzuk 1999, Kroch & Taylor 2000). One of the main assumptions was that VO orders were an innovation brought to the language by

extensive contact between the Anglo-Saxons and the Scandinavians. However, it is clear that both OV and VO properties were already present in OE, which makes this an unlikely scenario for change. VO orders might not have been an innovation introduced by foreign speakers, it is possible that these foreign speakers failed to recognise the mechanisms that govern the variation.

Information structure is vulnerable in second language learners. Various studies have shown that L2 learners have consistent problems with achieving target-like performance on information structure. Bohnacher & Rosén (2007) studied a corpus of Swedish L2 speakers of German. Both languages are V2 languages, but they differ in what can appear before in the first position of the clause. Their results indicated transfer from L1, even in advanced L2 speakers. Similarly, Hopp (2004) showed that L1 Japanese and L1 English speakers failed to recognise the information structure constraints on scrambling in German. Furthermore, Verheijen et al. (2013) showed that while texts written by (very advanced) Dutch learners of English are grammatical, they are still considered non-native, because these writers tend to overuse the flexibility of the first position. Dutch is a V2 language and allows anything in the first position as a discourse linker. The writers tend to transfer this discourse linking function of the first position to their English writing. However, it is the subject that serves as a discourse linker in English texts. The fact that even advanced learners of a second language fail to recognise the information structure rules of that language can lead to language change. The frequency of grammatically correct, but pragmatically unacceptable occurrences will increase and will eventually transfer to L1 speakers as well.

This might be reflected in the distribution of objects with a definite determiner. Second language learners might have failed to recognise the cues for movement in definite determiners, it is used in postverbal position more frequently. The information structure cues for objects with a demonstrative are still strong enough, which is why they are still to a large extent organised according to the given/new distinction. The objects with a determiner eventually all end up postverbally, regardless of their information structure and objects with a demonstrative soon follow.

I am by no means arguing that the grammaticalisation of the definite determiner is the cause of the change from OV to VO. This would be a wrong conclusion, as change to a VO word order is already visible in Old English. However, it is rather striking that objects with definite article do not show a clear distribution (similar to, for instance, objects with a demonstrative), reflecting a state of confusion and is something that might yield interesting results in future research.

## 5.5. Summary

The analysis above has studied the interaction between word order, object type and information status in more detail and has found that the general hypothesis that given information occurs in preverbal position, while new objects occur mostly in postverbal position in OE. Objects start to appear in postverbal position more often from early Middle English onwards, regardless of information structure.

The analysis showed that identity and inferred objects behave differently in terms of word order variation. It was argued that this is because inferred objects always carry a sense of newness, making them ambiguous. This will lead to a higher number of postverbal position. The second observation was that bare objects did not comply with the information structure requirements, like the other object types did. Several explanations have been proposed, but none of them quite satisfactory. Finally, the position of the definite determiner is not subject to IS constraints, which suggests that information structure is encoded in the morphology and that this is lost once the definite determiner grammaticalizes.

This thesis has shown that a more finegrained analysis leads to interesting results, even though it is not able to explain all observations. The given/new distinction that has been employed so far has shown that word order is to a large extent dependent on information structure. This thesis has built on this by showing that inferred objects differ from identity objects and that this might lead to more answers regarding the change OV to VO. Furthermore, it has also shown that dividing positive objects into different categories leads to differences that might otherwise not have been noted and blur the results.

## 6. Conclusion

This final chapter will conclude this thesis by recapping the main results, pointing out its limitations and highlighting points for future research.

### 6.1. Conclusions of the present study

The goal of this thesis was mainly to explore the influence of information structure and object types on the different word order patterns observed in the history of English in a more finegrained manner than has previously been conducted.

It first of all tried to answer the question whether object type has an influence on word order. The analysis revealed that object type is indeed a significant predictor of word order. Quantified and pronouns occur more frequently in preverbal position, which in itself is not a surprising result. However, studying nominal objects in more detail revealed that there are large differences in their distribution as well. Bare objects proved to behave differently and also the appearance of the definite determiner led to unexpected results. Quantified objects were so far excluded from studies on the influence of word order and it has become clear that this is justified, as quantified objects are not subject to IS constraints.

Bare objects appear more freely in preverbal position than other indefinite objects. This could be for different reasons. First of all, Old English definiteness marking contrasts with zero marking, so it is possible that some of these bare noun failed to receive definiteness, while they are in fact definite and hence licensed to appear in preverbal position. It is also possible that bare objects cannot be considered definites at all, which could explain why they are not subject to the same constraints. However, this idea needs further exploring. Finally, it is also possible that the behaviour of bare objects is different, because they form collocations with the verb. None of these explanations seems satisfactory, however.

Another finding pertains to the relation between diachronic change and information structure. Identity objects can appear in preverbal position longer than inferred objects, even though it was previously assumed that these two categories behaved similarly. It was proposed that this is because inferred objects always carry a sense of newness. Once the influence of information structure reduces, inferred objects change more easily from OV to VO, because they are to some extent ambiguous. This supports the idea that a given/new distinction is too crude and that a more fine-grained analysis can answer more questions.

Finally, there is a difference in demonstrative and definite objects. The demonstrative grammaticalised into a marker of definiteness: the definite determiner. The definite determiner tends to appear in postverbal position once it starts to appear. This suggests that

speakers fail to recognise information structure constraints. This is strengthened by the fact that demonstratives appear much more frequently in preverbal position until this position became ungrammatical. This suggests that speakers know that objects with demonstratives can scramble to pre-verbal position, as they are a clear indication of definiteness and specificity, but that they do not recognise this for objects with definite determiners and as a result they appear in post-verbal position more and more.

We have observed a strong decline in the influence of information structure. The difference between OE and early ME was not significant, which suggests that the influence of information structure predicts word order in the same way as in OE. In late ME information structure is no longer a significant predictor, but the change between early and late ME is not significant. This suggests that the influence of information structure on word order decreases gradually.

The findings all suggest that something was changing within the OV domain. Objects needed a clear trigger to move to preverbal position. This position became more and more restricted to definite and specific pronouns – leaving aside quantified objects and pronouns, which seem to move for different reasons. Inferred objects and objects with a definite determiner are weaker triggers compared to identical object and objects with a demonstrative., which is clearly reflected in the distribution of word order in the history of English with the weaker trigger appearing in VO orders earlier and more frequently.

## **6.2. Limitations of the present study**

Even though this thesis has shown the influence of information structure and object type on OV-VO variation from a diachronic perspective, it is influenced by some (inevitable) limitations. There is first of all the general problem of definition within information structure studies. Meurman-Solin, López-Couso and Los (2012) note that information structure is a relatively new field and that this is reflected in the way terms and definitions are used. While there is significant overlap between the terms, minor differences exist, which can lead to significant changes in interpretation. This has as a downside that it is hard to compare studies and outcomes.

This problem is further increased by the fact that working on information structure in historical texts is much harder than in modern spoken language. Hypotheses cannot be tested by means of psycholinguistic experiments specifically designed for the language or by speaker judgement tasks. The information structure of a text is relatively easy to capture on

the basis of a text, but there is room interpretation. Combined with the flexibility in the definitions used, this might lead to researchers interpreting specific cases differently, especially when such a finegrained analysis is used.

Other problems in information structure studies on historical texts include the difference between spoken and written texts. Meurman-Solin, López-Couso and Los (2012:10) note that “the development of written as opposed to spoken styles may obscure important patterns,” and which might restrict the syntax in ways that would not restrict the syntax of spoken language. Furthermore, information structure patterns are very often options rather than absolutes, which might lead to non-significant results, even though it is information structure that allows different patterns.

Next to the more general restrictions and problems of information structure, this study also has some specific limitations. Most importantly, because of the large number of different categories and hence combinations of features the data was too limited to do a thorough statistical analysis. This means that the data had to be adapted in order to arrive at reliable results. More data might lead to more robust results and the possibility to do a more elaborate regression analysis, which might reveal more about the relation between object type, word order and information structure.

### **6.3. Further research**

Throughout this study I have noted that several times that future research is necessary to flesh out the effects observed.

It would first of all be interesting to see how the observed effects holds in a larger database, so that a more thorough statistical analysis can be conducted to explain the variation that is observed in the history of English.

It is clear that the factors explored here cannot account for all variation. This might be due to the fact that many information structure patterns are optional. However, it is hard to envisage that variation is purely optional. This would mean that movement is randomly triggered in some cases but not in all. This thesis has shown that definiteness and specificity are significant predictors of word order and it would be interesting to see to what extent these factors, together with object type and information status, can predict word order, as they were included in the regression analysis.

The analysis has also shown that bare objects behave differently from other objects, but this could not be readily explained. A closer inspection on the nature of bare nouns would



be valuable not only for explaining word order, it might also shed light on the nature of bare nouns in general.

Finally, the difference between the position of objects with a definite or demonstrative determiner differs significantly, which raises questions about the role of morphology within information structure studies. The pattern in the data seem to suggest that a change in the marking of information structure marking, in this case the change from demonstrative to definite determiner, has an immediate reflex in the syntax of the language. This leads to the question how information structure relates to morphology and syntax and whether this relation is direct. A closer investigation of the development of the definite determiner in relation to word order might shed light on the role of the different predictors on word order, since losing the ability to mark specificity seems to be closely related to the possibility to scramble to preverbal position.

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## Appendix A

### Old English texts

O23

coblick

cochronA

comart3

O3

coaelhom

coaelive

cocathom1

cocathom2

coepigen3

coprefcath1

coprefcath2

coprefgen

copreflives

### Middle English texts

M1

comancriw

cmhali

cmkathe

cmjulia

cmmarga

cmsawles

cm lamb

cmpeterb

cmtrinit

M4

cmcapchr

cmcapser

cmedmund

cmfitzja

cmgregor

cm minnoce

cmkempe

cm malory

cmreynes

cmsiege

M3

cm mastro

cm benrul

cm brut

cm cloud

cm equate

cm horses

cm purvey

## Appendix B

The following tables represent the output of the multinomial regression analysis for Old English, early Middle English and late Middle English

### B.1. Old English

#### *Model Fitting Information*

Model	Model Fitting Likelihood Ratio Tests			
	Criteria			
	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	1062,307			
Final	565,151	497,157	28	,000

#### *Goodness-of-Fit*

	Chi-Square	df	Sig.
Pearson	342,041	272	,003
Deviance	275,885	272	,423

#### *Pseudo R-Square*

Cox and Snell	,306
Nagelkerke	,327
McFadden	,133

#### *Likelihood Ratio Tests*

Effect	Model Fitting Likelihood Ratio Tests			
	Criteria			
	-2 Log Likelihood of Reduced Model	Chi-Square	df	Sig.
Intercept	565,151 <sup>a</sup>	,000	0	.

Refstatusbinary	639,041	73,890	4	,000
ObjTypeSimplified	703,876	138,725	20	,000
objlength	648,566	83,415	4	,000

The chi-square statistic is the difference in -2 log-likelihoods between the final model and a reduced model. The reduced model is formed by omitting an effect from the final model. The null hypothesis is that all parameters of that effect are 0.

a. This reduced model is equivalent to the final model because omitting the effect does not increase the degrees of freedom.

*Parameter Estimates*

OVorder <sup>a</sup>	B	Std. Error	Wald	df	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
							Lower Bound	Upper Bound
Intercept	,375	,258	2,120	1	,145			
[Refstatusbinary=1,00]	1,288	,179	51,979	1	,000	3,627	2,555	5,149
[Refstatusbinary=2,00]	0 <sup>b</sup>	.	.	0	.	.	.	.
[ObjTypeSimplified=1]	-,027	,216	,016	1	,900	,973	,637	1,487
[ObjTypeSimplified=2]	,132	,232	,326	1	,568	1,141	,725	1,798
[ObjTypeSimplified=6]	1,988	,488	16,603	1	,000	7,298	2,805	18,987
[ObjTypeSimplified=7]	-,008	,469	,000	1	,986	,992	,395	2,486
[ObjTypeSimplified=8]	,693	,270	6,597	1	,010	1,999	1,178	3,390

	[ObjTypeSim plified=9]	0 <sup>b</sup>	.	.	0	.	.	.	.
	objlength	-,382	,063	36,557	1	,000	,682	,603	,772
	Intercept	-2,021	,582	12,042	1	,001			
	[Refstatusbin ary=1,00]	1,844	,413	19,956	1	,000	6,322	2,815	14,198
	[Refstatusbin ary=2,00]	0 <sup>b</sup>	.	.	0	.	.	.	.
	[ObjTypeSim plified=1]	,129	,392	,109	1	,741	1,138	,528	2,453
O Aux	[ObjTypeSim plified=2]	-,118	,456	,066	1	,797	,889	,363	2,175
V	[ObjTypeSim plified=6]	3,079	,568	29,373	1	,000	21,726	7,136	66,145
	[ObjTypeSim plified=7]	,249	,703	,125	1	,724	1,282	,323	5,091
	[ObjTypeSim plified=8]	,925	,470	3,865	1	,049	2,521	1,003	6,337
	[ObjTypeSim plified=9]	0 <sup>b</sup>	.	.	0	.	.	.	.
	objlength	-,437	,154	8,065	1	,005	,646	,478	,873
	Intercept	,073	,343	,045	1	,832			
	[Refstatusbin ary=1,00]	1,483	,239	38,368	1	,000	4,405	2,755	7,041
	[Refstatusbin ary=2,00]	0 <sup>b</sup>	.	.	0	.	.	.	.
O V Au	[ObjTypeSim plified=1]	-1,313	,315	17,322	1	,000	,269	,145	,499
x	[ObjTypeSim plified=2]	-,601	,289	4,324	1	,038	,548	,311	,966
	[ObjTypeSim plified=6]	2,528	,497	25,918	1	,000	12,530	4,734	33,163

	[ObjTypeSimplified=7]	-,398	,526	,572	1	,449	,672	,240	1,883
	[ObjTypeSimplified=8]	,431	,312	1,904	1	,168	1,538	,834	2,836
	[ObjTypeSimplified=9]	0 <sup>b</sup>	.	.	0	.	.	.	.
	objlength	-,507	,094	28,913	1	,000	,602	,501	,724
	Intercept	-1,890	,379	24,872	1	,000			
	[Refstatusbinary=1,00]	,502	,333	2,268	1	,132	1,652	,859	3,176
	[Refstatusbinary=2,00]	0 <sup>b</sup>	.	.	0	.	.	.	.
	[ObjTypeSimplified=1]	-,749	,486	2,372	1	,124	,473	,182	1,227
VAux	[ObjTypeSimplified=2]	-,129	,428	,091	1	,763	,879	,380	2,034
O	[ObjTypeSimplified=6]	-,185	1,131	,027	1	,870	,831	,091	7,619
	[ObjTypeSimplified=7]	-19,222	,000	.	1	.	4,488E-009	4,488E-009	4,488E-009
	[ObjTypeSimplified=8]	-,173	,530	,106	1	,745	,841	,298	2,380
	[ObjTypeSimplified=9]	0 <sup>b</sup>	.	.	0	.	.	.	.
	objlength	-,020	,050	,155	1	,694	,980	,889	1,082

a. The reference category is: AuxVO.

b. This parameter is set to zero because it is redundant.

## B.2. Early Middle English

### *Model Fitting Information*

Model	Model Fitting Criteria	Likelihood Ratio Tests
-------	------------------------	------------------------

	-2 Log Likelihood	Chi- Square	df	Sig.
Intercept Only	477,204			
Final	238,562	238,643	32	,000

*Pseudo R-Square*

Cox and Snell	,308
Nagelkerke	,340
McFadden	,157

*Likelihood Ratio Tests*

Effect	Likelihood Ratio Tests			
	Model Fitting Criteria -2 Log Likelihood of Reduced Model	Chi- Square	df	Sig.
Intercept	238,562 <sup>a</sup>	,000	0	.
objlength	260,381	21,819	4	,000
Refstatusbinar y	293,468	54,906	4	,000
ObjTypeSimpl ified	318,938	80,376	24	,000

The chi-square statistic is the difference in -2 log-likelihoods between the final model and a reduced model. The reduced model is formed by omitting an effect from the final model.

The null hypothesis is that all parameters of that effect are 0.

a. This reduced model is equivalent to the final model because omitting the effect does not increase the degrees of freedom.

*Parameter Estimates*

OVorder <sup>a</sup>	B	Std. Error	Wald	df	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
							Lower Bound	Upper Bound
AuxO V Intercept	-,889	,507	3,074	1	,08 0			

	objlength	-,294	,106	7,675	1	,006	,745	,605	,918
	[Refstatusbinary=1,00]	1,849	,302	37,554	1	,000	6,352	3,516	11,473
	[Refstatusbinary=2,00]	0 <sup>b</sup>	.	.	0	.	.	.	.
	[ObjTypeSimplified=1]	,004	,388	,000	1	,993	1,004	,469	2,145
	[ObjTypeSimplified=2]	-,991	,433	5,236	1	,022	,371	,159	,867
	[ObjTypeSimplified=3]	,122	,545	,050	1	,822	1,130	,389	3,286
	[ObjTypeSimplified=6]	-,704	,402	3,065	1	,080	,494	,225	1,088
	[ObjTypeSimplified=7]	-1,160	,563	4,249	1	,039	,314	,104	,945
	[ObjTypeSimplified=8]	,160	,448	,128	1	,721	1,174	,488	2,827
	[ObjTypeSimplified=9]	0 <sup>b</sup>	.	.	0	.	.	.	.
	Intercept	-1,230	,983	1,566	1	,211			
	objlength	-,810	,338	5,739	1	,017	,445	,229	,863
	[Refstatusbinary=1,00]	1,519	,586	6,729	1	,009	4,569	1,450	14,399
	[Refstatusbinary=2,00]	0 <sup>b</sup>	.	.	0	.	.	.	.
	[ObjTypeSimplified=1]	-1,706	,922	3,427	1	,064	,182	,030	1,105
OAux	[ObjTypeSimplified=2]	-1,116	,742	2,265	1	,132	,327	,077	1,401
V	[ObjTypeSimplified=3]	,798	,907	,774	1	,379	2,222	,375	13,149
	[ObjTypeSimplified=6]	,613	,642	,913	1	,339	1,847	,525	6,498
	[ObjTypeSimplified=7]	-19,980	8243,292	,000	1	,998	2,103E-009	,000	.
	[ObjTypeSimplified=8]	,097	,766	,016	1	,900	1,101	,245	4,946
	[ObjTypeSimplified=9]	0 <sup>b</sup>	.	.	0	.	.	.	.

	Intercept	-1,722	1,426	1,458	1	,22 7			
	objlength	-,434	,424	1,051	1	,30 5	,648	,282	1,486
	[Refstatusbinary=1,00]	,515	,876	,345	1	,55 7	1,673	,301	9,315
	[Refstatusbinary=2,00]	0 <sup>b</sup>	.	.	0	.	.	.	.
	[ObjTypeSimplified=1]	-1,121	1,037	1,168	1	,28 0	,326	,043	2,489
OVA	[ObjTypeSimplified=2]	-2,196	1,318	2,777	1	,09 6	,111	,008	1,472
ux	[ObjTypeSimplified=3]	-	,000	.	1	.	3,897E- 009	3,897E- 009	3,897E- 009
	[ObjTypeSimplified=6]	-,125	,928	,018	1	,89 2	,882	,143	5,440
	[ObjTypeSimplified=7]	-,930	1,319	,497	1	,48 1	,395	,030	5,236
	[ObjTypeSimplified=8]	-1,053	1,292	,664	1	,41 5	,349	,028	4,391
	[ObjTypeSimplified=9]	0 <sup>b</sup>	.	.	0	.	.	.	.
	Intercept	-,792	1,131	,490	1	,48 4			
	objlength	-,384	,280	1,878	1	,17 1	,681	,393	1,180
	[Refstatusbinary=1,00]	-1,097	,746	2,158	1	,14 2	,334	,077	1,443
	[Refstatusbinary=2,00]	0 <sup>b</sup>	.	.	0	.	.	.	.
	[ObjTypeSimplified=1]	-1,220	1,046	1,362	1	,24 3	,295	,038	2,291
VAux	[ObjTypeSimplified=2]	-	8462,20 0	,000	1	,99 8	1,054E- 009	,000	.
O	[ObjTypeSimplified=3]	,242	1,079	,050	1	,82 3	1,273	,154	10,560
	[ObjTypeSimplified=6]	-2,041	1,344	2,307	1	,12 9	,130	,009	1,809
	[ObjTypeSimplified=7]	,193	1,113	,030	1	,86 3	1,212	,137	10,737
	[ObjTypeSimplified=8]	-,857	1,085	,623	1	,43 0	,425	,051	3,560



[ObjTypeSimplified=9] 0<sup>b</sup> . . . 0 . . . . .

- a. The reference category is: AuxVO.  
 b. This parameter is set to zero because it is redundant.  
 c. Floating point overflow occurred while computing this statistic. Its value is therefore set to system missing.

### B.3. Late Middle English

#### *Model Fitting Information*

Model	Model Fitting Criteria -2 Log Likelihood	Likelihood Ratio Tests		
		Chi-Square	df	Sig.
Intercept Only	215,681			
Final	126,195	89,486	16	,000

#### *Pseudo R-Square*

Cox and Snell	,055
Nagelkerke	,126
McFadden	,099

#### *Likelihood Ratio Tests*

Effect	Model Fitting Criteria -2 Log Likelihood of Reduced Model	Likelihood Ratio Tests		
		Chi-Square	df	Sig.
Intercept	126,195 <sup>a</sup>	,000	0	.
Refstatusbinary	131,632	5,437	2	,066
ObjTypeSimplified	167,564	41,369	12	,000
objlength	150,255	24,060	2	,000

The chi-square statistic is the difference in -2 log-likelihoods between the final model and a reduced model. The reduced model is formed by omitting an effect from the final model. The null hypothesis is that all parameters of that effect are 0.

a. This reduced model is equivalent to the final model because omitting the effect does not increase the degrees of freedom.

#### B4. Diachronic perspective

##### *Model Fitting Information*

Model	Model Fitting Criteria -2 Log Likelihood	Likelihood Ratio Tests		
		Chi-Square	df	Sig.
Intercept Only	3733,984			
Final	930,441	2803,543	104	,000

##### *Pseudo R-Square*

Cox and Snell	,542
Nagelkerke	,605
McFadden	,345

##### *Likelihood Ratio Tests*

Effect	Model Fitting Criteria -2 Log Likelihood of Reduced Model	Likelihood Ratio Tests		
		Chi-Square	df	Sig.
Intercept	931,200 <sup>a</sup>	,000	0	.
Refstatusbinar y	931,200 <sup>a</sup>	,000	0	.
ObjTypeSimplified	931,200 <sup>a</sup>	,000	0	.
objlength	931,200 <sup>a</sup>	,000	0	.

Refstatusbinar y *	948,907 <sup>b</sup>	18,466	8	,018
Periodsimple Periodsimple *				
ObjTypeSimpl ified	1030,159	99,717	48	,000
Periodsimple * objlength	941,395 <sup>b</sup>	10,953	8	,204

The chi-square statistic is the difference in -2 log-likelihoods between the final model and a reduced model. The reduced model is formed by omitting an effect from the final model.

The null hypothesis is that all parameters of that effect are 0.

a. This reduced model is equivalent to the final model because omitting the effect does not increase the degrees of freedom.

b. Unexpected singularities in the Hessian matrix are encountered. This indicates that either some predictor variables should be excluded or some categories should be merged.

#### B5. OE vs. early ME

##### *Model Fitting Information*

Model	Model Fitting Likelihood Ratio Tests			
	Criteria			
	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	1827,599			
Final	805,004	1022,595	68	,000

##### *Pseudo R-Square*

Cox and Snell	,399
Nagelkerke	,426
McFadden	,185

##### *Likelihood Ratio Tests*

Effect	Model Fitting Likelihood Ratio Tests			
	Criteria			
	-2 Log Likelihood of Reduced Model	Chi-Square	df	Sig.
Intercept	805,004 <sup>a</sup>	,000	0	.
Refstatusbinary	805,004 <sup>a</sup>	,000	0	.
ObjTypeSimplif ied	805,004 <sup>a</sup>	,000	0	.
objlength	805,004 <sup>a</sup>	,000	0	.
Refstatusbinary * Periodsimpl	814,128	9,125	4	,058
ObjTypeSimplif ied *	865,394	60,391	24	,000
Periodsimpl Periodsimpl *	809,597 <sup>b</sup>	4,593	4	,332
objlength				

The chi-square statistic is the difference in -2 log-likelihoods between the final model and a reduced model. The reduced model is formed by omitting an effect from the final model. The null hypothesis is that all parameters of that effect are 0.

a. This reduced model is equivalent to the final model because omitting the effect does not increase the degrees of freedom.

b. Unexpected singularities in the Hessian matrix are encountered. This indicates that either some predictor variables should be excluded or some categories should be merged.

B6.

*Model Fitting Information*

Model	Model Fitting Criteria	Likelihood Ratio Tests
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	-2 Log Likelihood	Chi- Square	df	Sig.
Intercept Only	1261,659			
Final	363,738	897,920	68	,000

*Pseudo R-Square*

Cox and Snell	,331
Nagelkerke	,448
McFadden	,299

*Likelihood Ratio Tests*

Effect	Likelihood Ratio Tests			
	Model Fitting Criteria -2 Log Likelihood of Reduced Model	Chi- Square	df	Sig.
Intercept	363,738 <sup>a</sup>	,000	0	.
Refstatusbinar y	363,738 <sup>a</sup>	,000	0	.
ObjTypeSimpl ified	363,738 <sup>a</sup>	,000	0	.
objlength	363,738 <sup>a</sup>	,000	0	.
Refstatusbinar y *	371,248	7,510	4	,111
Periodsimple ObjTypeSimpl ified *	403,630	39,892	24	,022
Periodsimple Periodsimple * objlength	371,901	8,163	4	,086

The chi-square statistic is the difference in -2 log-likelihoods between the final model and a reduced model. The reduced model is formed by omitting an effect from the final model. The null hypothesis is that all parameters of that effect are 0.

a. This reduced model is equivalent to the final model because omitting the effect does not increase the degrees of freedom.

